

Docket ID No. NRC-2012-0246, public comments on NRC WC DGEIS -- Oscar Shirani's whistleblowing revelations on Holtec dry cask QA violations

Inbox x



Kevin Kamps <kevin@beyondnuclear.org> Dec 20

to Rulemaking.Com.

Dec. 20, 2013

Dear NRC Nuclear Waste Confidence Directorate,

I do not share your confidence, expressed in your Waste Confidence Draft Generic Environmental Impact Statement (WC DGEIS, NUREG-2157), that dry cask storage of irradiated nuclear fuel is currently safe and sound, and will remain so not only for up to 80 years of reactor operations, up to 60 years beyond reactor operations during so-called "short-term storage," up to 100 years beyond that during so-called "long-term storage," and up to forevermore beyond that, during so-called "indefinite storage" (infinite storage?!).

Nor do I share your confidence about the safety and soundness of irradiated nuclear fuel transport, which would be required to go from on-site/at-reactor storage to away-from-reactor/centralized interim storage (what we prefer to call *de facto* permanent parking lot dumps) or final repositories.

One reason I do not share your confidence is because of what I learned from Commonwealth Edison/Exelon whistleblower Oscar Shirani, about the quality assurance (QA) violations involving Holtec casks. A "Summary of Oscar Shirani's Allegations of Quality Assurance Violations Against Holtec Storage/Transport Casks" is pasted in below. This Summary is also posted online at: <http://www.nirs.org/radwaste//atreactorstorage/shiranialeg04.htm>.

Although dated July 2004, to the best of my knowledge, NRC has never taken action on Oscar Shirani's revelations. In fact, quite to the contrary, NRC instead rubber-stamped the Private Fuel Storage, LLC

construction and operating license in 2005-2006. Targeted at the Skull Valley Goshute Indian Reservation, a very serious environmental justice violation, PFS LLC would have deployed a whopping 4,000 Holtec casks onto the roads, rails, and/or waterways -- more shipments of high-level radioactive waste than have yet been carried out in the U.S., since the beginning of the Atomic Age in 1945. The 4,000 Holtecs that would have been *de facto* permanently parked on Skull Valley Goshute land would have been more than twice as many dry casks as are currently parked at U.S. atomic reactor sites presently (some 1,700). That is how flippantly NRC took Oscar Shirani's dire warnings. Fortunately, PFS LLC pulled the plug a year ago today, and will not be happening, despite NRC's ready rubber-stamp.

Oscar Shirani was made to pay dearly for his integrity, and outspoken refusal to simply shut up about the Holtec QA violations. He endeavored to get Exelon to place a Stop Work Order on the manufacture of Holtecs. Instead, Exelon subjected him to harrassment by his own supervisors, and eventually ran him out of the company, and Exelon, and the U.S. nuclear power industry, blacklisted him for the rest of his life. Oscar Shirani alleged that he never signed off on the audit form granting Holtecs a clean bill of health. Oscar Shirani alleged that his signature on that audit report was forged. Neither the U.S. NRC nor the U.S. Department of Labor provided any support, relief, or assistance to Oscar Shirani, abandoning him to his fate, to both agencies' eternal shame.

I attended, and bore witness at, a two-day NRC Office of Inspector General interview with Oscar Shirani, regarding his whistleblowing allegations concerning the Holtec casks. OIG's final report did not challenge Oscar Shirani's observations or conclusions, but it did find, incredibly, that NRC had done nothing wrong in the matter, and closed the case. Thus, no action was taken by NRC's OIG, nor by NRC itself, to defend or assist Oscar Shirani as a safety conscious whistleblower, nor to investigate the merits of his allegations against the Holtec casks, or take any safety enforcement action whatsoever.

Oscar Shirani's QA allegations against the Holtec casks are very safety significant. Oscar Shirani questioned the structural integrity of Holtecs sitting still, going zero miles per hour, in on-site/at-reactor storage. But NRC has certified Holtecs for transport. The destructive forces they would face, traveling 60 mph, or even faster, down the rail lines, and potentially subjected to severe, high-speed crashes; long-duration, high-temperature fires; prolonged and/or deep underwater submersions; and perhaps even terrorist attacks; exacerbates the risks of Holtec QA violations even more.

The significance of Oscar Shirani's QA whistleblowing against the Holtecs is even more significant, considering how widely deployed they are. On November 20, 2013, Josh Jarrell, R&D Staff, Used Fuel Systems, Nuclear Fuels Storage and Transportation, Planning Project (NFST), Oak Ridge National Laboratory, presented at the U.S. Nuclear Waste Technical Review Board meeting held in Washington, D.C. During his presentation, entitled "Integrating Standardization into the Nuclear Waste Management System," Dr. Jarrell documented that Holtec has supplied a full 46% of the dry cask storage market in the U.S. up to the current point.

Thus, the risks inherent in the QA violations revealed by Oscar Shirani are widespread across the U.S., in dry cask storage ISFSIs located throughout the country. They will increase in significance as Holtecs are

transported, by barge on waterways, by heavy haul trucks on roads, or by trains on the railways, during shipments to centralized interim storage facilities, or final repositories.

Thank you.

Sincerely,

Kevin Kamps

Radioactive Waste Watchdog, Beyond Nuclear

6930 Carroll Ave., Ste. 400

Takoma Park, MD 20912

Summary of Oscar Shirani's Allegations of Quality Assurance Violations Against Holtec Storage/Transport Casks.

Holtec storage/transport casks are the first dual purpose container for irradiated nuclear fuel certified by the U.S. Nuclear Regulatory Commission (NRC). According to Holtec International's website (<http://www.holtecinternational.com>), Holtec casks are already deployed at 33 U.S. nuclear power plants. Up to 4,000 rail-sized Holtec storage/transport casks would also be used at the proposed Private Fuel Storage interim storage facility in Utah. Given the U.S. Department of Energy's (DOE) recent decision to use "mostly rail" transport to the proposed Yucca Mountain repository, Holtec casks could very well become among the most used shipping containers for highly radioactive waste.

