RE:
COMMENTS REGARDING THE U.S. NUCLEAR REGULATORY COMMISSION OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS DIVISION OF SPENT (sic) FUEL STORAGE AND TRANSPORTATION, SUPPLEMENT TO THE ENVIRONMENTAL ASSESSMENT AND DRAFT FINDING OF NO SIGNIFICANT IMPACT RELATED TO THE CONSTRUCTION AND OPERATION OF THE DIABLO CANYON INDEPENDENT SPENT (sic) FUEL STORAGE INSTALLATION, DOCKET NO. 72-26, PACIFIC GAS AND ELECTRIC COMPANY

TO:
Chief, Rulemaking, Directives, and Editing Branch,
Mail Stop T6-D59
U.S. Nuclear Regulatory Commission
Washington
DC 20555-0001.
Attention: James R. Hall, Senior Project Manager

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DATE:
July 2, 2007

"Die Menschen lernen nur aus Katastrophen. Schade!"
[People only learn from catastrophes. Too bad!]

Graffiti on a wall close to the Gorleben Nuclear Site in Germany

Quoted in "Residual Risk: An Account of Events in Nuclear Power Plants Since the Chernobyl Accident in 1986," May 2007, by Mycle Schneider et al.

These comments are filed just days after three attempted car bombings took place in London, England and Glasgow, Scotland, which should clearly show the NRC that terrorist attacks are neither speculative nor remote, but need to be addressed under NEPA, as regarding the Diablo Canyon Nuclear Power Plant Independent Irradiated Nuclear Fuel Installation Environmental Assessment.

The Supplement to the U.S. Nuclear Regulatory Commission's (NRC) Environmental Assessment (EA) provides no more assurance to the public who live in the shadow of Diablo Canyon – or any other nuclear reactor - than did the Commission's short-sighted and non-comprehensive EA of October 24, 2003. Furthermore, the reconstituted EA continues to ignore the requirements of the National Environmental Policy Act (NEPA). This NRC draft EA and FONSI is yet another clear example of NRC failing to fulfill its mandate to protect public health and safety, the common defense and security, and the environment, this time leaving our communities at risk and peril of a terrorist attack against high-level radioactive waste storage while ignoring safeguards and precautions that could be put in place to better deter or safeguard against such an attack.

NIRS agrees with the assessment of the San Luis Obispo Mothers for Peace that the recently reissued EA:

- Misrepresents and downplays the environmental impacts of attacks on the facility by using baseless suppositions, resulting in an assessment that neglects credible attacks that could trigger significant damage to the human environment.
- Omits key documents on which NRC's EA relies, thus making it impossible for any party or reviewing court to verify the appropriateness of its reliance on those documents.
- Fails to address the U.S. government's major plan for protection of critical infrastructure and key resources, the National Infrastructure Protection Plan ("NIPP") (2006), and
- Finally, the EA fails to comply with NEPA because it does not consider the significant cumulative impacts of the proposed ISFSI in relation to the impacts of the existing high-density pool storage system for irradiated nuclear fuel at the Diablo Canyon nuclear plant.

As a result of these profound deficiencies, the EA Supplement completely fails to demonstrate that the NRC made a "fully informed and well-considered" determination of no significant impacts. NEPA requires the NRC to go back to the drawing board and provide an analysis that is understandable and scientifically supported.

NIRS does not oppose hardened dry cask storage systems that will alleviate the dangerous overcrowding of irradiated nuclear fuel assemblies at our nation's 104 reactors. Nearly 150 national and grassroots public interest, environmental, and safe energy groups across the U.S., including NIRS, have called on the U.S. Congress and nuclear establishment to put in place "hardened on-site storage" for high-level radioactive wastes stored at reactors. See Attachment A, "Principles for Safeguarding Nuclear Waste at Reactors." We request that NRC treat these "Principles for Safeguarding Nuclear Waste at Reactors" as part and parcel of our comments regarding the Diablo Canyon Nuclear Power Plant (DCNPP) EA. NRC should incorporate these principles into its EA alternatives.

As an additional alternative to consider in its supplemental EA, NRC should incorporate the insights of Dr. Arjun Makhijani of the Institute for Energy and

Environmental Research. Dr. Makhijani advocated hardened on-site storage (HOSS) for irradiated nuclear fuel stored at reactor sites as early as April, 2002 at a conference sponsored by Citizens Awareness Network held at Wesleyan College in Connecticut. In fact, he coined the term "hardened on-site storage." Dr. Makhijani wrote up his HOSS proposal in June, 2002. See Attachment B.

