U.S.NRC
UNITED STATES NUCLEAR REGULATORY COMMISSION
Protecting People and the Environment

Briefing on the Results of the Agency Action Review Meeting

Bill Borchardt, EDO
May 29, 2013

Objectives

- Review agency actions for material and reactor licensees
- Coordinate agency actions
- Review industry trends

Overview

- **No significant adverse trends and no gaps or failures for the Materials and Waste Programs**
- **No significant adverse trends and no program adjustments recommended for the ROP**
- **Agency actions ensured licensed facilities continue to operate safely**

Agenda

- **Materials and Waste Performance Trends – Brian McDermott, FSME**
- **Industry Trends Program and ROP Self-Assessment – Ho Nieh, NRR**
- **Reactor Licensee Discussions**
  - **Browns Ferry – Gene Guthrie, RII**
  - **Fort Calhoun – Tony Vegel, RIV**

Materials Performance Trends

Brian J. McDermott, Director
Division of Materials Safety and State Agreements
FSME

Performance Evaluation Process

- **Systematic review to identify significant:**
  - **Operational performance trends**
  - **Licensee performance issues**
  - **NRC program issues/gaps**

Performance Criteria

- Strategic outcomes
- Performance measures
- Abnormal occurrences
- Trending review of event data
- Significant enforcement actions
- AARM Criteria

Strategic Outcomes & Performance Measures

- All strategic outcomes were realized
- Safety performance measures were met
- Security performance measures were met

Abnormal Occurrences

- 22 AOs in FY 2012
- Number of AOs is small relative to the millions of activities involving radioactive material
- No significant performance trends were identified

Materials Licensee and NRC Program Performance

- One nuclear materials licensee met the AARM discussion criteria for FY 2012
- No NRC program gaps or failures

Closing Remarks

- **All strategic goals, safety and security performance metrics were met in FY 2012**
- **No significant trending issues**
- **No significant NRC program issues**

Reactor Assessments

Ho Nieh, Director
Division of Inspection and Regional Support
NRR

Industry Trends Program

- Assess safety performance of nuclear industry
- Objective thresholds for action
- IMC 0313 – Industry Trends Program
- SECY–13–0038

FY 2012 Industry Trends Results

- No long-term industry trends identified
- No short-term industry performance limits exceeded
- FY 2011 ITP results update

FY 2012 Industry Trends Results (cont.)

- **No events exceeded limits within Baseline Risk Index for Initiating Events**
- **No ROP program adjustments recommended**

ROP Self-Assessment Program

- Assess ROP effectiveness in meeting program goals
- Develop recommendations for improvement
- IMC 0307 – Reactor Oversight Process Self-Assessment Program
- SECY-13-0037

ROP Self-Assessment Results

- **Met performance goals and achieved intended outcomes**
- **No specific commitments from CY 2012 self-assessment**
- **Multiple performance metrics missed**

Action Matrix Deviations

- **Two deviations in 2012**
  - **Seabrook, September 2012**
  - **Palisades, November 2012**
- **Plan to clarify deviation program guidance**

2012 ROP Significant Accomplishments

- Reintegrated security into ROP assessment program
- Finalized common language for Safety Culture for power reactors
- Developed Cyber Security SDP
- Improved Force-on-Force SDP

2013 Significant Focus Areas

- **Commenced ROP enhancement efforts and independent review**
- **Enhancing inspection guidance in Public Radiation Safety Cornerstone**

Review of Browns Ferry Performance

Eugene F. Guthrie, Branch Chief
Division of Reactor Projects
Region II

Performance Overview

- **Multiple Repetitive Degraded Cornerstone**
- **Past year performance**
- **Safety Culture**

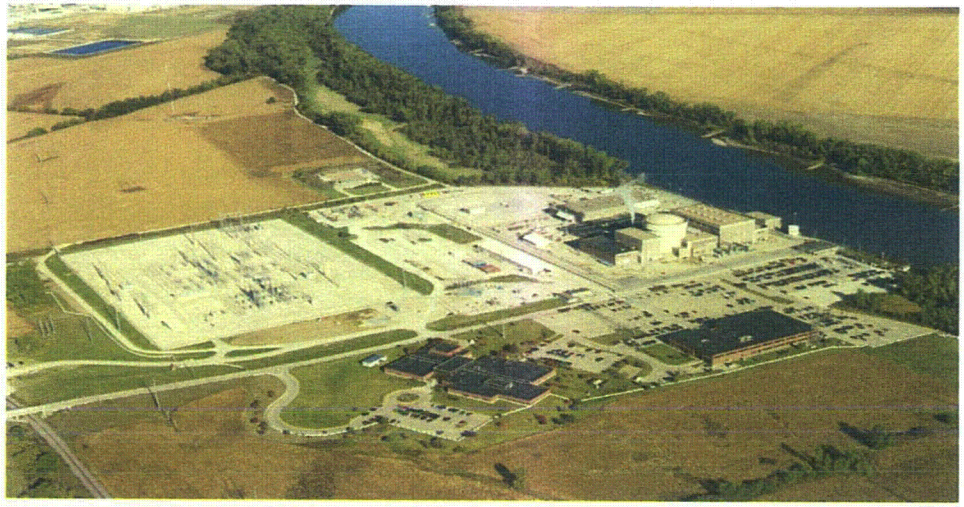
Going Forward

- 95003 Part 3 Inspection
- Inspection follow-up
- Performance assessment
- NFPA 805 transition

Review of Fort Calhoun Performance

Tony Vegel, IMC 0350 Panel Chair
Region IV

Background



- **Entry into IMC 0350 on December 13, 2011**
- **Confirmatory Action Letter**
- **Restart Checklist**
- **Restart Checklist Basis Document**

Performance Overview

- **Inspection activities**

- **Performance assessment**

Going Forward

- **Complete inspections**
- **Performance and plant restart assessment**
- **Perform thorough and independent verification of plant safety**

OPTIONAL BACKGROUND SLIDES

Medical Event Reporting

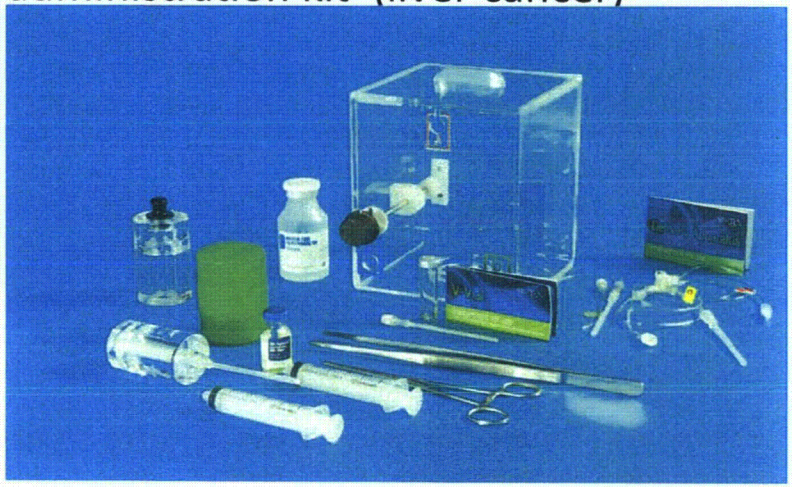
- **48 Medical Events FY 2012 (64 patients) from 7473 medical use licensees (1,083 NRC and 6,390 Agreement State licensees)**

Modality	Medical Event Incidence Rate	Number of Medical Events	Number of Procedures
Diagnostic Radiopharmaceutical Imaging	0.000026%	4	15,000,000
Iodine-131 Procedures	0.0022%	2	92,000
Permanent Implant Prostate Brachytherapy	0.13%	22	17,500
HDR Brachytherapy	0.036%	12	33,000
Yttrium-90 Microsphere	0.29%	21	7,200
Overall Medication Errors (Baylor University Medical Center Proceedings)	11%	111	1,000

Examples of NRC-regulated Treatment Modalities

Photo Courtesy of Sirtex

Y-90 microspheres vial & administration kit (liver cancer)

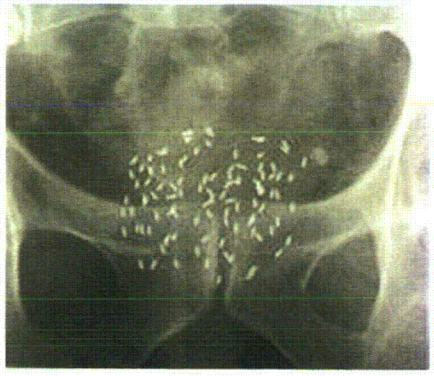


I-131 capsule (thyroid cancer)

Photo Courtesy of Covidien

I-125 brachytherapy (prostate cancer)

Photo Courtesy of Oak Ridge Associated University



List of Acronyms

- AO – Abnormal Occurrence
- AARM – Agency Action Review Meeting
- CY – Calendar Year
- EDO – Executive Director for Operations
- FSME – Office of Federal and State Materials and Environmental Management Programs

List of Acronyms (cont.)

- FY – Fiscal Year
- IMC – Inspection Manual Chapter
- ITP – Industry Trends Program
- NFPA – National Fire Protection Association
- NRC – U.S. Nuclear Regulatory Commission

List of Acronyms (cont.)

