

Dec. 7, 2015

FC1119 public comment opposing Exelon takeover of Pepco, re: Exelon's abuse of whistleblowers

Dear PSC Commission Secretary Westbrook-Sedgwick,

When I testified before the Chairman and Commissioners of the PSC in mid-November, I said that I would be sending supporting documents in follow up. Below, I would like to share a backgrounder I wrote in 2004, that sheds light not only on Exelon's disregard for public health, safety, and the environment, but also its mistreatment of whistleblowers who courageously attempt to uphold such principles, in the face of Exelon's greed-driven attacks upon them.

It is entitled "Summary of Oscar Shirani's Allegations of Quality Assurance Violations Against Holtec Storage/Transport Casks." This document is also posted online at: <http://www.nirs.org/radwaste//atreactorstorage/shiranielleg04.htm>

The text of the "Summary of Oscar Shirani's Allegations of Quality Assurance Violations Against Holtec Storage/Transport Casks" is pasted in at the bottom of this email, beneath my signature.

Another, closely related document is:

Dr. Ross Landsman, NRC dry cask inspector for the Midwest regional office headquartered in Chicago, wrote [this memo to his superiors expressing his full support for whistleblower Oscar Shirani's quality assurance allegations against the Holtec storage/transport casks \(handwritten notes by Oscar Shirani\)](#), mentioning the devious manner in which Exelon Nuclear orchestrated his firing, and the successfully defended itself against his wrongful termination lawsuit). [This document is dated January 17, 2001.]

This complementary document is posted online at: http://www.nirs.org/radwaste/atreactorstorage/nrc_holtec.pdf

This Jan. 17, 2001 letter by Dr. Landsman shows that not only was Commonwealth Edison/Exelon whistleblower Oscar Shirani making these allegations -- he was fully backed up by Dr. Ross Landsman, NRC's (the U.S. Nuclear Regulatory Commission's) Region 3 (Midwest) dry cask storage inspector, who also, like Shirani, has impeccable credentials. Dr. Landsman also commented upon Shirani's removal (or "sideways" move), from the Nuclear department at Exelon, over to the Finance department, and that this would result in the findings (of unsafe practices) being dropped, and nothing being done about them.

In his handwritten notes at the end of Dr. Landsman's letter, the whistleblower Shirani states that Exelon intentionally orchestrated his removal from the Nuclear department, to the Finance department, in order to run out the clock on his whistleblower claim, under law. Taking advantage of Shirani's ignorance of his rights under law, Exelon intentionally deceived Shirani, in order to allow the 180 day window to expire, during which time Shirani could have filed for whistleblower status. After the time period expired, then Exelon simply terminated Shirani, thereby covering its tracks.

I share this evidence to shed light on Exelon's profit-driven disregard for the health, safety, and environmental risks associated with the design, fabrication, and utilization of containers for ultra-hazardous, and forever lasting, high-level radioactive waste. But these violations of basic quality assurance principles and regulations not only expose Exelon's rogue corporate character in regards to public health, safety and the environment, but also reveal how it mercilessly mistreats whistleblowers. After all, proponents of the Exelon-Pepco merger seem to be implying that Exelon will create, or at least preserve, jobs, and even union jobs (at least a minimum, and minimal, number), at least for a certain minimum (and minimal) number of years. Proponents also imply that it would be good to work for Exelon. Shirani's story calls any such assumptions into very serious doubt.

Oscar Shirani was severely punished by Exelon, simply for having done his job. Shirani went from being one of the top quality assurance (QA) inspectors in the U.S. nuclear power industry, to being not only run out of Exelon, but also blacklisted by the industry nationally. Shirani went from being lauded for his brilliant insights on nuclear safety quality assurance, to being maligned as a pariah with an ax to grind. Shirani's remarkable integrity led him to decline an attempted industry bribe, meant to shut him up. He also never let go of his over-arching focus on protecting public health, safety, and the environment, by remaining true to QA regulations and safety principles, even when those same regulations and principles went unenforced and downright betrayed by NRC, in addition to being violated by the companies involved, including Exelon. Even in the midst of the harassment and retaliation he suffered, before he was ultimately terminated by Exelon, then the years-long blacklisting by the U.S. nuclear power industry as a whole, Shirani continued to speak out on behalf of nuclear safety. He did so, despite his own suffering, and that of his family.

And along the lines of Dreux Richard's March 11, 2013 article in *Japan Times* ("Toxic management erodes safety at 'world's safest' nuclear plant: Echoes of Fukushima at Exelon's flagship Byron Station in Illinois," posted online at: <http://www.japantimes.co.jp/news/2013/03/11/world/toxic-management-erodes-safety-at-worlds-safest-nuclear-plant/#.VmH0sntBJg7>), one must wonder if Shirani's death, at a tragically young age, was contributed to, in a significant way, by the horrible stress that Exelon's abuse caused him over the span of many years.

