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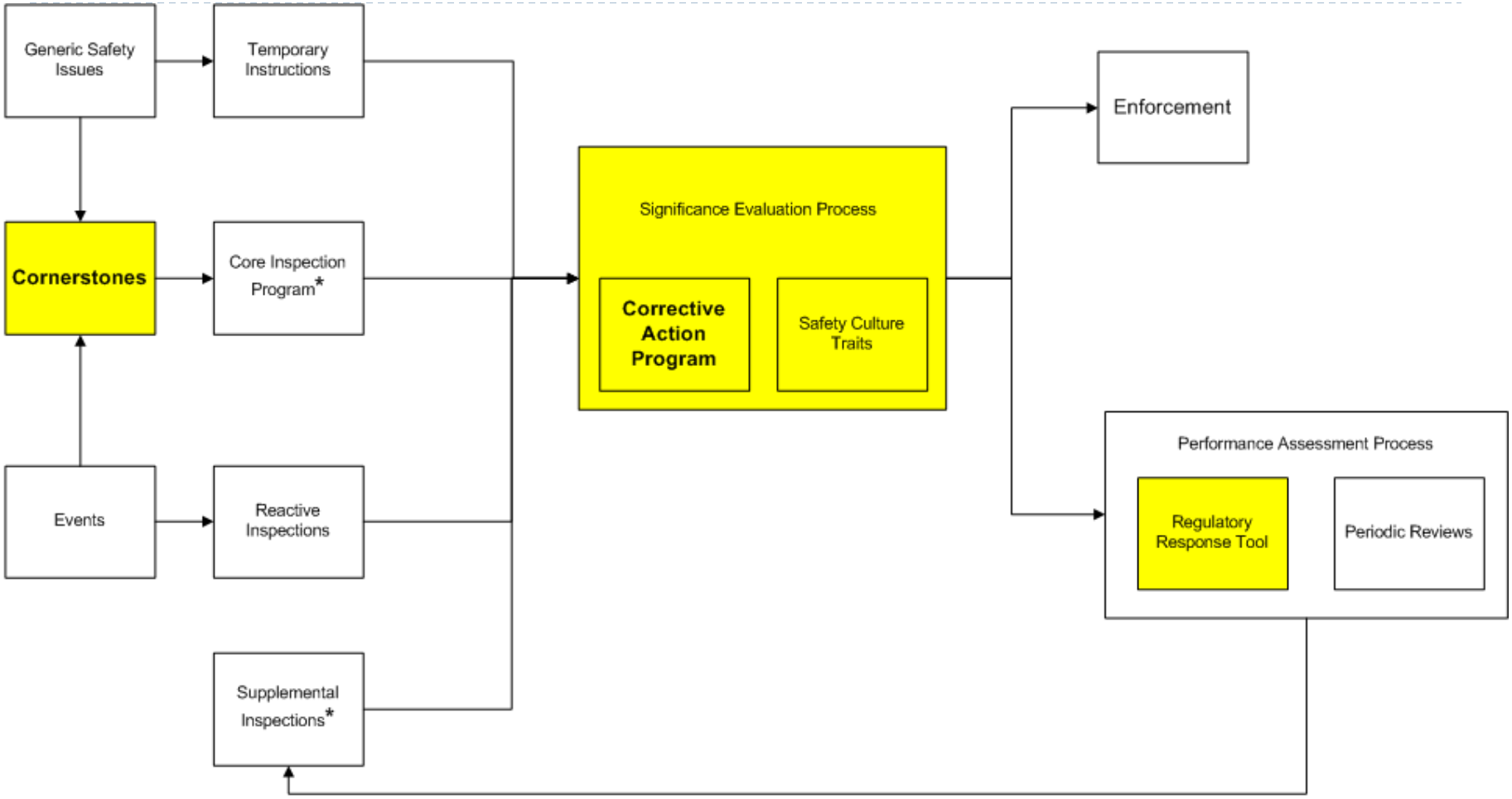
Fuel Cycle Oversight Enhancements

June 6, 2011

Agenda

- Proposed Enhancements to the FCOP
- Corrective Action Program Initiative Status
- Enforcement Policy Revisions
- Proposed Fuel Cycle Regulatory Framework
- Security Cornerstone
- MC&A Cornerstone
- Safety Cornerstones
- Path Forward

Proposed Enhancements to the FCOP



Yellow blocks indicate new elements that might be present in the enhanced fuel cycle oversight process (FCOP).
Bolded text in yellow blocks indicate current efforts to enhance the fuel cycle oversight process

* These elements are not new, however these elements would be revised as part of the enhancements to the FCOP.