- NRR – Office of Nuclear Reactor Regulation
- RII – Regional Office II
- RIV – Regional Office IV
- ROP – Reactor Oversight Process
- SDP – Significance Determination Process
- SECY – Office of the Secretary

Fort Calhoun Station

Driving Through Restart

May 29, 2013

Focus Areas

- ***Our accountability – Gary Gates***
- ***Insights from NRC inspections – Lou Cortopassi***
- ***Progress on restart issues and remaining actions – Lou Cortopassi***
- ***Post-restart Plan for Sustained Improvement – Lou Cortopassi***
- ***Closing remarks – Gary Gates***

Our Accountability

- We are taking the right actions for
  - Safe and efficient restart
  - Achieving and sustaining excellence
- We understand and have taken action to address NRC inspection insights
- Board is committed to plant restart and return to excellence

Insights from NRC Inspection

- **Areas for additional focus and continuing improvement**
  - **Documentation and completeness of the design and licensing basis**
  - **Knowledge of the design and licensing basis for engineers and operators**
  - **Completeness and timeliness of Corrective Action Program products**
    - » **Cause analyses**
    - » **Extent of condition reviews**
    - » **Corrective actions**

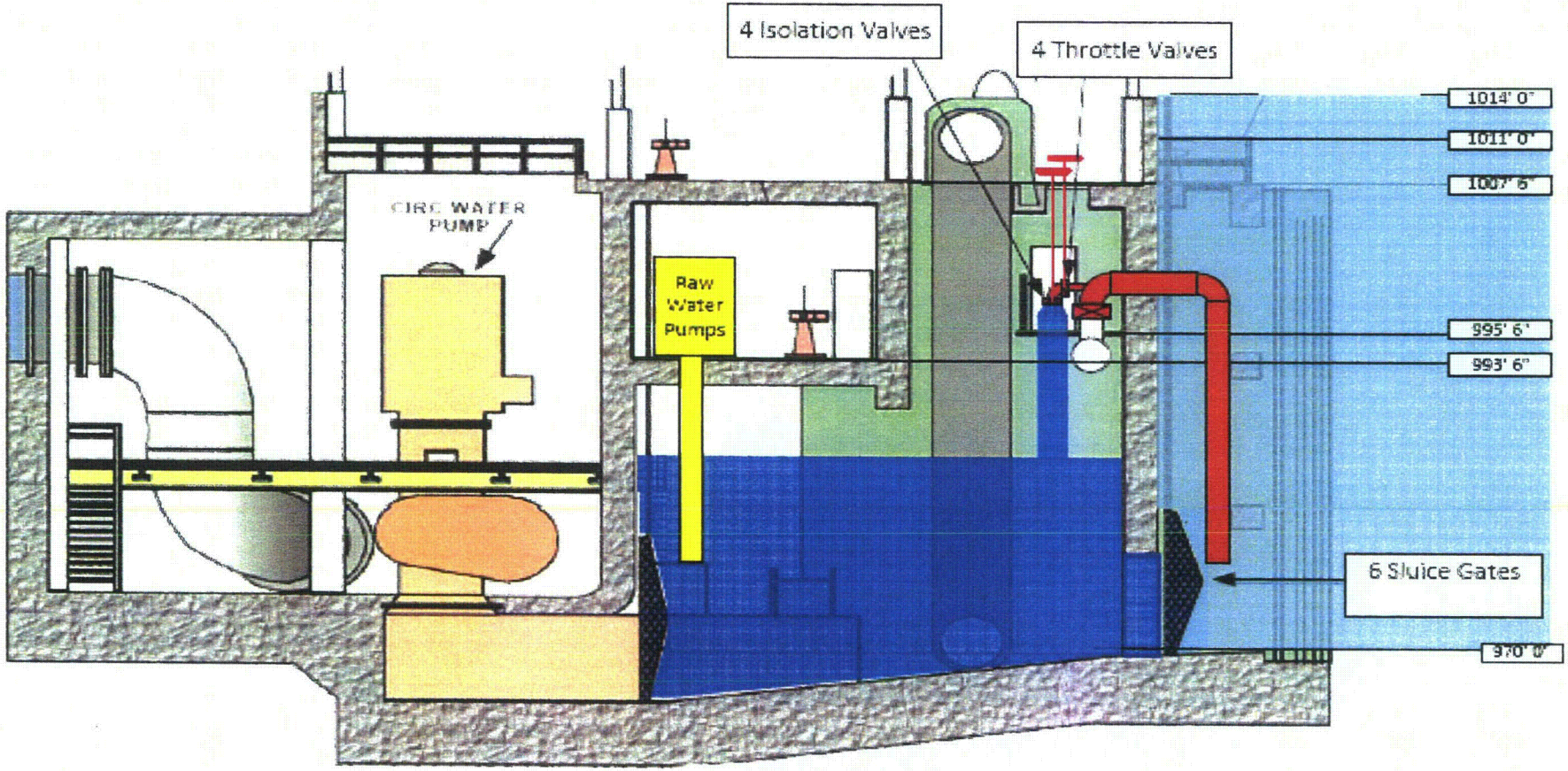
Progress on Restart Issues

- ***Overarching causes addressed for restart***
  - ***Organizational effectiveness***
    - ***Blended leadership team effectiveness – extensive senior leader changes***
  - ***Safety Culture***
  - ***Corrective Action Program***
  - ***Nuclear Oversight***

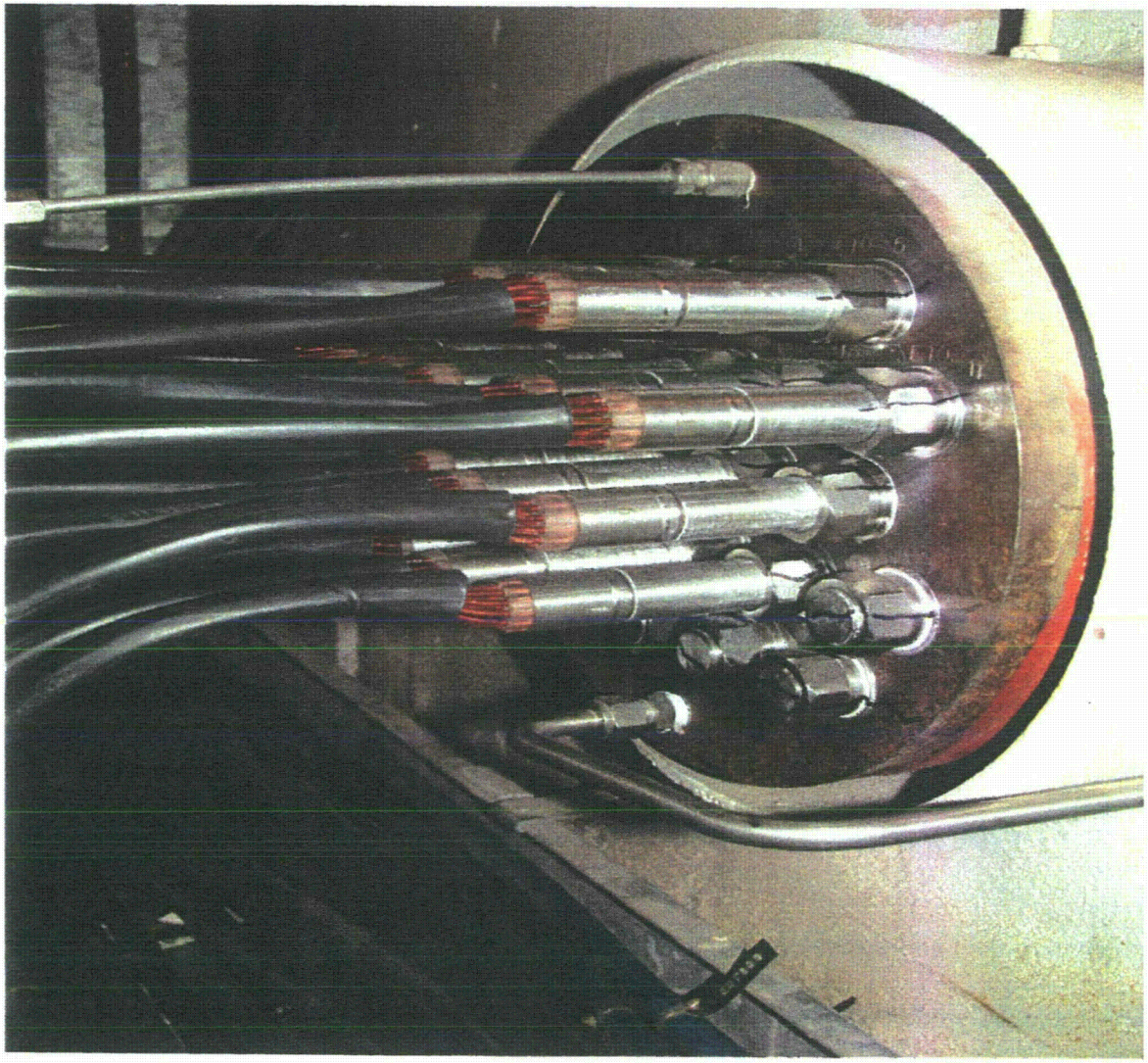
Recovery Work Completed

- **Discovery from June 2012 to May 2013**
  - Approximately 27,000 Condition Reports generated
  - 32 Root Cause Analyses completed or in progress
  - 157 Apparent Cause Analyses completed
- **Recovery from November 2012 to May 2013**
  - Approximately 21,000 work tasks completed
  - Approximately 6,000 corrective actions completed
- **Fundamental Performance Deficiencies identified, analyzed and being addressed**
- **Findings addressed for restart**
  - Electrical bus fire concern – Red finding
  - Flooding concern – Yellow finding
  - Reactor Protection System concern – White finding
  - Security related concerns – Greater-than-green findings

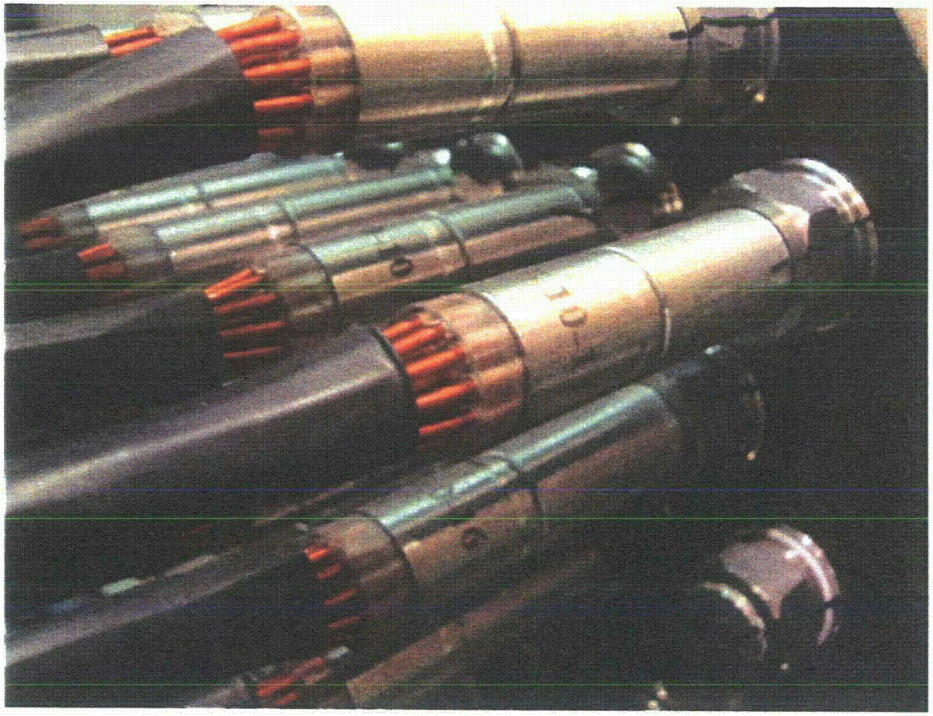
Intake Structure Flood Protection Modification