I first met Shirani, and heard his harrowing story, in early January 2003. I would continue to work with Shirani, closely and regularly, until his untimely death, in his early 50s, some five to six years later.

Shirani's brilliant gifts as a nuclear safety quality assurance inspector had significantly improved safety at Commonwealth Edison operations. Commonwealth Edison/Unicom of Chicago would merge with Philadelphia Electric Company (PECO) in October 2000, to form Exelon. This would end up changing everything for Shirani, for the worse.

One QA insight that improved safety, and won Shirani praise from industry colleagues across the country, involved dysfunctional radioactivity shielding materials on Holtec dry storage containers for irradiated nuclear fuel. This structure is most safety significant, for irradiated nuclear fuel can deliver fatal doses within minutes, or even more quickly, without proper radiation shielding in place, to persons at close range (such as workers, government inspectors, and others). Harm can also be done, at greater distances, over longer periods of time, due to radiation shielding malfunction or dysfunction on high-level radioactive waste storage containers. Shirani's discovery, of poor performing radioactivity shielding in these containers, undoubtedly prevented harmful radioactivity exposures to countless nuclear power industry workers, NRC inspectors, and others over time, had it not otherwise been discovered and corrected. And he was lauded for it. By the Holtec company itself, including its still serving CEO, Chris Singh, and in industry trade press publications, and at industry association meetings. Shirani, having been recognized as a budding leader in the field of nuclear safety quality assurance, was honored by being asked to lead industry-wide trainings in the field, at national industry conferences.

But things began to change for the worse, for Shirani, when he did his job "too well." In the late 1990s, he helped lead a major QA inspection of General Electric Nuclear Engineering (GENE) in San Jose, CA, regarding more than 50 safety significant design calculations. Shirani's employer, Commonwealth Edison of Chicago, had (and now, as Exelon, still has) a major stake in General Electric's nuclear engineering -- a large number of its atomic reactors, in Illinois (and now beyond), are of the GE boiling water reactor design. After a days-long audit and quality assurance inspection that he helped lead, Shirani, a very courageous man with remarkable integrity, presented the findings and conclusions of his QA audit team to the GENE team at its San Jose, CA HQ, during the exit meeting. Astoundingly, every single one of the more than 50 safety critical design calculations had failed the quality assurance audit, representing a serious violation of basic nuclear power safety principles. The GENE executives and engineers were stunned. And the top GE executive at the meeting was livid. He let Shirani know it, too, with a blistering barrage of foul language. This verbal abuse took place in front of a room full of people -- the GENE "hosts," as well as Shirani's quality assurance inspection team. Shirani, confident in his QA audit team's conclusions, and certain his own company would support his team's inspection findings, given the safety significant nature of the issues involved, took GE's abuse, without returning it or even becoming defensive, although it certainly was intimidating, and took tremendous personal courage to stand up in the face of.

(This episode occurred well over a decade before the Fukushima Daiichi nuclear catastrophe began in Japan on 3/11/11. The three reactors that exploded and melted down in Okuma and Futaba, Japan were GE Mark I Boiling Water Reactors, designed at GE's San Jose, CA HQ. I can only wonder which of the devilish details in Shirani *et al.*'s

quality assurance safety revelations of the late 1990s, if applied in time at Fukushima Daiichi, might have prevented what has now turned into an ongoing nuclear catastrophe of historic proportions, and planetary consequences.)

Shirani returned to Chicago and, as he expected, his superiors at Commonwealth Edison supported his audit team's findings and conclusions. The result was, Commonwealth Edison issued the first Stop Work Order against GENE in its corporate history. Eventually, the failures in GENE's design calculations were resolved, to Shirani and Commonwealth Edison's satisfaction. It was a quality assurance success story, despite GENE's initial failures, not to mention the verbal abuse Shirani had been subjected to. However, Shirani's professionalism, top caliber performance as a quality assurance inspection team leader, and his personal courage and integrity, would soon come back to haunt him. He would be tested to the breaking point, and beyond (a test he passed, by the way). For the very GE executive who had verbally abused him in San Jose, CA not long before, had become his superior at the newly formed Exelon Corporation, after the merger between Commonwealth Edison and PECO in October 2000. Things deteriorated quickly for Shirani after that.

