

Augmented Inspection Team Public Exit Meeting

Westinghouse Columbia Fuel Facility
Scrubber Event
September 27, 2016

Welcome and Introductions

- Purpose of Meeting
- Housekeeping
- Introductions

Agenda

- Event Summary – M. Lesser
- NRC Reactive Inspection Decision – M. Lesser
- AIT Results – O. López
- Westinghouse Presentation – M. DeWitt, M. Annacone

Summary of Event Notification

- Initial notification by licensee July 14, 2016
- Uranium mass limit in S-1030 scrubber potentially exceeded
- Licensee initially believed chemical analysis results were not accurate
- NRC conducted followup inspection to gather information
- Licensee Updated notification on July 26; confirmed mass limit exceeded

NRC Reactive Inspection Decision

- Gather and review available information
- Discussions with licensee
- Structured process to screen information through pre-defined criteria
- Select appropriate level of agency response
 - Routine followup
 - Special Inspection
 - Augmented Inspection Team
 - Incident Investigation Team

Continued

- No actual safety consequences resulted
- Substantial potential existed for an unplanned criticality
- Region II consulted with our HQ office and decided that Augmented Inspection Team (AIT) was the appropriate agency reactive response

Augmented Inspection Team Charter

- AIT Charter issued July 28, 2016
- Objectives
 - Review the facts surrounding failure to maintain mass control in S-1030 scrubber and potential for other failures
 - Assess licensee's response
 - Evaluate licensee's immediate and planned long term corrective actions
- Charter specified 10 focus areas

Confirmatory Action Letter

- August 9, 2016 letter documenting Westinghouse commitments
- August 11, 2016 Confirmatory Action Letter (CAL)
- Complete a Root Cause Analysis, extent of condition, safety culture, decision making, adequacy of controls, procedures, retain expert nuclear criticality safety expert,.....
- Request restart approval from the Regional Administrator

Augmented Inspection Team

- Omar R. López – Team Leader
- Team Members:
 - Tom Vukovinsky, Sr. Fuel Facility Inspector
 - Denise Anderson, Fuel Facility Inspector
 - Noel Pitoniak, Sr. Fuel Facility Inspector
 - Patricia Glenn, Fuel Facility Inspector
- Technical Support:
 - Marilyn Díaz, Chemical Safety Engineer
 - Chris Tripp, Sr. Nuclear Process Engineer

Safety Consequences

- No actual safety consequences from the event
- Potential safety consequences to workers were high
- Potential safety consequences to the public and environment were low

Assessment of Safety Controls

- There was an unacceptable potential for a criticality event
- Safety controls included:
 - Passive features (e.g. vacuum breaks and overflows)
 - Recirculating water sprays inside the scrubber
 - Inspection and cleanout of scrubber
 - Monthly sample of scrubber liquid for uranium content

Westinghouse's Restart Decision after May Cleanout

- Scrubber restarted without making sure the rest of scrubber did not have additional mass accumulation
- Nuclear Criticality Safety (NCS) group did not use available information to ensure safe scrubber restart
- Mindset was to clean the scrubber instead of implementing a safety control

Westinghouse's Restart Decision after May Cleanout

- False belief that the material in the scrubber was low uranium content.
- Scrubber was restarted twice without understanding mass accumulation.
- No issues with new controls put in place after second restart.
- Initial extent of condition was inadequate.
- Sample and weight results were not immediately shared.

Westinghouse's Corrective Actions

- Appropriate scope and depth:
 - Safety basis and controls for scrubbers and ductwork
 - Administrative controls are effective
 - Management measures
 - Proposed modifications

NRC's Review of Extent of Condition

- Similar un-validated assumptions used for other wet scrubbers and ventilation ductwork
- Lack of rigor with implementation of periodic inspections and gamma surveys of ventilation ductwork

NRC's Review of Extent of Condition

- Failure to implement adequate management measures:
 - Configuration Management
 - Procedures and Training
 - Audits and Assessments
 - Corrective Action Program

Assessment of Westinghouse Event Reporting

- On June 2, a one-hour report was required to the NRC for a condition such that no items relied on for safety (IROFS) remain available and reliable
 - Inadequate evaluation of Redbook 71195
 - Uranium percent and weights results were not used
 - Break down in communication

Westinghouse's Root Cause Analysis, Chemical Analysis and Accumulation Rates

- No issues were identified with the scope, depth, identification of contributing causes, and proposed corrective actions in the root cause analysis
- No issues were noted with Westinghouse's evaluation of accumulation rates and analysis of uranium content

Review of Safety Culture Aspects of the Event

- Lack of commitment to emphasize the importance of compliance with nuclear criticality safety limits
- Westinghouse management failed to:
 - Drive corrective actions for failed action limits (slight dusting)
 - Display accountability for monitoring safety controls through management measures
 - Provide adequate oversight and enforcement to organizations involved with configuration management and operation of the wet scrubbers

Unresolved Items

- Failure to implement adequate controls to the extent needed to reduce the likelihood of occurrence of a criticality
- Failure to assure, that under credible normal and abnormal conditions, all nuclear processes were subcritical
- Failure to establish management measures to ensure IROFS were available and reliable
- Failure to make a one-hour report for an event such that no IROFS remain available and reliable, to perform their function

Next Steps

- AIT report will be issued within 30 days
- Findings from this inspection will be processed through enforcement at a later date
- In addition, NRC staff is assessing Westinghouse readiness to restart