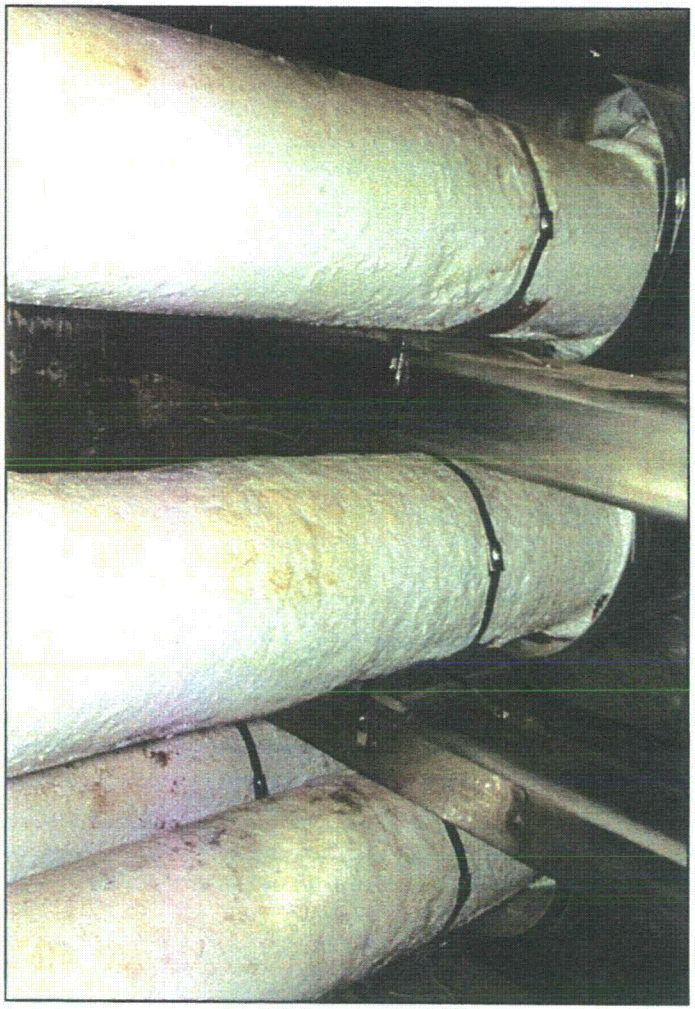
Modified Containment Electrical Penetration



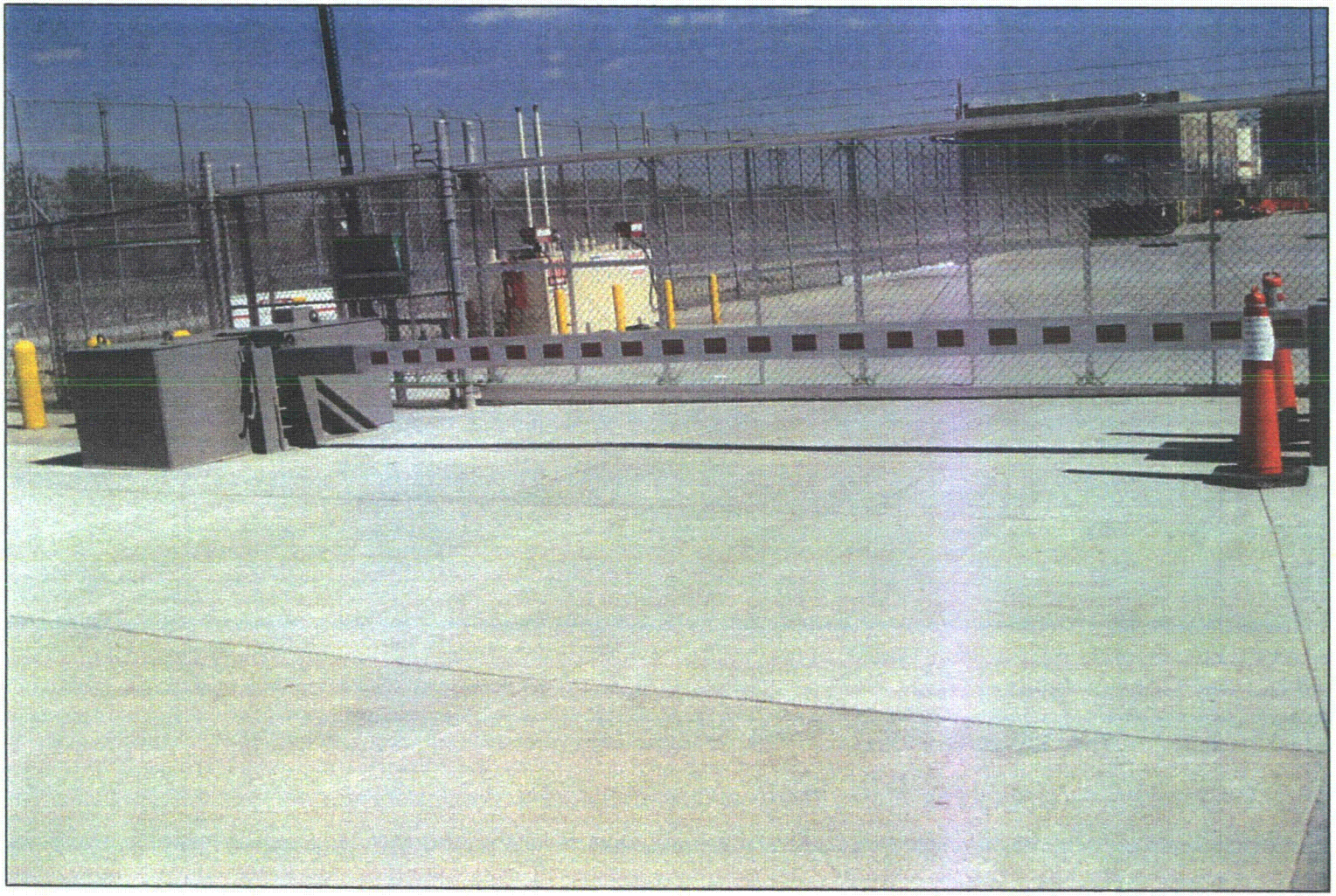
Modified Containment Electrical Penetration
(Close-up)



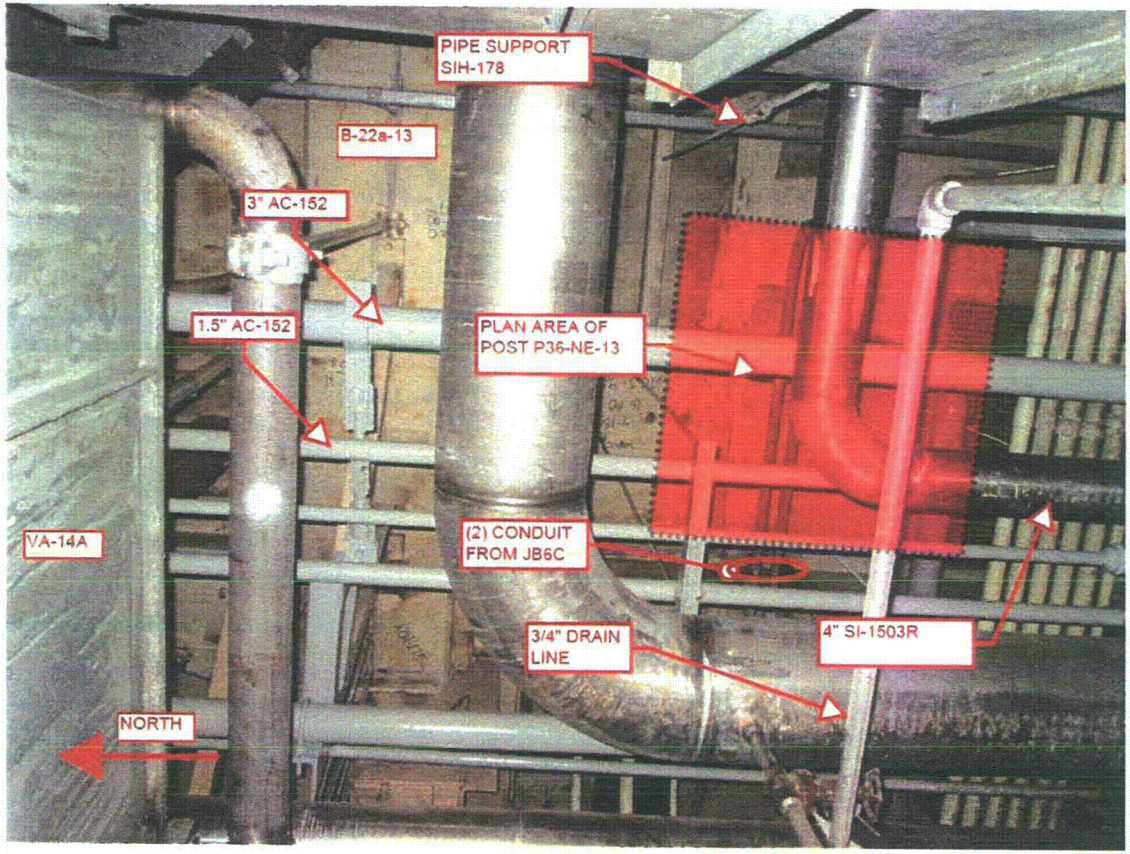
Manhole Restoration



Protected area vehicle access facility refurbished



Typical Interferences for Modification of Containment Internal Structures



Remaining Activities

- **Complete remaining work**
  - **Physical work tasks**
  - **Testing and return to service tasks**
  - **Actions from Condition Reports**
  - **Complete reviews and approvals to ensure Plant, People and Processes are ready for restart**
- **Address additional pre-restart improvement actions for design and licensing basis, Corrective Action Program and operating procedures**

Plan for Sustained Improvement

- **Proven Exelon process for sustained performance improvement**
- **Post-restart actions related to**
  - **Fundamental Performance Deficiencies**
  - **Checklist items**
  - **Design and licensing basis control and knowledge**
  - **Corrective Action Program**
  - **Integration with Exelon fleet**
- **Drive to sustained excellence**

Closing Remarks

TVA

Nuclear

Browns Ferry Nuclear Plant

May 29, 2013

Preston Swafford, Chief Nuclear Officer
Tennessee Valley Authority

TVA
Nuclear

Discussion Points

Opening Remarks	Preston Swafford
Integrated Improvement Plan	Keith Polson
Results Achieved	Keith Polson
Sustainability	Jim Morris
Closing Remarks	Preston Swafford

Nuclear

Opening Remarks

- TVA's Nuclear Fleet Vision is:
  - Leading the industry in safety, people and performance.
- TVA's goal is to *sustain improved performance and reduce operational risk* at the station.
- TVA understands and is addressing the fundamental issues challenging the station.