For starters, Shirani's previous superior, who had fully supported him in the GENE Stop Work Order, was quickly drummed out of the newly formed Exelon. Shirani's relationship with his new superior, formerly at GENE, was of course very strained, given what the GENE executive had said about and done to Shirani before. His new boss didn't let up on the abusive behavior directed at Shirani.

The stage had been set when, just a few months before the Commonwealth Edison-PECO merger to form Exelon, in June-July 2000, Shirani led a national quality assurance audit of Holtec casks, used by Commonwealth Edison/Exelon, and many other nuclear utilities nationwide, for storing irradiated nuclear fuel at around a third of the reactors across the U.S. He was tapped to lead this Holtec Users Group (HUG) audit because of his demonstrated credentials as a top QA auditor nationwide. In the following few days, his team of QA inspectors from a dozen different nuclear utilities, including his own, found nine major categories of design and fabrication QA violations at Holtec sub-contractor, U.S. Tool and Die's, cask manufacturing factory in the Pittsburgh area. The Shirani-led team's findings are summarized below, in my backgrounder. Shirani, as he had at GENE previously, notified U.S. Tool and Die, and Holtec, officials at the end of the audit, during the exit interview, as to the violations documented. He then returned to the still Commonwealth Edison, soon to be Exelon, HQ in Illinois to report his team's findings, and seek yet another Stop Work Order.

But things had fundamentally changed from before. Even before Exelon's official merger had been consummated, the priority was now clearly shifting to profits over safety. The soon-to-be Exelon had a cask-loading schedule at reactors in Illinois it meant to keep, and did not like the delay that Shirani's requested Stop Work Order would cause, which could impact on reactor operations, and thus profits. Instead of supporting Shirani's request, as before with the GENE Stop Work Order, his superiors now opposed him at every turn.

But Shirani, exhibiting his remarkable courage and integrity yet again, refused to sign off on an “all clear” rubber-stamp, which would have allowed Holtec casks to be loaded with high-level radioactive waste at Exelon reactors, despite the safety violations Shirani’s team had uncovered in Pittsburgh. Shirani stuck by his position that a Stop Work Order needed to be issued, until the safety violations were resolved.

The stand off was so entrenched, and the pressure so intense, that Shirani’s immediate superior committed an illegal act to break the impasse, in service to the emergent, dangerous profits-over-safety philosophy. He forged Shirani’s signature on the audit form, thus granting Holtec a passing grade on QA, breaking the logjam (not to mention the law), and allowing the Holtec casks to be loaded in Illinois, against Shirani’s QA and safety-based protestations.

Shirani did not remain silent about this. He spoke out at every opportunity within Exelon. When that provided no relief, nor resolved his deepening concern about not only Holtec’s, but also (as of October 2000) Exelon’s, betrayal of nuclear safety, he ultimately was forced to then turn outside his company to raise warnings – to the NRC (in October 2001), which was supposed to protect him in his now whistleblower status. NRC did not protect or support Shirani. Neither did the U.S. Department of Labor.

Like his Commonwealth Edison superior before him, who had supported his Stop Work Order against GENE, Shirani would ultimately be driven out of Exelon. But not before being subjected to intense harassment and retaliation, on a regular basis.

After enduring many months of such mistreatment, Shirani was relieved to be offered a position in another department at Exelon – Finance. He explained repeatedly to the executive from Finance who offered him the position that he had no experience in Finance. But she confided that she did not like the mistreatment he was suffering, and his excellent nuclear safety audit skills would serve him well as a financial auditor. He thankfully accepted the offer of an intra-Exelon transfer, relieved to escape the worsening abuse he was suffering at the Nuclear safety QA department. In December 2000, Exelon maneuvered to “clock out” Shirani from the Nuclear department. The move was locked in by January 15, 2001. Shirani was then working in the Finance department.

But it was all a trick to get rid of him, to terminate him, and to cover Exelon’s tracks regarding retaliation under whistleblower protection laws. Little did Shirani realize that he had only 180 days in which to file with the NRC for protection status. Exelon, in its deceptive maneuver to lure him out of the Nuclear department, where he was suffering so much abuse, to Finance, was intentionally running out that clock. Shirani never suspected it.

After just nine months or less at the Finance department, during which he was praised for his good work, he was notified that his position was being eliminated as a part of the Commonwealth Edison-PECO merger to form Exelon. He then realized he had been tricked, and driven out of the company. This took place in October 2001. That same month, he applied to NRC for whistleblower protection status. But the trick had already

worked, running out the clock on his short window to have applied for whistleblower protection status.

