

WORKSHOP #6, SDP – Phase 1 and 2

Reactor Building Emergency Sump (RBES) debris

With the Bremono Bluff Unit 1 in Mode 5 (cold shutdown), the licensee conducted an as-found, foreign object search and retrieval (FOSAR) of the A and B recirculation lines from the emergency sump to the containment sump isolation valves (LP-19 and 20) prior to installing a new, larger emergency sump.

- The licensee discovered a large flat washer (3 inches outside diameter and 1.125 inches inside diameter), a large cotter pin, a piece of wood (approximately 3 inches long), a piece of wire, small pieces of gasket material, and a metal disc (thought to be a penny) inside of the Low Pressure Injection (LPI) piping leading from the emergency sump to the A LPI and Reactor Building Spray (RBS) pumps.
- The licensee also discovered a small nail, a large piece of thick wire (approximately 12 inches long and 0.1 inch thick), what appeared to be a 1/4 inch allen wrench (not found during debris removal), a couple of pieces of small, thin wire, and the head of an adjustable wrench (approximately 3 inches long, 3 inches wide and 3/4 inch thick) inside of the LPI piping leading from the emergency sump to the B LPI and RBS pumps.

PIP O-12-2468 documents the discovery of the foreign material. On May 1 and 2, 2012, the foreign material was removed during a post-modification FOSAR. The discovery of the material, its retrieval and final inspection of the pipe were videotaped by the licensee. On June 1, 2012, the licensee concluded that, "Based on the debris found in the emergency sump piping, it is possible that either the train B LPI or BS pump could have been damaged, AND the train A BS pump could have been damaged. It is not possible to establish when this debris was introduced to the sump lines."

The licensee's investigation of this event is documented in the problem evaluation portion of PIP O-12-2468. The investigation concluded that, *"Foreign material was introduced into the above locations ['A' and 'B' emergency sump suction lines] due to complacent FME awareness, training and insufficient procedural controls. FME controls were governed by material accountability log sheets and requirements for the cleanliness levels only until March of 2011. This approach was identified as an area for improvement in 2011 due to lack of consistency in FME barrier setup, knowledge of expectations and specific procedural field controls. Due to this area for improvement, legacy foreign material has been identified and removed in systems from previous substandard FME work practices. Based on the debris found in the emergency sump piping, it is possible that either the train B LPI or BS pump could have been damaged, AND the train A BS pump could have been damaged. It is not possible to establish when this debris was introduced to the sump lines."*

NRC staff acknowledged ingestion of the debris into the BS pumps was a possibility, but due to piping configurations and flowrates, asserted that the debris would most likely been ingested by and subsequently damage the A and B train LPI pumps.

The Maintenance Rule portion of PIP O-12-2468 documents the licensee's decision to classify this event as a repetitive, maintenance preventable, functional failure (MPFF) for the LPI system. "This event clearly involved a lack of FME control that led to debris introduction in the pipes. To support the purpose of Maintenance Rule this event will be characterized as a MPFF. The failure is related to a lack of FME control which is controlled by procedures and processes."

The Reportability section of PIP O-12-2468 states that, "Based on the conclusions of the Reportability support eval, this event appears to be reportable because the debris/FME could have rendered the associated pumps inoperable and the condition existed longer than TS allows one train of LPI or RBS to be inoperable. Since two trains of RBS could have been affected, this is also potentially a condition that could have resulted in a loss of safety function."

Your TEAM assignment

1. Using everything that you have learned this week, answer the following:
 - Is there an Issue of Concern (IOC)?
 - Is the IOC a performance deficiency?
 - Is the IOC more than minor (aka, a finding)?
 - If so, is the finding a violation? If a violation exists, what is the violation a violation of (e.g., what is a draft "contrary to" statement)?
 - If so, is significance to be determined by traditional enforcement methods and why?
 - Does the risk significance need to be determined with MC 0609?
2. Using everything that you have learned this week, answer the following:
 - Which cross-cutting area(s) affect the finding?
 - For each cross-cutting area, which component(s) affect the finding?
 - For each cross-cutting area component, which aspect(s) contribute most to the cause of the finding?
 - Does the finding meet the requirements for documentation?
3. Using everything that you have learned this week, answer the following:

- Complete a Phase 1 screening of the issue. Does the screening require a Phase 2 determination?
 - If so, complete a full Phase 2 SDP analysis. Pre-decisionally, what color is the issue?
4. Using everything that you have learned this week, answer the following:
 5. Using MC 0612, would you document this as an AV, URI, NOV, NCV, etc in the upcoming quarterly, integrated inspection report?

Prepare a presentation of your results and be ready to discuss the technical logic of your decisions.