TVA Nuclear

Opening Remarks

- Implementation of the Integrated Improvement Plan is resulting in meaningful performance improvement.
- TVA's Governance, Oversight, Execution, and Support model is key to sustaining improved performance.
- TVA is committing the necessary resources to achieve sustained excellence at Browns Ferry and across the nuclear fleet.

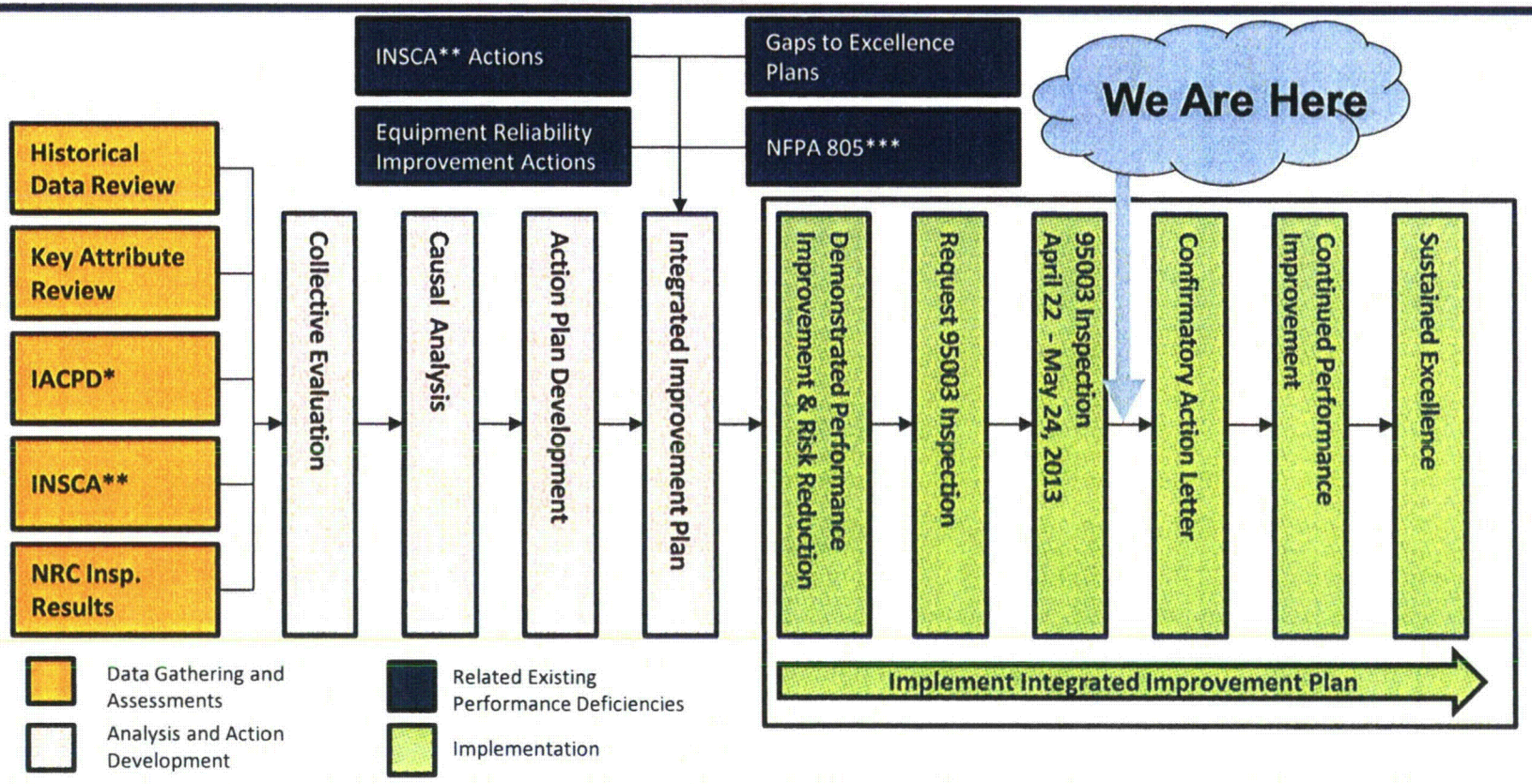
TVA Nuclear

Integrated Improvement Plan

- Integrated Improvement Plan developed to:
  - Address the red finding, the fundamental problems, and the independent nuclear safety culture assessment results;
  - Reduce risk;
  - Improve equipment reliability; and
  - Ensure sustained performance improvement.

Integrated Improvement Plan

Nuclear



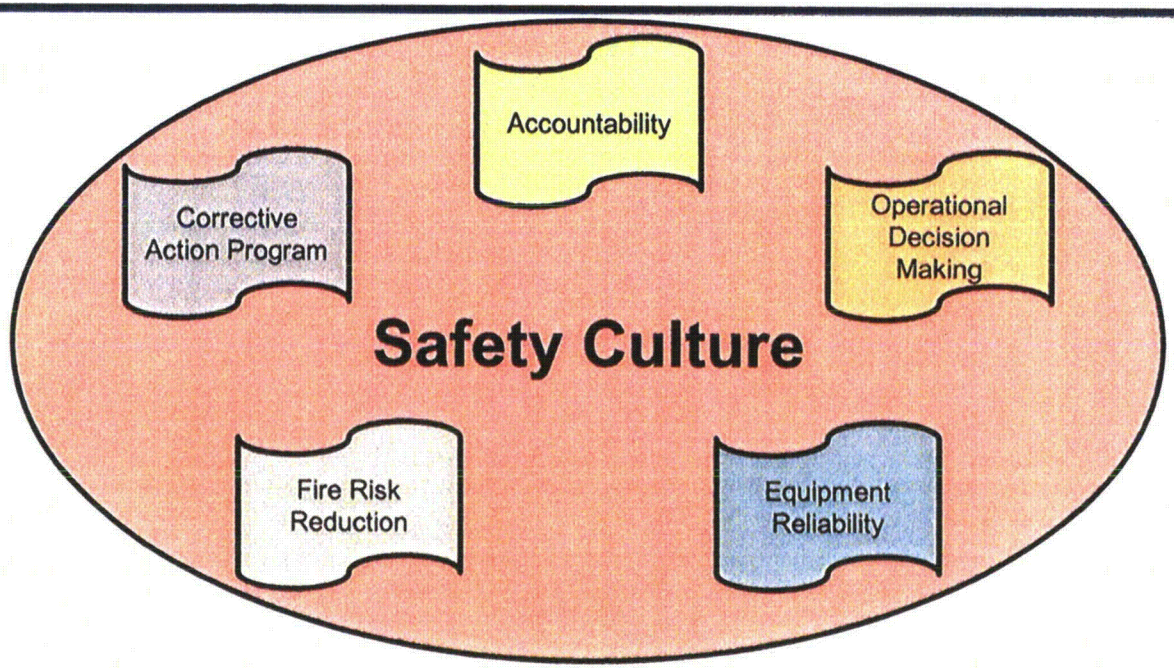
* Identification, Assessment, & Correction of Performance Deficiencies (IA&CPD)

** Independent Nuclear Safety Culture Assessment (INSCA)

*** National Fire Protection Association 805: Performance-Based Standard for Fire Protection for Light Water Reactor Electric Plants (NFPA 805)