Yet NIRS believes that the dry cask storage sites will be not "temporary." In fact this belief is reinforced by the fact that the NRC appears to have no clear and precise definition for "temporary" storage. NRC's oft repeated assurances that dry cask storage at reactor sites is safe for a century or more flies in the face of ordinary, plain English definitions of "temporary" or "interim" – 100 years being nearly half as long as the existence thus far of the United States itself (1776 to 2007 is 231 years).

Furthermore, at a recent workshop of the California Energy Commission, the Department of Energy (DOE), the Nuclear Energy Institute and other nuclear power proponents stated that there is no need to rush forward with either the Yucca Mountain dumpsite proposal or reprocessing (plutonium extraction) facilities, as radioactive waste stored at reactor sites is perfectly safe for 100 or more years. There were even suggestions that radioactive waste casks from decommissioned sites could be transferred to operating reactor sites, increasing the risks that the NRC has chosen to ignore. Such waste transfers to DCNPP would raise the specter of waste transportation risks, including vulnerabilities to terrorism. In addition to road and rail shipments, DOE has proposed barge shipments at Diablo Canyon. We address the relevance of such transport risks to the DCNPP Independent Spent (sic) Fuel Storage Installation (ISFSI) EA below.

The San Luis Obispo Mothers for Peace's (SLOMFP) contentions are well reasoned and solely designed to protect the residents of the Central Coast as well as the citizens of the United States. NIRS fully supports all SLOMFP contentions and requests that the NRC reconsider its Supplemental EA, as the country deserves much better protection, and the full attention of the Nuclear Regulatory Commission's oversight. To place the financial interests of nuclear utilities above the safety and security of the public is more than just a disservice to our country; it is exactly what the 911 Commission determined to be the cause of the worst tragedy on U.S. soil – "The failure to imagine the unimaginable". It is also a stark failure by NRC to fulfill its mandate – to protect public health and safety, the common defense and security, and the environment.

There is no single person who could better relate and legally argue for a true, transparent, and independent environmental impact statement—not just a cursory assessment—of foreseeable impacts of acts of terrorism, sabotage or acts of malice and insanity at nuclear targets than Diane Curran, legal counsel to SLOMFP. Therefore, we ask that the Nuclear Regulatory Commission honor the request of the San Luis Obispo Mothers for Peace and admit all contentions and hold a formal adjudicatory hearing on the adequacy of the EA Supplement to consider the environmental impacts of intentional attacks on the proposed dry cask storage site for high-level radioactive waste produced at the Diablo Canyon Nuclear Plant.

NIRS additionally submits the following detailed comments:

REQUEST FOR EXTENSION TO PUBLIC COMMENT PERIOD

NIRS requests an extension to the public comment period. NRC has provided just one month for the public to comment. Given the vital safety, security, and environmental issues the DCNPP ISFSI proposal raises, we request a three-month public comment period – thus, an extension of two additional months. This request is eminently reasonable, given that this ISFSI could be operated for many decades, or even a century or more, into the future. It makes no sense for NRC to rush this process, which effectively limits the public's ability to comment on NRC's proposals and actions (or lack of appropriate actions).

INSIGHTS FROM 2005 NAS STUDY ON IRRADIATED NUCLEAR FUEL SAFETY AND SECURITY

On April 6, 2005, the Committee on the Safety and Security of Commercial Spent Nuclear Fuel Storage of the Board on Radioactive Waste Management in the Division on Earth and Life Studies at the National Research Council of the National Academies of Science (NAS) published the public version of its report on the "Safety and Security of Commercial Spent Nuclear Fuel Storage."

Chapter 4, "DRY CASK STORAGE AND COMPARATIVE RISKS," evaluates the potential risks of dry cask storage, including the risks of terrorist attacks against ISFSIs. As clearly indicated by NAS's list of "steps that could be taken to reduce the likelihood of releases of radioactive material from dry casks in the event of a terrorist attack," ISFSIs are not invulnerable to terrorist attack, at least in the judgment of this panel of scientific and technical experts. Thus, NRC's FONSI is entirely unacceptable, even on its face.