Exelon, the largest nuclear utility in U.S., uses Holtec casks for irradiated fuel storage at its reactor sites. In 1999 and 2000, Oscar Shirani, as a lead quality assurance (QA) auditor for Exelon, identified numerous "major design and fabrication issues" during a QA inspection of Holtec International (the cask designer), Omni Fabrication, and U.S. Tool & Die (the subcontractors responsible for manufacturing the casks). In fact, he identified a "major breakdown" in the QA program itself. The problems were so severe that Shirani sought a Stop Work Order against the manufacturer of the casks until the problems were addressed. Instead, he was run out of Exelon. According to Shirani, these design and manufacturing flaws mean that the structural integrity of the Holtec casks is indeterminate and unreliable, especially under heat-related stress such as during a severe transportation accident.

Although NRC has dismissed Shirani's concerns, NRC Region III (Chicago office) dry cask inspector Ross Landsman refused to sign and approve the NRC's resolution of Shirani's concerns, concluding that this same kind of thinking led to NASA's Space Shuttle disasters.[1] He stated in September 2003, "Holtec, as far as I'm concerned, has a non-effective QA program, and U.S. Tool & Die has no QA program whatsoever." [2] Landsman added that NRC's Nuclear Reactor Regulation division did a poor follow-up on the significant issues identified, and pre-maturely closed them.

Shirani alleges that all existing Holtec casks, some of which are already loaded with highly radioactive waste, as well as the casks under construction now, still flagrantly violate engineering codes (such as those of the American Society of Mechanical Engineers [ASME] and American National Standards Institute [ANSI]), as well as NRC regulations. He concludes that the Holtec casks are "nothing but garbage cans" if they are not made in accordance with government specifications.[3]

Specific examples of the QA violations and related problems alleged by Shirani include:

- Welding problems, such improper "fast cooling" of hot cask welds and metal using fans and air conditioning equipment, which are in violation of ASME and ANSI codes and risk tearing and cracking of the unevenly cooling welds and metal, in order to meet production goals. Welds on the casks were also performed by unqualified welders. Even NRC has acknowledged that "weld quality records are not in agreement with the code requirements." [4]
- Inadequate controls on the quality of materials used in the manufacturing process, risking brittleness and weakness in the casks.
- Holtec's failure to report holes in neutron shielding material (neutrons are especially hazardous emissions from highly radioactive waste).
- US Tool & Die's failure to use coupon (a small physical sample of metal) testing, and Post Weld Heat Treatment on a regular basis, as required by ASME code and in violation of the codes that were part of the license agreement with NRC.
- Holtec and U.S. Tool & Die quality control inspectors' bypass of hundreds of non-conforming conditions, departures from the original design during cask manufacture. The departures from the original design amount to design changes that require revised analysis to guarantee that manufactured casks actually live up to the structural integrity of the original design. The fact that this revised analysis was never done is in violation of ASME and ANSI codes, and thus NRC regulations, and means the actual manufactured casks' structural integrity is questionable, according to Shirani.
- Holtec's consent to allow U.S. Tool & Die to make design decisions and changes, despite the fact that U.S. Tool & Die does not have design control capability under its QA program.
- Failure to conduct a "root cause investigation" of Holtec's QA program, even though root causes are the main reason for repeated deficiencies.
- Exelon's obstruction of Shirani from performing any follow-up of the audit to confirm that problems had been solved, despite knowing that the fabrication issues identified would have a detrimental impact on the design.
- Exelon's falsified quality-assurance documents and the misleading of the NRC investigation, stating that Shirani's allegations of QA violations were resolved when in fact they were not.
- Lack of understanding in the NRC of the design control process and Holtec's QA program, relating to flaws in welding, design, manufacturing, and materials procurement control. NRC lacks a corrective action mechanism for repeated findings. Shirani alleges his audit findings embarrassed NRC because it had also audited the Holtec casks just a few months previously but found no problems whatsoever.

Shirani concludes that these numerous design and manufacturing flaws call into question the structural integrity of the Holtec casks, especially under heat-related stress such as during severe transportation accidents. He also warns that his eight-day audit showed him only a snap shot of problems, and that there could in fact be additional ones yet to be identified.

[1] Elizabeth Brackett, "Nuclear Controversy," "Chicago Tonight," WTTW Channel 11 Television, Chicago, Illinois, January 29, 2004.

[2] J.A. Savage, "Whistleblower Alleges PG&E Proposed Dry Casks Slipshod," California Energy Circuit, Vol. 1, No. 1, Berkeley, California, September 5, 2003.

[3] *Ibid.*

[4] April 2002 NRC review panel memo, cited in J.A. Savage, "Whistleblower Alleges PG&E Proposed Dry Casks Slipshod," California Energy Circuit, Vol. 1, No. 1, Berkeley, California, September 5, 2003.

* This summary was prepared by Kevin Kamps ([202-328-0002 ext. 14](tel:202-328-0002); kevin@nirs.org), Nuclear Waste Specialist at Nuclear Information and Resource Service in Washington, D.C. July 22, 2004.

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Kevin Kamps
Radioactive Waste Watchdog
Beyond Nuclear
6930 Carroll Avenue, Suite 400
Takoma Park, Maryland 20912
Office: [301\) 270-2209 ext. 1](tel:301-270-2209)
Cell: [240\) 462-3216](tel:240-462-3216)
Fax: [301\) 270-4000](tel:301-270-4000)
kevin@beyondnuclear.org
www.beyondnuclear.org

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