Integrated Improvement Plan

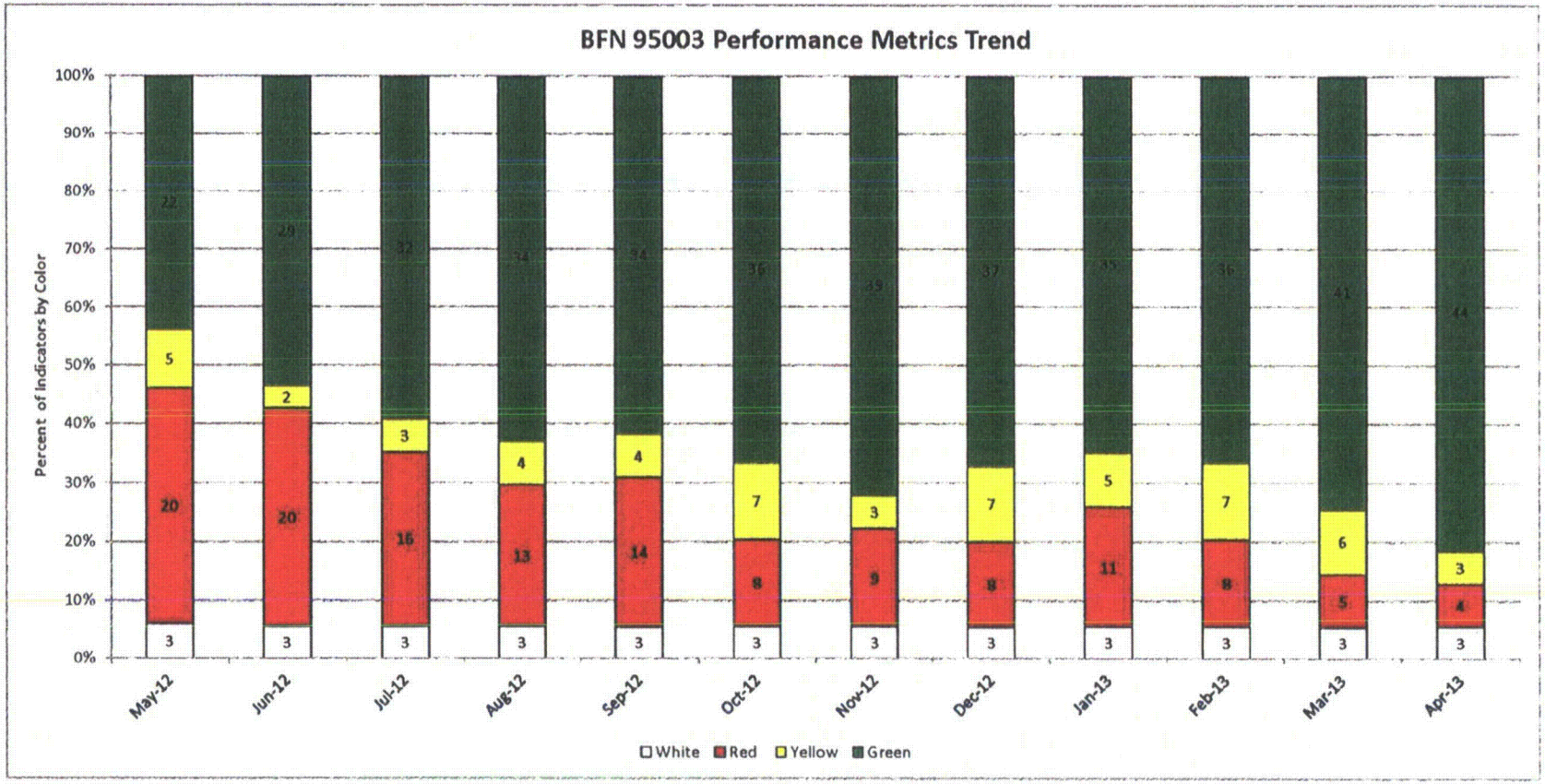
Nuclear

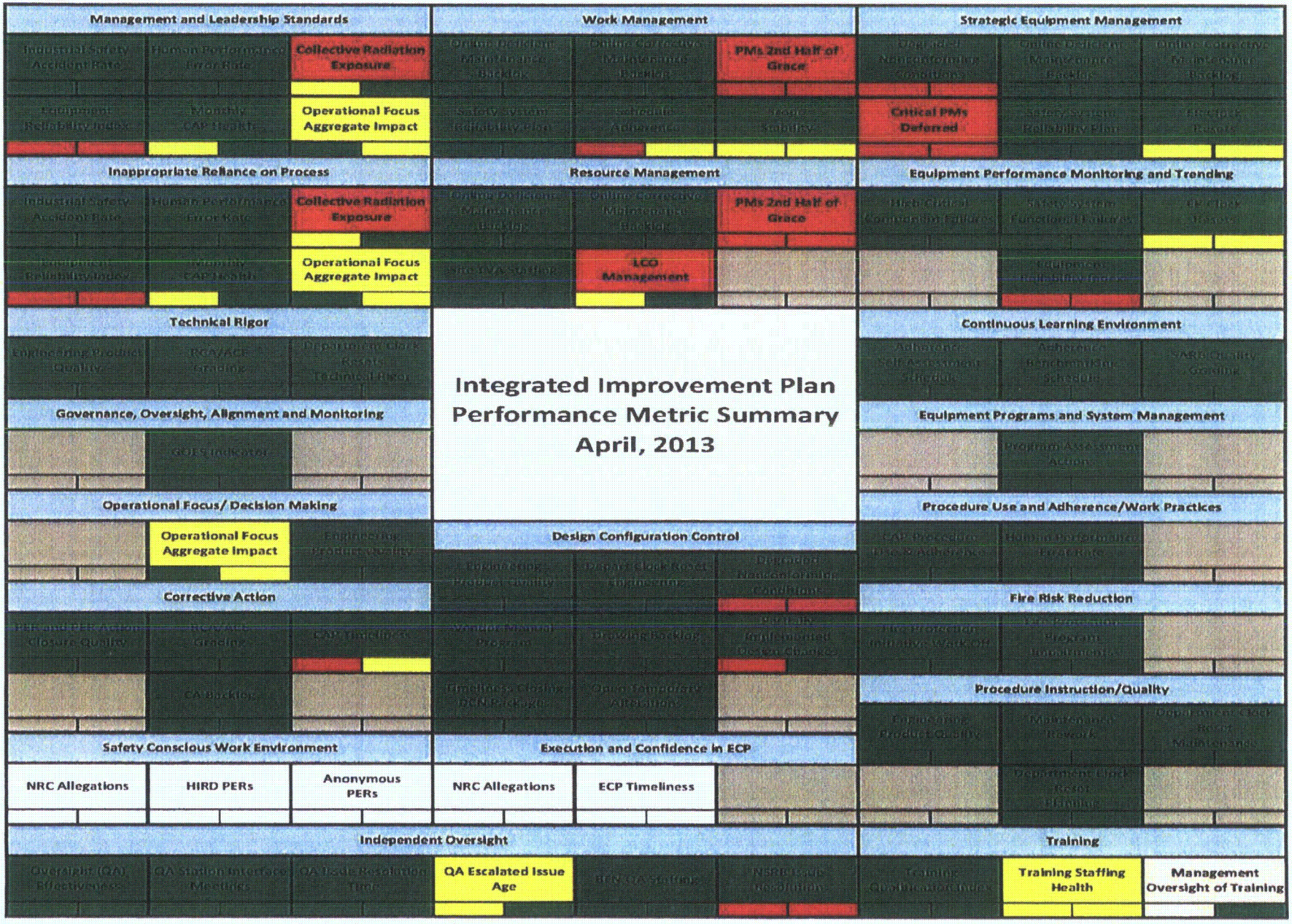


Sustained through Governance and Oversight
Improved through Training

Nuclear

Results Achieved - Metrics




Management and Leadership Standards
Collective Radiation Exposure
Operational Focus Aggregate Impact
Inappropriate Reliance on Process
Collective Radiation Exposure
Operational Focus Aggregate Impact
Technical Rigor
Governance, Oversight, Alignment and Monitoring
Operational Focus/ Decision Making
Operational Focus Aggregate Impact
Corrective Action
Safety Conscious Work Environment
NRC Allegations
HIRD PERs
Anonymous PERs
Work Management
PMs 2nd Half of Grace
Resource Management
PMs 2nd Half of Grace
LCO Management
Integrated Improvement Plan
Performance Metric Summary
April, 2013
Design Configuration Control
Execution and Confidence in ECP
NRC Allegations
ECP Timeliness
Independent Oversight
QA Escalated Issue Age
Strategic Equipment Management
Critical PMs Deferred
Equipment Performance Monitoring and Trending
Continuous Learning Environment
Equipment Programs and System Management
Procedure Use and Adherence/Work Practices
Fire Risk Reduction
Procedure Instruction/Quality
Training
Training Staffing Health
Management Oversight of Training

Nuclear

2013 INSCA Results

- **Nuclear Safety Culture** (NSC) has improved and is rated Area of Competency or 2nd quartile.
- Nuclear Safety Values, Behaviors & Practices (NSVB&P) has improved and is rated 2nd quartile.
- Safety Conscious Work Environment (SCWE) has improved and is rated as an Area of Competency or 2nd quartile.
- Employee Concerns Program (ECP) performance improved and is rated an Area of Competency or 2nd quartile.

Summary of Survey Results		
Dimension	2011 Rating	2013 Rating
NSC	4th quartile	2nd quartile
NSVB&P	4th quartile	2nd quartile
SCWE	4th quartile	2nd quartile
ECP	3rd quartile	2nd quartile

Nuclear

2013 INSCA Results

- General Culture and Work Environment (GCWE) Improved and is rated an Area of Strength.
- Leadership, Management and Supervisory (LMS) skills and practices improved and is rated as an Area of Strength.

Summary of Survey Results		
Dimension	2011 Rating	2013 Rating
GCWE	2nd quartile	1st quartile
LMS	3rd quartile	1st quartile
Weaknesses	77	4
Priority Organizations	23	4

Nuclear

2013 INSCA Results

Assessment Team Conclusions

- BFN has made good progress in improving the nuclear safety culture.
- There is a workforce frame of reference issue that produces a positive bias in the assessment results.
- There is positive momentum in the rate of improvement of Nuclear Safety Culture and a strong desire on the part of the workforce for improvements to continue.

Nuclear

2013 INSCA Results

Assessment Team Conclusions

- The primary drivers of improvement have been senior management's establishment, communication, demonstration, and reinforcement of higher standards and expectations for good nuclear safety culture and performance.
- Current improvement in nuclear safety culture is considered fragile.
- The ability to continue to improve will depend on how well management responds to the remaining challenges.

TVA
Nuclear

Sustainability

- Nuclear Operating Model implemented
- Safety culture improved
- Nuclear oversight strengthened
  - Corporate oversight
  - Quality Assurance
  - Nuclear Safety Review Board

Nuclear

Closing Remarks

- TVA understands the fundamental issues challenging the station.
- TVA's goal is to *sustain improved performance and reduce operational risk* at the station.
- TVA is seeing meaningful performance improvement.
- TVA is committing the necessary resources to achieve sustained excellence at Browns Ferry and across the nuclear fleet.

TVA Nuclear

List of Acronyms

ECP	Employee Concerns Program
GCWE	General Culture and Work Environment
IIP	Integrated Improvement Plan
INSCA	Independent Nuclear Safety Culture Assessment
LMS	Leadership, Management and Supervisory
NFPA	National Fire Protection Association
NSC	Nuclear Safety Culture
NSVB&P	Nuclear Safety Values, Behaviors & Practices
SCWE	Safety Conscious Work Environment
TVA	Tennessee Valley Authority

Materials Performance Trends

Brian J. McDermott, Director
Division of Materials Safety and State Agreements
FSME

My objective today is to provide a summary of the materials and waste program's performance and trending analysis for Fiscal Year 2012.

I want to begin by providing some context regarding the materials and waste programs,

- Dealing w/ very large number of specific licensees (~ 22,200 = 3,000 NRC, 19,200 Agreement State).
- More importantly, the programs encompass a very wide variety of applications and activities. These include industrial, medical, academic, and fuel cycle applications.
- Some specific applications, such as diagnostic and therapeutic medical applications include intentional exposure of individuals to radiation. For this reason, these are very unique uses of radioactive materials.
- When we discuss the number of reportable events and trends, particularly in the medical area, it is important to keep in mind the very large number of activities conducted each year.
- The estimated number of nuclear medicine or radiation therapy procedures is in the millions, with the vast majority used for diagnostic purposes.
- This large number has implications for our review
  - The statistical significance of the small number of events is limited
  - Secondly, with licensees only required to report events vice the total number of activities in a given year. Therefore the denominator for the number of procedures or activities is not a precise count.