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Corrective Action Program Initiative Status

Jay Henson
Office of Nuclear Material Safety and Safeguards

CAP Initiative Status

- On April 14, 2011, NRC staff discussed two options to determine, with reasonable assurance, a licensee's CAP is effective.
- One option included the submission of a license amendment with a description of their CAP that provides reasonable assurance of its effectiveness
- Licensees stated their current licenses include adequate information on their CAPs to demonstrate they are effective

CAP Initiative Status

- Based on the licensee's assertions regarding their CAP program description in existing licensing basis documents, NRC performed an initial assessment of these documents for the nine operating fuel facilities
- This assessment included a review of the existing licensing documents and a comparison of these documents to the CAP criteria

CAP Initiative Status

Licensee	Document(s) Reviewed
AREVA – Richland	Renewal Dated 12/10/08
B&W NOG	Renewal Dated 11/14/07
Global Nuclear Fuels	Renewal Dated 4/2/07; RAIs Dated 11/25/08 and 2/24/09
Honeywell	Renewal Dated 5/12/06; ISA Summary Dated 1/31/08
LES	SAR, Rev 30; QAPD Dated 1/13/11
NFS	Renewal Dated 4/13/07
Paducah GDP	SAR, Rev. 127 Dated 3/31/11; QAP, Rev. 119 Dated 4/1/10
USEC, Inc. Lead Cascade	Application Dated 7/22/05
Westinghouse	Renewal Dated 6/27/07

CAP Initiative Status

- Licensee's application references to a CAP are based on NUREG-1520, Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility
- CAP elements addressed in the areas of:
  - Audits and assessments
  - Incident investigations of abnormal events
  - Management measures for IROFS
  - Quality Assurance Program

CAP Initiative Status

- NUREG-1520 license application criteria did not include guidance to provide a detailed, comprehensive description of a CAP
- The nature, scope, and level of detail of a licensee's description of its CAP was at the discretion of the licensee
- Focus was on corrective actions for audits and assessments and incident investigations and failed IROFS

CAP Initiative Status

- Initial review of licensing basis documents found a wide spectrum in the level of detail a licensee provided regarding its CAP
- As expected, most licensees described their CAP in reference to audits and assessments, incident investigations, management measures, and quality assurance program

CAP Initiative Status

- Licensees can be categorized in three groups based upon the nature, scope and level of detail provided in their CAP descriptions and the comparison to the CAP criteria.
- Group 1 provided a very comprehensive description of its CAP policies, programs, and procedures and touched on almost all CAP criteria, some to a great degree, some to a lesser degree.

CAP Initiative Status

- Group 2 provided less detail, for the most part limited the CAP description to that requested by NUREG-1520, and touched on several of the CAP criteria to a varying degree.
- Group 3 provided the least detail, described bits and pieces of a CAP, and touched on only a few of the CAP criteria to a limited degree.

CAP Criteria Comparison Examples

- Example 1 of Comparison to CAP Criteria
  - CAP policies, programs, and procedures clearly describe roles and responsibilities; align the organization to effectively implement the CAP; and clearly express management's expectations regarding CAP implementation

CAP Criteria Comparison Examples

- Roles and responsibilities (R&R)
  - Group 1: R&R for staff, supervisors, and management described; Position responsible for CAP management and duties described
  - Group 2: R&R of staff, supervisors, and management described to varying degrees
  - Group 3: R&R of staff, supervisors, and management specific for some elements of CAP but not comprehensive

CAP Criteria Comparison Examples

- Organizational Alignment
  - Group 1: Multiple examples of R&R, CAP program element implementation process and applicability throughout all organizational elements
  - Group 2: Statements imply a degree of organizational alignment but effectiveness difficult to assess
  - Group 3: Organizational alignment for some CAP elements but not overall CAP

CAP Criteria Examples

- Managements Expectations
  - Group 1: Detailed expectations clearly expressed multiple times, for entire CAP and for individuals and organizations for elements of the CAP
  - Group 2: Expectations expressed regarding implementation of CAP, but with less detail and directions to individuals and organizations
  - Group 3: Expectations expressed for some CAP elements, to varying degree

CAP Criteria Examples

- Example 2
  - CAP policies, programs, and procedures encourage and enable management, supervisors, and staff to identify and report safety and security issues, including regulatory compliance issues, related to human performance, facility and equipment conditions, programs and procedures, and similar activities or conditions from personal observations, information received from others, licensee audits and self-assessments, safety committees, licensee event reports and investigations, NRC-identified issues, NRC and industry operating experience, and other relevant sources.