After being terminated from Exelon, he was also mostly, to entirely, blacklisted from the U.S. nuclear power industry. This went on for the rest of his life, for the next many years. After a point not long after being forced out by Exelon, he would never be allowed to work again for the nuclear power industry in the U.S. And, despite his long experience, demonstrated ability, and impeccable credentials, he was never even granted a call back or job interview with the NRC for a job, despite his repeated applications, even though it was hiring large numbers of new employees at the time. The same was true in the nuclear power industry itself. It was hiring large numbers of workers at the time, as it was supposedly enjoying a much hyped “Nuclear Renaissance.” In fact, Exelon, formed from the merger of the #1 and #2 largest nuclear utilities in the U.S. (Commonwealth Edison and PECO, respectively), had a major hand in the hosting of the first “Nuclear Renaissance” event in the U.S., held at the Palmer House in downtown Chicago in late 2001.

He ultimately pursued a Department of Labor wrongful termination lawsuit. But Exelon had so cleverly covered its tracks, by running out the clock on his whistleblower protection claims, that the disinterested DOL ruled against Shirani, in Exelon’s favor.

The only support Shirani received from NRC was from a lead NRC Region 3 dry cask storage inspector. Shirani spoke out, at a Holtec Users Groups (HUG) conference held in Chicago in November 2000, raising the red flag about the Holtec QA violations that Exelon and Holtec were ignoring and covering up. Dr. Ross Landsman from NRC Region 3, a top dry cask storage inspector for the agency in the Midwest region, also happened to be in attendance, and heard Shirani’s testimony. He approached Shirani after he spoke out, asking for more information. Ultimately, Dr. Landsman expressed full backing for Shirani’s concerns, as documented in Landsman’s Jan. 17, 2001 memo cited and linked above (the handwritten notes on the memo, by the way, are Shirani’s own, and point out that he had been transferred out of Exelon’s Nuclear department, to its Finance group, just two days before Landsman’s memo was written. As mentioned above, Dr. Landsman commented upon Shirani’s removal (or “sideways” move), from the Nuclear department at Exelon, over to the Finance department, in his Jan. 17, 2001 memo, and that this would result in the Shirani-led QA audit team’s findings (of unsafe practices and QA violations) being dropped, and nothing being done about them. In this prediction, Dr. Landsman was entirely correct.)

Shirani also confided in me that at one point, during his distress at Exelon, the CEO of Holtec International, Chris Singh – who still serves in that capacity, by the way – attempted to bribe him into silence. Singh approached Shirani, and offered to hire him. He told Shirani that he could write his own paycheck. All Shirani had to do was name the six-figure salary he wanted, and Shirani was hired. The *quid pro quo*, of course, was that Shirani remain silent about Holtec’s QA violations. Shirani, a man of absolute integrity, declined the attempted bribe.

It was after all this, including his October 2001 termination by Exelon, and during his blacklisting by industry (and betrayal by NRC), that Shirani turned to groups like NIRS (Nuclear Information and Resource Service, based then in Washington, D.C., and for which I worked at the time) for help. That's how I met him, in January 2003.

Shirani had appealed for whistleblower protection to NRC in October 2001. The agency never provided him any.

After having lost his wrongful termination lawsuit at the Department of Labor, and with dwindling options, he also approached the NRC OIG (Office of Inspector General, responsible for policing agency wrongdoing), demanding action. I sat in on one of two days worth of Shirani's interview with three investigators from NRC OIG. Many months later, NRC OIG issued its report. While NRC OIG concluded that it did not question Shirani's conclusions regarding QA violations at U.S. Tool and Die, it did not find that NRC staff had misbehaved in any way in his case, or regarding Holtec casks in general. This was shocking, given that NRC had not supported Shirani as a whistleblower. Nor had NRC taken the Shirani QA audit team's report on regulatory violations involving Holtec casks seriously at all. In fact, NRC staff had conducted its own audit of U.S. Tool and Die less than a year before Shirani's team (NRC's audit was in August 1999; the Shirani-led HUG audit was in June-July 2000), and found nothing wrong. This was more a reflection of NRC staff's incompetence (or even worse, collusion and complicity), than on there being no QA violations to find. For Shirani's team had found a shocking number, enough to elicit Shirani's recommendation to Exelon to issue a Stop Work Order to Holtec and U.S. Tool & Die.

Shirani also met one-on-one with the director of NRC's Spent Fuel Project Office (SFPO), and explained to him the QA violations with the Holtec casks. After a certain point, the SFPO director threw up his hands in exasperation, and said that Shirani was talking way over his head – admitting that he didn't even understand what Shirani was saying. This is most frightening, since NRC's SFPO director is one of the federal officials who is supposed to be on top of, and enforcing regulations regarding, QA and safety, health, and environmental protection in such matters.