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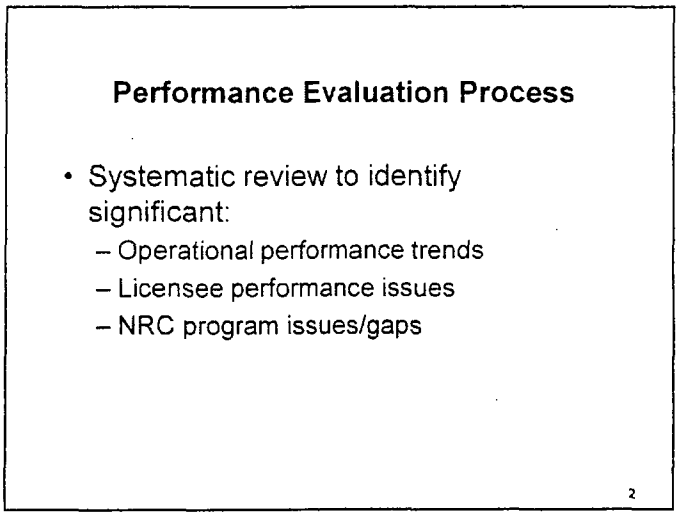

Read slide

- I want to emphasize the criteria we use provides a graded approach
  - identifying higher consequence (such as Strategic Outcomes reported to Congress)
  - to lower level, precursor issues (which are reported only within the NRC)

- We believe that this graded approach provides us
  - the ability to focus management attention on the most important issues
  - And, provide staff with an early indication of any programmatic issues, allowing staff to take action while issues are at a lower significance level

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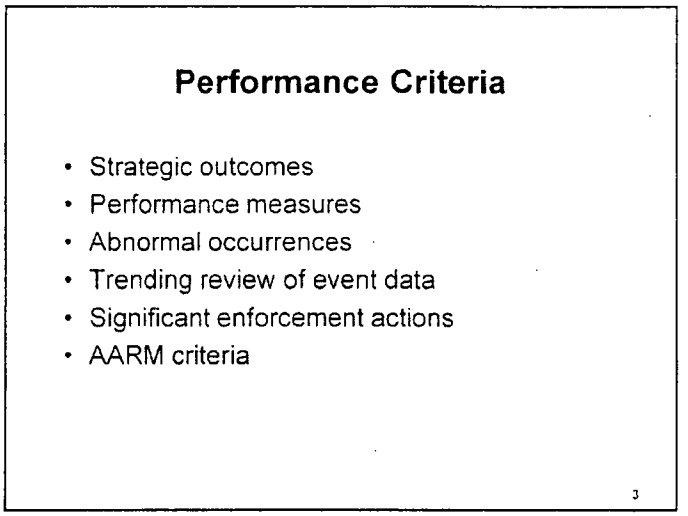


This slide reflects the goals and criteria that we use in the evaluation process.

- Industry event data is collected, monitored, and evaluated on a Quarterly basis and summarized in an Annual Report for the Commission (ADAMS Package # ML13070A167)

- In FY2012, 436 events were reported by NRC and Agreement State licensees, and reviewed as part of the trending analysis.

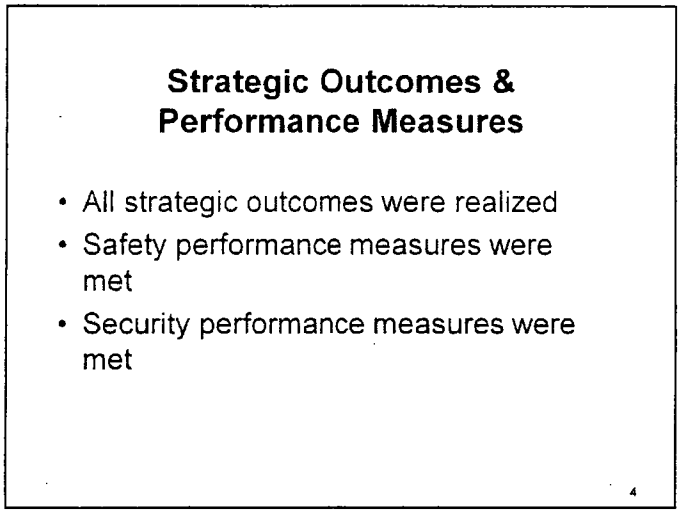
- The evaluation of the individual events is initially done as part of the routine oversight of licensee activities.

- The annual performance evaluation of the aggregate information seeks to identify significant licensee performance issues or NRC program issues warranting the highest level management attention and awareness at the AARM.

- Criteria used to identify those issues and licensees for discussion at the AARM was originally developed and endorsed by the Commission in 2002. Adjustments to the criteria were made in 2008 and 2011 to incorporate lessons learned through use of the criteria.

- These criteria target the most critical issues , such as:
  - Very serious operational events (such as those triggering the Strategic Outcome or Performance Measures)
  - Significant licensee performance issues
  - NRC program gaps

- This year's annual report to the Commission notes that we believe that the current criteria is effective and valid, and no changes to the AARM criteria have been recommended.
  (NEXT SLIDE)



Regarding our highest level goals and objectives for FY2012:

No events met the strategic outcome criteria.

- The regulatory framework was effective in preventing events such as releases of radioactive material resulting in significant radiation exposure.

In addition, the safety and security performance measures for materials were met, for example:

- There were no exposures resulting in unintentional functional damage to an organ.

Security measures for materials were also met, for example:

- There were no unrecovered losses or thefts of risk-significant Category 1 or Category 2 sources.
- In FY 2012, there were no loss or theft of Category 1 sources; three Category 2 sources were lost and subsequently recovered.

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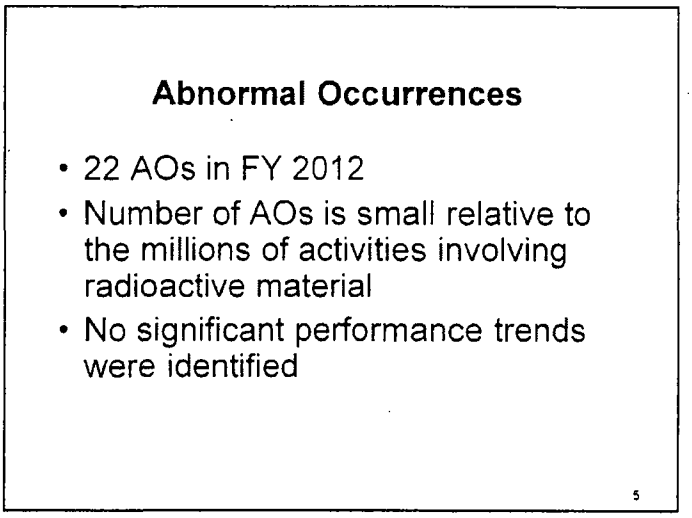

I will next move to the Abnormal Occurrences for FY 2012.

- The staff identified 22 Abnormal Occurrence (AO) events for the FY 2012 Report to Congress based on our current criteria (4 NRC, 18 A/S)
  - 1 AO involved an electrical equipment fire at a commercial nuclear power plant (NRC)
  - 1 AO involved radiation exposure to an embryo/fetus (A/S);
  - 1 AO involved an exposure to the extremities of a radiographer (A/S); and
  - The remaining 19 AOs were medical events.

- The number of medical-event related AOs is very small in contrast to the millions of medical procedures performed annually.

- Based on review, the staff does not believe that these events represent a generic concern.

- Also, no significant performance trends were identified when looking at this year's AO data in comparison to previous years' data.

- The staff did note that the current AO screening criteria capture a number of events where there were no adverse medical effects reported. We are currently working with the Office of Research and the Advisory Committee on the Medical Uses of Isotopes to identify potential enhancements to the AO criteria. A paper on this topic is due to the Commission later this summer.

  - 13 of the 19 events captured by the AO criteria in FY 2012 had no adverse medical effects reported.

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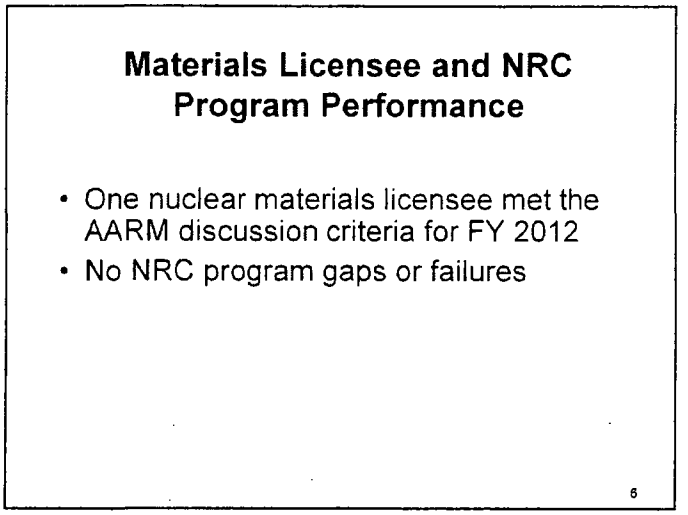

- This annual review process drives us to identify significant licensee performance issues, or NRC program issues, that warranting the highest level of management attention and awareness at the AARM.

- For FY 2012, one nuclear material licensee was discussed because of significant performance issues. We did not recommend inviting the licensee to this meeting because the licensee actions were deemed appropriate and effective, and agency actions were deemed sufficient.

- Regarding the NRC program performance, we did not identify any significant gaps or issues with the Materials and Waste Programs.