It must be pointed out that the risks are even larger than NAS realized in its report. For example, nuclear utilities are all too commonly violating dry cask storage safety rules, and NRC lets them get away with it. NAS states on Page 61 that "Passive cooling and radiation shielding are possible because these casks are designed to store only older spent fuel. This fuel has much lower decay heat than freshly discharged spent fuel as well as smaller inventories of radionuclides." But in 1999, Nuclear Management Company at Consumers Energy's Palisades Nuclear Power Plant in Michigan loaded less-than-five-years-cooled fuel into dry casks, a violation of the casks' technical specifications. NRC did not penalize the companies for this breach of the regulations. Thus, because of nuclear utilities' disregard for even basic dry cask storage safety rules and regulations, and NRC's lack of enforcement, it was not a conservative assumption for NAS to assume that only irradiated nuclear fuel cooled for at least five years in an underwater storage pool could be loaded into dry storage casks.

It must also be pointed out that, even though it is true that individual dry casks

each contain far less radioactivity than waste storage pools, and that “older” irradiated fuel contains less radioactivity than irradiated fuel more recently discharged from an operating nuclear reactor core, the wastes stored in dry casks still contain immense quantities of deadly radioactivity. Dr. Marvin Resnikoff of Radioactive Waste Management Associates in New York City has calculated that, counting only the radioactive cesium isotopes alone in irradiated nuclear fuel, each dry cask contains 240 times the long-lasting radioactivity that was released by the Hiroshima atomic bomb. This figure is thus a conservative estimate, for it accounts for only five radioactive cesium isotopes, while failing to account for the hundreds of additional radioactive poisons present in irradiated nuclear fuel.

Further, DOE’s 2002 Yucca EIS reports that, within irradiated nuclear fuel, “51 radionuclides represent all of the health-significant species that can contribute to a radiological dose if released in an accident.” Of course, such radiological releases could also be caused by intentional attacks upon dry storage casks. In addition, “DOE included a radionuclide contribution from activated corrosion products deposited on the surfaces of spent (sic) nuclear fuel assemblies during reactor operation. This material is called crud." (Yucca EIS, page A-15 to 16). According to the subtotals for 53 radionuclides included in DOE’s Table A-12 (“Radionuclide activity for representative pressurized water reactor fuel assemblies”) on page A-21, each PWR irradiated nuclear fuel assembly (DCNPP has two PWRs) contains more than 229,775 curies. According to the cask vendor’s website (http://www.holtecinternational.com/), each HISTORM-100 storage cask can hold from 24 to 32 PWR assemblies. Thus, each cask at DCNPP’s ISFSI would hold between 5,514,600 and 7,352,800 curies. To give some idea as to how immense an amount of dangerous radioactivity each cask would contain, a large medical center, such as the Washington University of St. Louis, Missouri, with as many as 1,000 laboratories in which radioactive materials are used, may have a combined inventory of only about two curies. But even these two curies require precautions and safeguards, to prevent harmful exposures to radioactivity. Release of even a fraction of the five to seven million curies contained in each dry storage cask at ISFSI due to a terrorist attack could prove disastrous to the DCNPP itself, and if involving a severe, long duration fire, could prove catastrophic to downwind and downstream regions and populations, out to considerable distances. How many latent cancer fatalities? How many peak early death and injuries? How far downwind and downstream? Those are exactly the kinds of questions NRC should have addressed in its EA, but has not, despite being under federal court order to address the risks of terrorist attacks against the ISFSI under NEPA. NRC has been derelict in its duties.

And although NAS reports at page 61 that “Criticality control is less of an issue in dry casks because there is no water moderator present after the cask is sealed and drained,” there does remain such risk, due, for example, to underwater submersion in an accident or attack during transport of the casks by barge via waterways.

RISKS OF WASTE BARGE SHIPMENT TO/FROM DCNPP IGNORED BY NRC’S EA

This concern raises another area that NRC neglected to address -- the risks associated with someday transporting away purportedly "dual-purpose" Holtec storage/transport casks from Diablo Canyon Nuclear Power Plant to an away-from-reactor "interim" storage site, reprocessing facility as proposed under the Bush administration's Global Nuclear Energy Partnership, or a permanent repository. This is a relevant issue NRC has failed to address, for it relates to the operations and ultimate decommissioning of the DCNPP ISFSI.

There is even the possibility that dry storage casks from other, especially permanently shut down nuclear power plants (such as PG&E's shuttered Humboldt Bay Nuclear Power Plant in northern California), could be transferred to operating nuclear power plants such as Diablo Canyon for consolidation purposes. This possibility was mentioned at a recent workshop of the California Energy Commission, as cited above. NRC must address such possibilities in its EA which could stem from the opening of the Diablo Canyon ISFSI, for they are certainly foreseeable, plausible, and credible.

