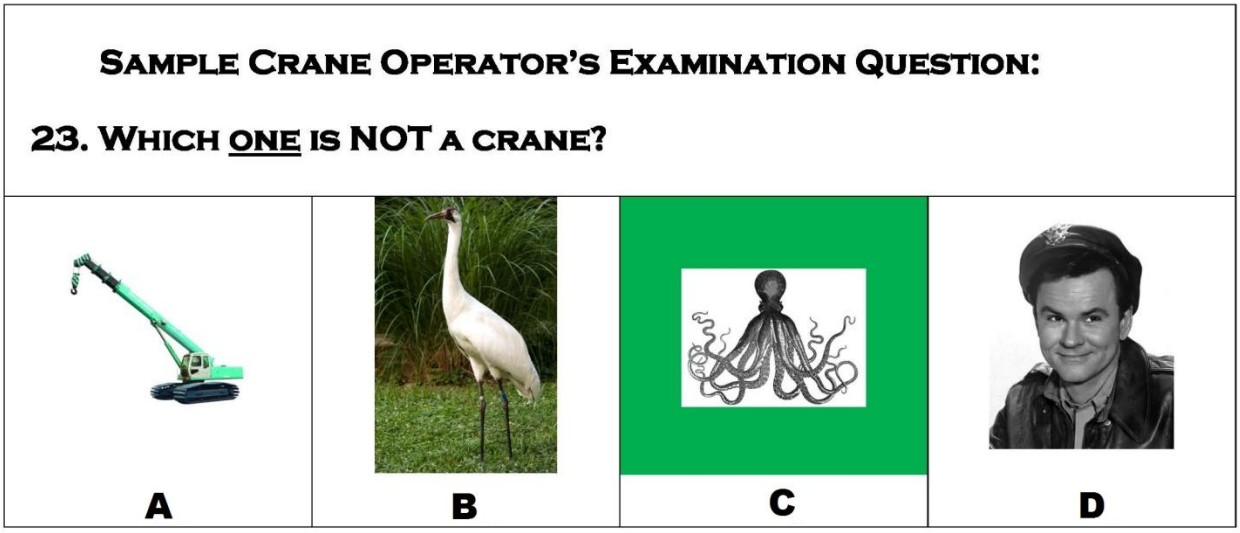
Fission Stories #87: NRC Resolves Humongous Nuclear Safety Problem



There was no press conference on the steps of its headquarters, no webcast or even YouTube video for parties around the globe to view, or even a press release to commemorate the NRC's recent closure of what must have been one of the most monumental nuclear safety problems in recorded history. Instead, this momentous occasion was meekly chronicled by a five-page internal memo (available online at http://adamswebsearch2.nrc.gov/webSearch2/main.jsp?AccessionNumber='ML113050589').

Generic Issue (GI) 186, "Potential Risk and Consequences of Heavy Load Drops in Nuclear Power Plants," was initiated by the NRC late last century, back in April 1999. The problem involved big and heavy things being carried over areas like spent fuel pools that might accidentally be dropped. For example, a loaded dry cask containing spent fuel weighs nearly 100 tons and can squash things like irradiated fuel assemblies or poke large holes in the floors of spent fuel pools to let the water drain away. The NRC initiated GS-186 to ensure this heavy load hazard would be properly managed.

Actually, GI-186 was the reincarnation of generic technical activity A-36, "Control of Heavy Loads Near Spent Fuel." In November 1977, the NRC staff classified A-36 as being Category A, "judged by the staff to warrant priority attention in terms of manpower and/or funds to attain early resolution" because its resolution would "provide a significant increase in the assurance of the health and safety of the public."

The NRC closed A-36 in July 1980 with the issuance of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants." This lengthy NRC report did not require plant owners to take corrective measures of any kind, but it reminded them about the dangers of dropping 100-ton casks on spent fuel.

Following this, the NRC issued Generic Letter 80-113, "Control of Heavy Loads," to plant owners on December 22, 1980, asking them to read part of NUREG-0612, if they hadn't already done so, and respond within six months regarding their plans to address some of the report's safety recommendations. For example, the report recommended safe load paths (i.e., moving heavy things along routes where they could be dropped without squashing anything too important), procedures for inspecting and testing cranes, training and qualification requirements for the people operating the cranes, and using lifting rigs that conform to American National Standards Institute specifications.

A month and a half later, the NRC issued Generic Letter 81-07, also titled "Control of Heavy Loads," to plant owners on February 3, 1981, asking them to read the rest of NUREG-0612, if they hadn't already done so, and respond within nine months regarding their plans to address the rest of the report's safety recommendations. These included either electrical interlocks or mechanical stops to prevent cranes from dropping heavy loads, and the use of single-failure-proofs cranes (i.e., cranes where the single failure of a bolt or cable or control cannot result in a heavy load being dropped). The NRC did not require owners to implement any of the safety measures they identified during their reviews. But the NRC encouraged owners to implement them.

Then in April 1999, the NRC staff resurrected A-36, this time calling it GI-186. Within a mere 51 months, the NRC issued another lengthy report for plant owners to read, or not. NUREG-1774, "A Survey of Crane operating Experience at U.S. Nuclear Power Plants from 1968 Through 2002," is the definitive account of crane performance over this period and recommended ways to better manage heavy load risks. Within merely 27 months after this invaluable tome was issued, the NRC sent Regulatory Issue Summary (RIS) 2005-025, "Clarification of NRC Guidelines for Control of Heavy Loads" to all plant owners. The NRC reminded owners how swell it would be not to squash important stuff when they drop heavy loads and spelled out some nifty suggestions for achieving this swellness. In the second paragraph of the RIS, the NRC informed owners that "This RIS requires no action or written response on the part of the addresses."

For some unexplained reason, the RIS didn't fully resolve GI-186. So the NRC had to send Supplement 1 to RIS 2005-025 to plant owners on May 29, 2007. In the second paragraph of the supplement to the RIS, the NRC informed owners that "This RIS requires no action or written response on the part of the addresses."

For some unexplained reason, the RIS supplement also failed to fully resolve GI-186. What to do when two half-hearted attempts fail? Try a third. So, the NRC staff sent RIS 2008-28, "Endorsement of Nuclear Energy Institute Guidance for Reactor Vessel Head Heavy Load Lifts," on December 1, 2008. In the second paragraph of the supplement to the RIS, the NRC informed owners that "This RIS requires no action or written response on the part of the addresses."

With three RISs each requiring no action on the part of plant owners under their belt, the NRC felt it was time to conclude "that the safety concerns associated with GI-186 [and presumably A-36 by extension] have been adequately addressed and that the GI is closed."

Our Takeaway

Bravo! Hip, hip, hurrah!

This is front page news. A safety issue so monumentally large and awesomely complicated that it took two concerted efforts spanning nearly 35 years has finally been resolved. All it took was two big old reports, a couple of generic letters outlining guidelines and things, and three RISs requiring absolutely no action whatsoever on the part of plant owners. But the NRC resolved it. Whew!

NOT! What they really accomplished was developing a stellar case study for civics classes to examine how government agencies should NOT behave. Two half-hearted attempts to resolve a public safety hazard does not equal one successful fix. The NRC needs to take safety seriously, or take a hike.