CAP Criteria Examples

- Types and sources of issues reported
  - Group 1: Report when program administrative limits exceeded, NCS issues, audits and assessments of programs and organizations, configuration management, operations, maintenance, management observations, training program, human factors, investigations and events, procedures, operating experience, committees, fire and chemical issues, industrial safety issues

CAP Criteria Comparison Examples

- Types and sources of issues reported
  - Group 2: Report when program administrative limits exceeded, NCS issues, audits and assessments of programs and organizations, configuration management, operations, and maintenance, investigations and events
  - Group 3: Report when program administrative limits exceeded, audits and assessments of program, plant or equipment conditions, investigations and events

CAP Initial Review Conclusions

- All nine operating licensees have described elements of a CAP in their existing licensing basis documents.
- The nature, scope, and detail of the description and obvious alignment with all of the CAP criteria varies greatly
- To apply the revised NCV enforcement policy, the NRC must have reasonable assurance that a licensee has established an effective CAP.

CAP Proposed Path Forward

- Issue: How does NRC conclude, with adequate assurance, that as described in its licensing basis documents, a licensee has established an adequate CAP, that if appropriately implemented, will effectively identify, report, document, evaluate, assess, track, and trend safety and security issues, and as a result, identify and implement corrective actions that prevent their recurrence.

CAP Proposed Path Forward

- NRC will develop a guidance document that incorporates the CAP criteria to assist reviewers in their final review and assessment of existing licensing basis documents.
- To request credit for CAP, licensees should review the list of licensing basis documents (slide 7) and identify any additional licensing basis documents that should be included in the final review

CAP Proposed Path Forward

- NRC license reviewer completes the final review of licensing basis documents and determines if CAP description is adequate to conclude that the licensee has established an effective CAP.
- Three potential outcomes from review.

CAP Proposed Path Forward

- Outcome 1: Reviewer concludes CAP is effective and issues licensee a letter informing it of the assessment results and NRC's intent to apply revised NCV policy.

CAP Proposed Path Forward

- Outcome 2: Reviewer is unable to conclude CAP is effective without additional information. Reviewer issues Request for Additional Information and asks licensee to provide response in amendment request.
- Once RAI issues are resolved, reviewer issues license amendment and informs licensee of the assessment results and NRC's intent to apply revised NCV policy.

CAP Proposed Path Forward

- Option 3: Reviewer is unable to conclude CAP is effective without additional information. Reviewer issues Request for Additional Information and asks licensee to provide response in amendment request.
- Licensee chooses not to respond to RAI and does not intend to amend its license. NRC informs licensee it will not apply revised NCV policy at its facility.

CAP Proposed Path Forward

- The NRC will develop and implement an inspection procedure to evaluate the licensees implementation of its CAP at those facilities where the NRC has applied the revised NCV policy.

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Enforcement Policy Revisions

John Wray
Office of Enforcement

Enforcement Policy

- Fuel Cycle Licensee Corrective Actions Program Credit
  - Title change to Section 2.3.2.a of Policy to include Fuel Cycle Licensees, Fuel Cycle Applicants, and New Reactor Applicants who have effective/approved CAPs
  - Effective/Approved CAPs to be determined by Manual Chapter Inspection Procedures
  - Credit will allow for NRC inspector identified Severity Level IV violations to be dispositioned as Non-Cited Violations if certain criteria are met