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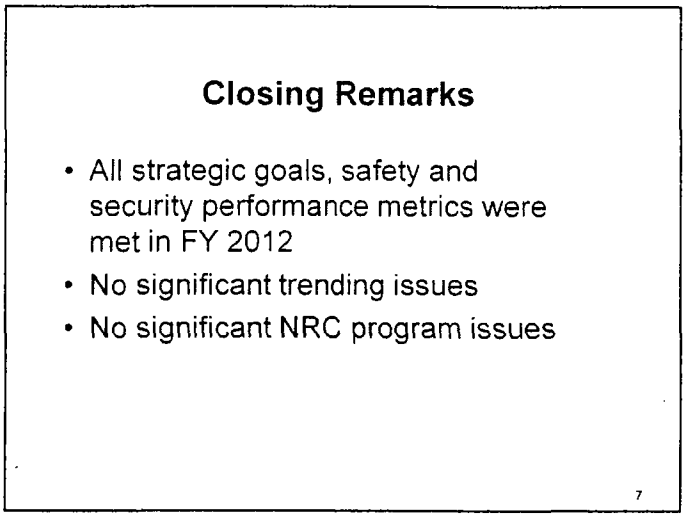

In closing, after review of our performance data,

- Strategic goals were met in FY 2012.
- Safety and Security Performance Metrics were met.
- No adverse performance trends were identified.
- No significant NRC program issues identified.

- At this point, I will turn the presentation over to Ho Nieh to discuss the Reactor Assessments

(END OF PRESENTATION)

Ho Nieh's Talking Points- AARM Commission Briefing

SLIDE 12

- Good morning Chairman and Commissioners
- I will be briefing you on the results of the NRC's Industry Trends Program and the Reactor Oversight Process Self-Assessment for 2012
- Both of which were discussed at the Agency Action Review Meeting (or AARM)

SLIDE 13

- The NRC uses its Industry Trends Program to monitor for any adverse trends in the industry's safety performance
- This program complements the Reactor Oversight Process (or ROP) by providing an industry-wide look at performance
- The program uses industry-level performance indicators and objective thresholds for identifying adverse short-term and long-term trends
- Outputs from this program are used in the Agency's reporting to Congress in our annual Performance and Accountability Report
- The staff implements this program in accordance with Inspection Manual Chapter 0313
- And the results for 2012 were presented to the Commission in SECY-13-0038

SLIDE 14

- The overall results for 2012 were that:
  - No statistically significant long-term trends were identified
  - And no short-term prediction limits were exceeded
- In its 2012 report to the Commission, the staff also updated the 2011 results based on finalized Accident Sequence Precursor evaluations
- In particular, 7 additional events met the "significant event" criteria
- As a result, the short-term prediction limit was exceeded for "significant events," as defined in Inspection Manual Chapter 0313
- The staff's assessment concluded that these 7 additional events were due to natural phenomena and extreme weather
- The staff assessed that these 7 additional events did not represent an overall degradation in the industry's safety performance
- The staff had also noted good operator response and equipment performance during these 7 additional events

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- The Industry Trends Program also includes a Baseline Risk Index for Initiating Events
- This is a risk-informed view of industry performance in the initiating events cornerstone of the ROP
- None of the 10 initiating event category indices were exceeded in 2012
- In summary, the 2012 Industry Trends Program did not result in the need for any adjustments to the NRC's oversight program
- And the AARM meeting participants agreed with this conclusion

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- Now I would like to turn my remarks to the results of the ROP Self-Assessment for 2012
- Each year the staff conducts this self-assessment to determine if the ROP is effective in being:
  - Objective, risk-informed, understandable and predictable
- This self-assessment is one of several mechanisms for identifying recommendations for improving the ROP
- The self-assessment is conducted in accordance with Inspection Manual Chapter 0307
- And the results for 2012 were reported to the Commission in SECY-13-0037

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- The overall result for 2012 was that the ROP met its performance goals and desired outcomes
- The staff did not identify specific commitments for improvements as a result of this self-assessment
- But we will continue look for areas for improvements from internal and external feedback, and lessons learned
- As noted in the self-assessment SECY paper, some ROP performance metrics were missed
- The staff will continue to take actions to address these areas
- And the staff will also be assessing the relevance of the current ROP performance metrics and survey tools

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- A specific requirement of the AARM is to discuss Action Matrix deviations
- In 2012, there were 2 deviations
  - One at Seabrook for the alkali-silica reaction in concrete issue
  - And one at Palisades for plant leakage and safety culture issues
- The staff assessed that these two deviations were used to apply additional inspection resources to evaluate licensee activities in specific areas
- These two deviations did not involve instances where a deviation is used to take actions different than what is specified by the Action Matrix for a given set of ROP inputs
- In evaluating these two deviations, the staff found that the inspection program provides for flexibility in using additional resources to inspect emerging technical issues
- The staff plans to clarify the inspection program guidance for the regions to document their decisions for using additional inspection resources in focused areas within the baseline inspection program

SLIDE 19

- I would like to now highlight some of the significant accomplishments in the ROP during 2012
- We re-integrated security into the ROP Action Matrix
  - This was a significant step toward increased openness in the security cornerstone

- We collaborated effectively with the Institute for Nuclear Power Operations, the Nuclear Energy Institute, and other external stakeholders to develop common language in the safety culture area
- We also made improvements to our Significance Determination Process in the areas of cyber security and Force-on-Force exercises

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- The ROP is a mature and robust program that has served the Agency well
- At the same time, we can always challenge ourselves to do better
- At the end of last summer, the staff initiated an ROP Enhancement Project to take a fresh look at the ROP
- We will be working with internal and external stakeholders to consider improvements in areas such as:
  - The baseline inspection program, Substantive Cross Cutting Issues, Supplemental Inspection timeliness, and how the ROP communicates to the public
- As part of this effort, the staff with incorporate the insights from the Commission-directed independent review of the ROP
- Lastly, the staff will continue its work to enhance the public radiation safety cornerstone
  - We are augmenting our inspection guidance to document licensee implementation of the industry's groundwater and underground piping initiatives
- This concludes my presentation
- [As Bill Borchardt mentioned,] Browns Ferry and Fort Calhoun met the criteria for discussion at the AARM, I will now turn over to Gene Guthrie to brief you on performance at Browns Ferry

Gene Guthrie

Slide 22 – *Performance Overview*

Good morning Commissioners and Chairman. My name is Gene Guthrie, I am the Team Leader for the 95003 inspection currently in progress at the Browns Ferry Nuclear Station. Prior to this opportunity, I served as the Reactor Projects Branch Chief for the Browns Ferry site as well as the other TVA sites.

I will provide an overview of the Browns Ferry plant for the 2012 performance assessment period. I will then discuss the path forward regarding NRC's assessment of plant performance and our regulatory actions.

Multiple Repetitive Degraded Cornerstone

- Browns Ferry Unit 1 entered Column 4 of the Agency Action Matrix when the NRC issued a red finding in August of 2011 due to the high safety significance determination associated with the failure of a residual heat removal system flow control valve. We have briefed the Commission since that date on two occasions regarding Browns Ferry's performance, in October 2011 and April 2012. We have also held seven (7) public meetings, during which we discussed TVA's response to the finding and preparations for the ongoing 95003 inspection.
- Since issuing the Red Finding, TVA has developed and begun to implement a performance improvement plan. In February, 2013, TVA informed us that it had reached a point in implementation of the plan to support readiness to receive the 95003 inspection.

Past year performance

- Regarding Browns Ferry's performance in 2012, equipment reliability remained a key factor affecting plant performance and operations. In 2012 there were four reactor scrams and four unplanned downpowers. The impact of these plant transients were reflected in several degraded Performance Indicators.
- The Unit 3 Performance indicator for Unplanned Scrams per 7000 critical hours changed from green to white in the second quarter, primarily as a result of three reactor scrams. The scrams were caused by two secondary system equipment issues and one human error.
- The Unit 1 Mitigating System Performance Index for High Pressure Injection Systems changed from green to white in the second quarter due to equipment reliability issues.
- In addition, a White finding was issued involving the procedures that are implemented to shutdown the plant and put it in a safe condition during various fire scenarios in locations throughout the plant. This finding affected all three Units. The procedures called, Safe

Shutdown Instructions, were revised as part of the licensee's initiative to reduce fire risk during the transition to National Fire Protection Association 805 licensing basis. The NRC determined that the operators were not adequately trained to successfully implement the revised procedures. Training has been conducted to address this issue.

- The two White performance indicators and the white finding were inspected using supplemental inspection procedure 95001. They were inspected separately in September, October, and November, 2012. Each of the inspections determined the licensee's actions to be Satisfactory.

- Finally, the Unit 1 and Unit 2 Mitigating System Performance Index for Emergency AC Power Systems changed from green to white in the fourth Quarter due to equipment reliability issues. We plan to conduct a supplemental inspection in this area later this year.

- As a result of these performance issues Unit 2 is in Column 3, the Degraded Cornerstone of the Reactor Oversight Process Action Matrix, and Unit 3 is in Column 2, the Regulatory Response Column. As previously stated, Unit 1 remains in column 4 pending the outcome of the 95003 inspection.

Safety Culture

Regarding safety culture at Browns Ferry, we are assessing this area by following up on previously identified substantive cross cutting issues, reviewing the licensee's third party safety culture assessments, and by conducting interviews of site personnel.

Two Substantive Cross-Cutting issues remained opened throughout this assessment period. One, "thorough evaluations of identified problems," has been open since 2009 and the other, "appropriate and timely corrective actions," has been open since 2010. A third Substantive Cross-Cutting issue in Human Performance was opened in February, 2013 in the aspect "Complete, accurate and up-to-date design documentation, procedures, and work packages, and correct labeling of components." TVA's actions to address these cross-cutting issues are being evaluated as part of the 95003 inspection.

During this assessment period the licensee received an independent third party safety culture assessment report. The surveys for this assessment were conducted in the fall of 2011. The relatively low participation rate in this survey adversely affected the reliability of the results. As a result, we expanded the scope of our independent assessment of safety culture. This was accomplished, in part, by adding additional safety culture assessors to the 95003 team to interview a wider sample of site personnel and, consequently, enable a more thorough evaluation of the results of the independent third-party assessment.

During the first quarter of this year, TVA initiated another independent third party safety culture assessment. The final report is being reviewed by the 95003 inspection team to assess the nature and degree of improvement in the safety culture at the station.

Slide 23 – *Going Forward*

95003 Inspection

The third part of the 95003 Inspection is currently in progress. As we previously reported, Part 1s and Part 2 of this inspection were completed in 2011 to identify whether there were any immediate safety concerns with programs or equipment, and focused on valve and maintenance programs at the station. While the inspections identified several program related issues, no safety concerns were identified.

