Nuclear power report: 14 'near misses' at US plants due to 'lax oversight'

The Christian Science Monitor

By Mark Clayton – Fri Mar 18, 4:14 pm ET

Nuclear plants in the United States last year experienced at least 14 "near misses," serious failures in which safety was jeopardized, at least in part, due to lapses in oversight and enforcement by US nuclear safety regulators, says a new report.

While none of the safety problems harmed plant employees or the public, they occurred with alarming frequency – more than once a month – which is high for a mature industry, said the study of nuclear plant safety performance in 2010 by the Union of Concerned Scientists, a Washington-based nuclear watchdog group.

The report, the first in what the UCS expects will become an annual study, details both successes and failures by the US Nuclear Regulatory Commission, which it calls "the cop on the beat." Charged with overseeing America's fleet of 104 nuclear reactors, the NRC made some "outstanding catches," but was also inconsistent in its oversight, seeming at times to nod off when most needed.

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"The chances of a disaster at a nuclear plant are low," the report states. "But when the NRC tolerates unresolved safety problems – as it did last year at Peach Bottom, Indian Point, and Vermont Yankee – this lax oversight allows that risk to rise. The more owners sweep safety problems under the rug and the longer safety problems remain uncorrected, the higher the risk climbs."

Severe accidents at Three Mile Island in 1979 and Chernobyl in 1986, for instance, occurred when a few known problems were combined with worker mistakes to "turn routine events into catastrophes," the report said. Nuclear plant owners "could have avoided nearly all 14 near-misses in 2010 had they corrected known deficiencies in a timely manner," which suggests the industry is engaged

in a game of "nuclear roulette" that could someday end badly, wrote David Lochbaum, the UCS nuclear engineer who authored the report.

Ironically, the most significant near-miss occurred on the 31st anniversary of the Three Mile Island accident – March 28, 2010 – at the HB Robinson nuclear plant in South Carolina. A high-voltage power cable at the plant failed and started a fire, shutting the plant down and causing an alert – the third-most serious emergency classification. Equipment failures and a remarkable number of operator errors transformed "a relatively routine event into a very serious near-miss," the report said.

"Unbelievably poor worker performance" contributed, too, suggesting bad training, the study said. Hours after the fire was put out, workers decided to re-energize the cable that started the fire – igniting a second fire that caused further damage. Six months later, the plant had another "near miss" due to another set of preventable factors.

Other examples include the Calvert Cliffs nuclear plant in Maryland, which on Feb. 18 automatically shut down when rainwater leaked in through holes in the roof and dripped onto electrical equipment. Workers had noticed a number of leaks across many months before this event, but plant managers had put off repairs. "After all, the roof only leaked when it rained," the report said.

Similarly, at the Braidwood nuclear plant in Illinois on Aug. 16, both reactors shut down, the report said. First, an electrical problem caused an automatic shut-down in one reactor. Then, a poorly designed safety system dumped water onto the floor of the turbine building – which then rained down to lower floors, shorting out other electrical equipment and causing the other reactor to automatically shut down. "Previous events had also dumped lots of water onto the floor," Dr. Lochbaum noted, but "management did not fix the design glitch. They only sent workers out to mop up the puddles."

So where was the NRC in all this?

After the near-miss at HB Robinson, the NRC sent a team to the site to investigate. They found a huge number of problems, including errors in design and procurement of safety equipment, maintenance, operations, and training over many years.

"There is simply no excuse for the fact that the company and the NRC had not detected and corrected at least some of these problems before this event," the study said. None of the 14 near-misses would have happened had earlier warning flags been heeded instead of being ignored or discounted â€“ suggesting

a wider problem, the report says.

"Our findings match those of the agency's internal assessments, as well as of independent agents such as the NRC's Office of the Inspector General, and the federal Government Accountability Office," the UCS report concludes. "These evaluators consistently find that NRC enforcement of existing regulations is inadequate." Study after study shows "the NRC has the regulations it needs but fails to enforce them."

Response from the Nuclear Regulatory CommissionThe NRC said it is aware of the UCS report, but is focused on responding to events in Japan and will review the report in detail after that crisis has abated.

"The NRC remains confident that our Reactor Oversight Program, which includes both on-site and region-based inspectors, is effectively ensuring US nuclear power plants are meeting the NRC's strict requirements and are operating safely," said Scott Burnell, NRC spokesman, in an e-mailed statement.

President Obama on Thursday called for a comprehensive review of US nuclear plant safety in light of events in Japan. Specifically, it is to include an NRC study on whether US reactors could withstand once-in-a-lifetime events like the earthquake and tsunami that knocked out power to the cooling system of Japan's Fukushima I nuclear complex, creating a meltdown threat.

"Our nuclear power plants have undergone exhaustive study and have been declared safe for any number of extreme contingencies. But when we see a crisis like the one in Japan, we have a responsibility to learn from this event and to draw from those lessons to ensure the safety and security of our people," Obama said.

But Lochbaum, who spent years working in US nuclear plants – including some of the 23 US plants that use the same reactor designs as the Fukushima I plant that threatens to melt down – wrote that the NRC must improve to give teeth to such mandates.

"The positive examples [in the study] show that the NRC can be an effective regulator," he writes. "The negative examples show that the agency still has some homework to do to become the regulator of nuclear power the public expects and deserves. The 14 near-misses last year shows the NRC reforms are urgently needed."

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