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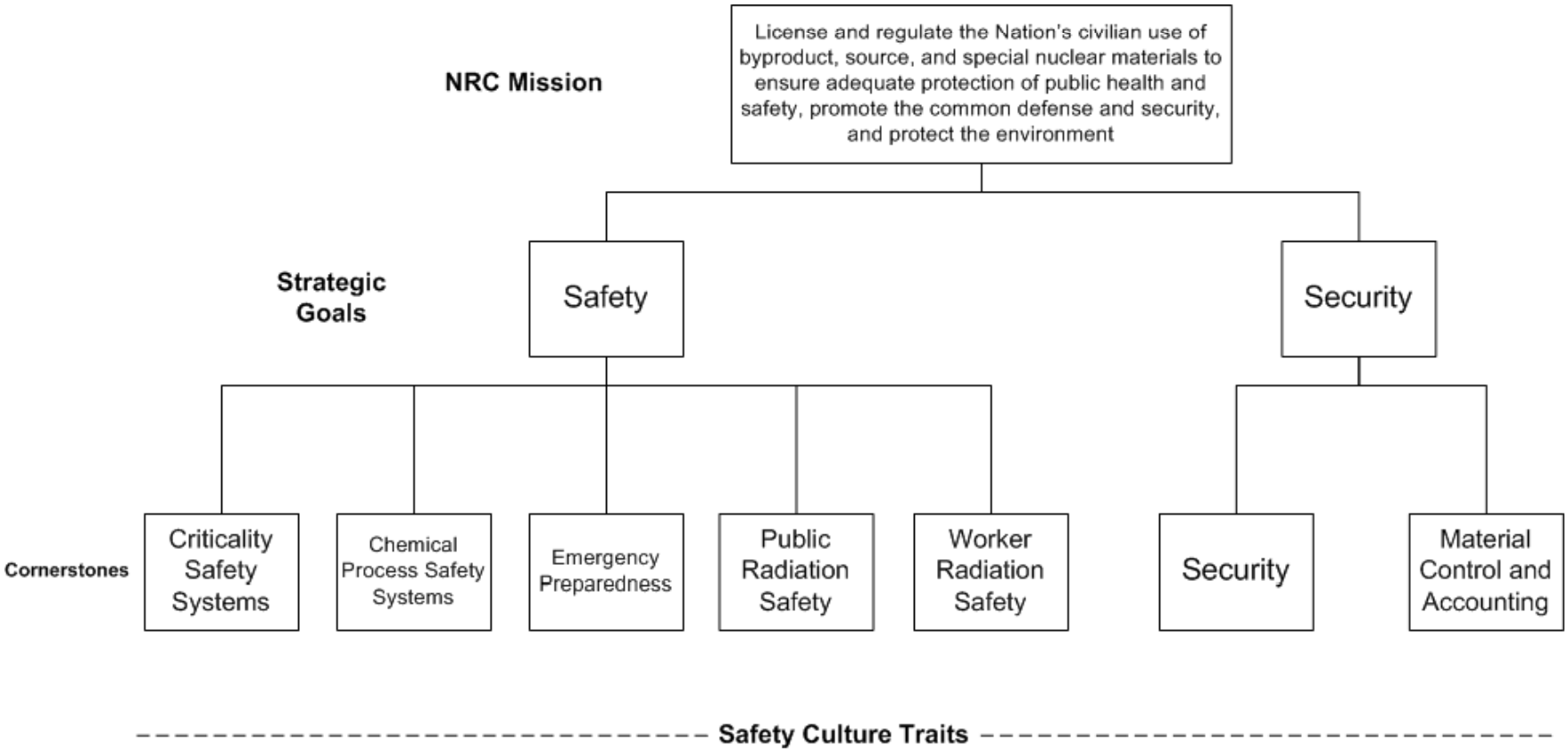
Regulatory Framework and Cornerstones

Proposed Fuel Cycle Regulatory Framework



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Security Cornerstone

Tim Harris
Office of Nuclear Security and Incident Response

Security Cornerstone

- **Objective**
  - To ensure that the licensees' security systems use a defense in-depth approach, prevent or minimize the malevolent use or diversion of nuclear material, and facilitate the location and recovery of missing special nuclear material (SNM).
  - To ensure that the licensees' information protection program for Classified, Safeguards, and Controlled Unclassified Information is adequate to prevent unauthorized disclosure of Classified and sensitive unclassified information and protect the nation's common defense and security.

Key Attributes

- Access authorization
- Access control
- Physical protection systems
- Response
- Information security

Considerations

- The security cornerstone proposed for fuel cycle facilities would be conceptually similar to that used in the Reactor Oversight Process (ROP).

- Similar to the ROP, certain findings pertaining to security cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary.