In short, Shirani's warnings about safety risks, and pleas for support as a whistleblower, entirely fell on deaf ears at the agency, NRC, whose mandate is to protect public health, safety, and the environment against the risks of nuclear power and radioactive waste.

Again, in light of the ongoing Fukushima Daiichi nuclear catastrophe, which will mark its five-year commemoration on March 11, 2016, Exelon and NRC's behavior is most troubling. The Japanese Parliament, at the conclusion of its independent investigation, pointed to collusion between nuclear safety regulatory agency (NISA, the Nuclear and Industrial Safety Agency), the nuclear utility (Tokyo Electric Power Company), and elected/government officials, as the root cause of the catastrophe, the reason why the three reactors that melted down, exploded, and have released so much hazardous radioactivity, were so very vulnerable in the first place to the natural disasters that hit them on 3/11/11.

Whether due to incompetence and/or collusion, NRC is part of such a risky, cozy matrix here in the United States. And Exelon, as the single biggest nuclear power company in the U.S., helps lead and foster such dangerous, corrupting collusion with NRC and elected officials – at both the state and federal level.

Shirani stood up to this juggernaut, and was made to pay for it. His family suffered too. The long blacklisting in the U.S. meant that Shirani, his family's breadwinner, went without work and income for years on end. He eventually found work, but not in the U.S., nor even Canada, but rather in France. His family had to remain in Chicago, however, so he didn't get to see them very much, if at all, for long stretches of time.

I last time I saw Shirani was in November, 2008 at a large NRC/industry conference in Bethesda, MD, across the street from NRC HQ. The conference was focused on ITAAC (Inspections, Tests, Analyses, and Acceptance Criteria). Shirani, who happened to be in the U.S. at the time to see his family, had paid his own way to the conference, to raise his objections to rampant QA violations across the U.S. nuclear power industry. He saw the regulatory rollbacks taking place under the newly evolving ITAAC rubric as the latest assault on U.S. and international nuclear QA and nuclear safety. At one point, he spoke out passionately, during the question and answer session, from the audience floor, challenging the regulatory retreat, and the increasing risk-taking. Some of the very Exelon executives and co-workers who so abused him, sat in the room filled with many hundreds of industry and NRC representatives.

Just over a month later, I learned that Shirani had died. I learned from his family that he had been diagnosed with brain cancer around Dec. 20, and died six short days later.

I relate Shirani's story, because of the cautionary tale it holds for this Exelon-Pepco merger. Dreux Richard exposed Exelon management's heartless abuse of workers at the Byron nuclear power plant, in his *Japan Times* article on March 11, 2013. He documented several cases where Exelon employees at Byron either committed suicide, or else died young from stress related illnesses, and asked if Exelon's abuse had not contributed to their deaths. I ask the same question about Shirani's untimely death.

If and when the rogue, toxic corporation Exelon behaves this way towards Pepco workers in and around Washington, D.C., not only would this be an unacceptable harm upon those workers' physical and mental health, as well as the wellbeing of their families, it would also create a climate of fear at the workplace, that couldn't help but undermine safety culture throughout the Pepco workforce. This would have a potentially significant impact on the health, safety, and environment of Pepco ratepayers, and all D.C. residents, in terms of increased risk, in D.C. and beyond in the Mid-Atlantic region, as it already does where Exelon operates its large fleet of atomic reactors, as in Nebraska (as operator), and in Illinois, Maryland, Pennsylvania, New Jersey, and New York (as the owner and operator). Exelon's rogue and toxic corporate practices at the Peach Bottom, PA nuclear power plant (where two Fukushima Daiichi twin-design reactors, GE Mark I boiling water reactors, operate), as well as the two reactor Calvert Cliffs nuclear power plant in

Lusby, MD, already put Washington, D.C. at risk, on an ongoing, daily basis. Peach Bottom is less than 100 miles, and Calvert Cliffs is about 50 miles, from the District of Columbia, making D.C. within the downwind and food/water ingestion danger zone, considering how far fallout from Chernobyl and Fukushima Daiichi extended.

The proposed Exelon takeover of Pepco would bring these rogue, toxic corporate behaviors into the heart of Washington, D.C., on a permanent basis. I urge the DC PSC to once again reject the merger as not in the public interest. That's putting it mildly.

Sincerely,

Kevin Kamps, Beyond Nuclear

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 [...] Nuclear Waste Specialist at Nuclear Information and Resource Service in Washington, D.C. July 22, 2004.

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Beyond Nuclear aims to educate and activate the public about the connections between nuclear power and nuclear weapons and the need to abandon both to safeguard our future. Beyond Nuclear advocates for an energy future that is sustainable, benign and democratic.