The Part 3 inspection is designed to evaluate TVA's current performance at all three units, and the reasonable sustainability of its performance improvement initiatives. Our ongoing inspection includes an assessment of TVA's performance improvement plan and its implementation to determine whether it is sufficient to correct the underlying performance deficiencies and prevent recurrence.

The inspection team includes a diverse group of 23 experienced inspectors from Regions I, 2 and 3, and the Office of Nuclear Reactor Regulation, as well as safety culture assessors from NRR, the Office of Research, and the Office of Enforcement. The Team has spent two weeks of preparation and inspection in Region 2 and two weeks inspecting on site. Throughout this time they have been highly dedicated and have vigorously taken on the responsibility of accomplishing the inspection objectives. I have very high confidence in the Team's ability to provide a high quality inspection and assessment.

Inspection Follow-up

At this point in the inspection, we have not reached a conclusion regarding the adequacy of TVA's actions. However, even with a satisfactory assessment in the 95003, we anticipate the need for additional inspection focusing on key licensee improvement initiatives.

Performance Assessment

We will continue to use the reactor oversight assessment process to guide our regulatory actions regarding Unit 1's status in the ROP Agency Action Matrix.

Of course, a key input to the assessment process will be the results of the 95003, Part 3 inspection, and any follow up areas that we conclude warrant additional attention.

This assessment of plant performance will enable us to determine whether and when it is appropriate to move Unit 1 from Column 4 or take other regulatory actions. We expect to complete our assessment some time this summer.

NFPA 805 Transition

In April 2012, NRC issued a Confirmatory Order to TVA, which required TVA to submit a licensee amendment request by March 29th, 2013, to transition to National Fire Protection Association Standard 805 for the fire protection program at Browns Ferry.

TVA submitted the licensee amendment request on March 27th and it is currently undergoing NRC's acceptance review.

TVA is currently implementing a number of plant modifications to further reduce fire risk at Browns Ferry. And, of course, we are continuing to conduct inspections under the ROP to assess and confirm the adequacy of commitments made to implement plant modifications in these areas.

Closing

In closing, participants in the Agency Action Review Meeting in late April concluded that the performance of the three units at Browns Ferry continued to be adequate for safe operations. In addition, the participants acknowledged that the completed and planned NRC actions at Browns Ferry were appropriate, and that no additional actions were recommended.

That concludes my remarks on Browns Ferry's performance and agency actions going forward.

Thank you, and I will now turn it over to Tony Vegel.

TONY VEGEL

First Slide

Good morning Commissioners and Ms. Chairman. My name is Tony Vegel and I am the Manual Chapter 0350 Panel Chair for oversight of the Fort Calhoun Station. Also here with me today are Louise Lund, from NRR, the vice chair of the Panel, and Mike Hay, from Region IV. Louise and Mike have been instrumental in coordinating headquarters and regional resources in ensuring that technical issues at Fort Calhoun are being reviewed in a timely and thorough manner.

I plan to provide a very brief overview of the background of how Ft. Calhoun entered the IMC 0350 process, the NRC actions taken as a result to assess the performance of the station, and the planned actions going forward to assess the stations readiness to support restart. The majority of my discussion will focus on what has changed since January of this year, when we last briefed the Commission on Fort Calhoun oversight status.

Next Slide

On December 13, 2011 Ft. Calhoun Station transitioned out of the normal reactor oversight assessment program to IMC 0350, which is oversight of reactor facilities in a shutdown condition, due to significant performance and operational concerns. As you may recall, the station shutdown for a normal refueling outage in April of 2011. On June 6 the licensee declared an unusual event based on high river levels. On June 7 the licensee declared an Alert based on a fire that started in a safety related 480 volt electrical breaker that resulted in loss of multiple busses and spent fuel pool cooling for a short period of time. The circumstances causing the fire were subsequently assessed by the NRC and characterized by a Red finding.

The significant performance deficiencies that resulted in transitioning Fort Calhoun Station to the MC 350 process included a Yellow finding involving inadequate flood mitigation strategies, a White finding involving a failure in the reactor protection system, and multiple greater than Green findings in the area of security.

Several Confirmatory Action Letters, otherwise known as CALs, have been issued since 2011 describing actions that OPPD has committed to take prior to restart of the station. These actions entail ensuring systems, structures and components potentially affected by the flooded conditions are adequately assessed and corrected, and to ensure that issues resulting in the prolonged performance decline at Fort Calhoun Station are resolved. Revision 3 of the CAL was recently issued on February 26, 2013, to include containment internal structures and penetrations issues, and multiple Safety System Functional Failures.

Enclosed in the CAL is a "Restart Checklist" that specifies the actions to be taken by both the licensee and the NRC prior to plant restart. Major areas the licensee is responsible to address include assessing and correcting the causes of the significant performance deficiencies, including performing an overall assessment of organizational effectiveness, completing flood restoration activities, evaluating the adequacy of significant programs and processes, and the development of a station Integrated Performance Improvement Plan. In addition, the CAL specifies that the NRC will review the key attributes that are contained in supplemental Inspection Procedure 95003. This inspection procedure is used to assess the overall performance for plants that are in Column IV of the NRC's Action Matrix based on a significant decline in performance.

To provide details and clarification for the scope and breadth of the Restart Checklist items and the actions that the NRC plans to take to verify that Fort Calhoun Station has adequately

addressed the specific items, a "Restart Checklist Basis Document" was issued. Revision 2 of this document was recently issued on March 7, 2013 and consists of approximately 460 items.

Next Slide

Since the last time we briefed the Commission on January 8, 2013 significant inspection activities have been performed by approximately 40 NRC inspectors. These inspections have been done by individuals and teams consisting of staff from all four regions and headquarters, truly an Agency effort. I would now like to discuss some of the overall results and insights from these inspection activities.

In December of 2011, the NRC worked with the licensee to develop the scope of a 15 person inspection team that entailed the review of approximately 170 items. In February when the team was preparing for the inspection over 30 percent of these items were not completed by the licensee and therefore were not ready for NRC inspection. Additionally, a significant amount of the inspected items were not adequately addressed by the licensee and will require follow up inspections. Although the results of this inspection have not been placed on the docket yet, a public meeting was held in Omaha Nebraska on May 17 to discuss the results.

Overall the team concluded that much work was needed by the licensee, not just to address what is needed to restart the plant, but what is needed long term post restart to ensure sustained improvement is achieved. Areas for improvement included; 1) improving the quality of design and licensing basis information, 2) improving the ability of facility staff to use design basis information, 3) understanding regulatory requirements as they pertain to making changes to the plant and reporting of information to the NRC, and 4) improving the effectiveness of the

corrective action process in the areas of evaluation of problems and extent of condition and development and implementation of corrective actions.

Significant NRC inspection resources have been utilized reviewing Fort Calhoun actions to address the more significant, or Greater than Green, performance deficiencies. In most cases it was determined the licensee had implemented adequate actions to correct the specific technical problems. However, of concern is that the licensee's extent of condition reviews and development and implementation of corrective actions in many cases were inadequate and will require follow up inspections to ensure these areas are adequately addressed. For example a security team inspection identified significant deficiencies in the licensee's evaluation of the Greater than Green findings. The team determined that the licensee did not collectively review all root and contributing causes of the findings for indications of more fundamental problems within the area of security or other departments. The team identified nine findings in other areas of security that shared the same root and contributing causes as the greater than green violations. In response the licensee has been performing additional work in this area and the NRC is planning a follow up inspection in June.

Though the NRC has identified some issues with the depth and breadth of Fort Calhoun Station efforts to address the Confirmatory Action Letter items, we have seen improvement in a number of areas. These include, improvements in the overall safety culture at the site, nuclear oversight effectiveness, replacement of containment electrical penetrations, and replacement of aged components to name a few.

Next Slide – going forward

First I would like to note that the AARM participants acknowledged that completed and planned NRC actions at Fort Calhoun Station were appropriate and no additional actions were recommended.

As you can see, the inspection activities to date have resulted in mixed results. There are many items left to inspect for the first time, and a number of items that the NRC needs to re-inspect to ensure adequate actions are being taken to address the specific deficiencies identified. As the inspections are being performed the assessments are providing inputs into areas that need to be resolved prior to restart and those items that will be incorporated into a post restart oversight plan to ensure performance improvement is sustained. One of the items in the restart checklist is for the NRC to verify that the licensee develops and implements an Integrated Performance Improvement Plan that adequately addresses these long term actions. The NRC will ensure that at a minimum the IPIP contains those items identified by the NRC as needing additional attention following restart of the facility.

The 0350 Panel recognizes that there is still a substantial amount of inspection activities that need to be performed. The NRC has no timeline for when the plant will restart; currently the overriding priority for the 0350 Panel is to ensure that we thoroughly and independently verify that the plant is safe to restart. The 0350 Panel will not recommend restart of Fort Calhoun Station until we have assured ourselves that the people, processes, and equipment at the station are ready to support safe plant operations.

In accordance with the MC 0350 Process, should the Panel conclude the plant is safe for restart this recommendation will be presented in a memorandum to the Regional Administrator describing the Panel's basis for the decision. The Regional Administrator would discuss and obtain approval from the Director of NRR for restart then obtain concurrence from the Deputy

Executive Director for Reactor and Preparedness Programs. Following this process the Region IV Regional Administrator would then authorize restart of the facility.

After an acceptable post-restart period of operation of the plant, and upon determination that the criteria for termination of the IMC 0350 process controls as defined in the Panel Process Plan have been met, the Panel may recommend termination of the IMC 0350 process and a return to the ROP. The criteria for termination of the IMC 0350 process include verification that the licensee has established an effective long-range improvement program, is sufficiently implementing the corrective action program, has demonstrated safe plant operation, overall improving performance, and has adequate controls in place to address the plant specific issues that caused IMC 0350 to be implemented. The Oversight Panel would provide a written recommendation to the Regional Administrator and the Director of NRR to return the plant to the routine oversight and assessment of the ROP. The letter will address the resolution for each of the plant-specific criteria for termination of the IMC 0350 process.

In summary, the Reactor Oversight Process is working. Based on extensive inspections Fort Calhoun Station is making progress, the key issues that need to be resolved prior to restart have been identified. What remains is: first the short term corrective actions need to be completed to support a safe return to operations, and second the long term corrective actions to sustain performance improvement have to be fully developed and tracked through the Integrated Performance Improvement Plan.

For the NRC, our challenge is to continue our independent and thorough assessments to validate that plant operational safety is ensured.

Thank you!