Considerations

- Staff has initiated a rulemaking to include material categorization and security enhancements imposed by Order.
- Rulemaking could result in significant changes to the current regulations contained in Title 10 of the Code of Federal Regulations (10 CFR) Part 73, "Physical Protection of Plants and Materials," and inspection program.
- Therefore, staff does not intend to further develop the security cornerstone beyond a conceptual level until this rulemaking is completed.

Material Control and Accounting (MC&A) Cornerstone

Glenn Tuttle
Office of Nuclear Material Safety and Safeguards

MC&A Cornerstone

- **Objective**
  - Ensure that the licensee's MC&A system adequately detects and protects against the loss, theft, or diversion of SNM that the licensee is authorized to possess, store, and utilize at its facility.
  - If loss, theft, or diversion does occur, ensure that the licensee's MC&A system triggers timely detection, response, and recovery.
  - For enrichment facilities ensure that the licensee adequately detects unauthorized production and/or unauthorized levels of enrichment of SNM.

Key Attributes

- All licensees
  - Measurement systems and control
  - Item control/item monitoring
  - Physical inventory program
  - Resolution of loss indicators
- Additional attribute for Category I licensees
  - Process monitoring
- Additional attribute for enrichment facilities
  - Detection program for unauthorized enrichment

Considerations

- Certain findings pertaining to the MC&A cornerstone will not be publicly available to ensure that potentially useful information is not provided to a possible adversary.

- 10 CFR Part 74 Rulemaking

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Safety Cornerstones

Safety Cornerstones

- Cornerstone – comments in meetings
- Key attributes – comments in meetings
- Inspection activities
- Metrics

Comments from Stakeholders

- Move scopes listed under "adverse weather protection" and "flood protection" to the emergency preparedness cornerstone and/or "facilities and equipment" key attribute - incorporated
- "Fire protection" might not be considered to be needed for an external event – fires could be part of an accident sequences, therefore, fire protection was added to other key attributes
- Move "fire brigade" to be an emergency preparedness key attribute - incorporated
- Use the same titles for key attributes across cornerstones where possible - incorporated

Comments continued

- Use a different term for "human performance" key attribute to avoid confusion with "human performance" cross-cutting issue - incorporated
- Change "alert notification system" to "public warning system" or "local horns" - incorporated
- Add ISA-related key attributes to public and worker radiation safety cornerstones - incorporated
- Use incident command system concepts and terminology in the emergency preparedness (EP) cornerstone – EP cornerstone refers to the emergency plan and referring to it accommodates the use of incident command system

Inspection Activities

- Staff walk-through (staff performance key attribute)
- As-built conditions and modifications (design key attribute)
- Emergency drill participation frequency
- Comments on other inspection activities?
- What should be re-considered or considered as an inspection activity

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Path Forward on the FCOP

Staff Requirements Memoranda

- SRMs M100429 and SECY-10-0031
  - ISA/PRA Comparison Paper – completed
  - Cornerstone Development – in progress
  - Recommendation for next steps

Recommendation for Next Steps

1. Further development of cornerstones to include revision of IMCs and IPs for all safety cornerstones
2. Development of the significance evaluation process based on the concepts in the ISA/PRA Comparison Paper
3. Development of a performance assessment process based on the more objective and predictable significance evaluation process, that includes a regulatory response tool, and considers safety culture traits
4. Conduct a pilot use or initial implementation of elements (1) through (3) beginning in CY 2014, assess the results, and develop a recommendation to the Commission.
    a) Two cornerstones at all facilities
    b) All cornerstones at a few facilities
    c) All cornerstones at all facilities

Recommendation for Next Steps (continued)

- Continue to engage stakeholders during development and pilot use of the enhanced process
- Use safety culture traits in a manner similar to that used in the ROP for cross cutting areas and in supplemental inspections.
- NRC will not inspect safety culture traits
  - Rather determine if safety culture trait was a contributor to the inspection finding
  - Exception: CAP under PI&R safety culture trait
- Staff will seek Commission approval prior to new use of safety culture traits (SRM-SECY-11-0005)

Recommendation and Schedule

- FY 2012/2013 – Continue to engage stakeholders and develop elements (1) through (3) of the recommendation
- FY 2014 – Continue to engage stakeholders, conduct the pilot or initial implementation (element (4) of the recommendation), assess the results, and develop a recommendation to the Commission