For example, the U.S. Department of Energy (DOE) proposed in its 2002 Yucca Mountain Final Environmental Impact Statement that DCNPP casks be barged to the Port of Hueneme in Oxnard, CA as the initial leg of their shipment to Nevada for burial. Figure J-9 in the DOE Yucca FEIS shows the proposed transport "Routes analyzed for barge transportation from sites to nearby railheads," at page J-80. Table J-27, "Barge shipments and ports," on page J-83, shows that up to 312 barge shipments from DCNPP to Oxnard are proposed. This map and table are in DOE's "Final Environmental Impact Statement for Yucca Mountain," Appendix J ("Transportation"), published February 12, 2002. These 312 barges carrying giant high-level radioactive waste containers onto the Pacific Ocean would travel along the California coastline for nearly 150 miles.

Accidents happen. Terrorist attacks are also possible, as the events of September 11, 2001 so tragically showed. But what if high-level radioactive waste is involved? U.S. Nuclear Regulatory Commission design criteria for atomic waste transport and storage containers are woefully inadequate. Rather than full-scale physical safety testing, scale model tests and computer simulations are all that is required.

The underwater immersion design criteria are meant to "test" (on paper, at least) the integrity of a slightly damaged container submerged under 3 feet of water for 8 hours. An undamaged cask is "tested" (on computers, at least) for a 1 hour submersion under 656 feet of water.

But if a cask were accidentally immersed under water, or sunk by terrorists, is it reasonable for NRC to assume that the cask would only be slightly damaged, or not damaged at all? Given that barge casks could weigh well over 100 tons (even up to or exceeding 150 tons), how can NRC assume that they could be recovered from underwater within 1 hour, or even within 8 hours? Special floating cranes capable of lifting such heavy loads would have to be located, brought in, and set up. And what about submersions that occur at depths deeper than 656 feet underwater? Are such depths present along, or nearby, the barge route from DCNPP to Oxnard, CA? NRC has not

discussed any such significant, relevant details in its woefully inadequate EA.

The dangers of nuclear waste cask submersion underwater are two fold. First, radioactivity could leak from the cask into the water. Given high-level atomic waste's deadliness, and the fact that each container would hold 240 times the long-lasting radioactivity that was released by the Hiroshima atomic bomb, leakage of even a fraction of a cask's contents could spell unprecedented catastrophe for a vast stretch of the California coastline.

Second, enough fissile uranium-235 and plutonium-239 is present in high-level atomic waste that water, with its neutron moderating properties, could actually cause a nuclear chain reaction to take place within the cask. Such an inadvertent criticality event in Sept. 1999 at a nuclear fuel factory in Japan led to the deaths of two workers; numbers of workers and emergency responders, as well as many hundreds of nearby residents, including children, received radiation doses well above safety standards. An inadvertent nuclear chain reaction in a sunken dry cask storage/transport container, such as the Holtecs to be used at DCNPP ISFSI, would greatly hamper emergency response, making it a potential suicide mission for emergency responders. This would undoubtedly worsen the radioactivity releases escaping from the damaged and sunken container.

For the reasons spelled out above, NRC must address these risks of barge shipment of casks to and from DCNPP.

TO BE, OR NOT TO BE, "ROBUST"? THAT IS THE QUESTION: ADDITIONAL INSIGHTS FROM NAS THAT NRC SHOULD ADDRESS IN ITS EA

NRC refers in the EA to the casks begin "robust." But NAS reports on page 62 that canister-based dry cask systems, including the Holtec system used at DCNPP, typically have thin-walled canisters comprised of 1/2 inch thick (1.3 centimeter thick) steel cylinders. Such thin-walled containers are entirely vulnerable to numerous attack scenarios, such as attacks launched with weaponry all too available to terrorist groups, such as remote fired anti-tank missiles, high explosives (whether delivered on foot, by land vehicles, or even by small private planes or helicopters laden with fuel and explosives).

As reported at http://www.army-technology.com/projects/tow/ , TOW anti-tank missiles can be remotely fired at a target from as far as 4.5 kilometers (2.8 miles) away. NRC must assess the risks presented by such sophisticated weapons systems in the hands of attackers intent of breaching dry casks at DCNPP in order to release their deadly radioactive contents into the winds and waves.

In addition, there are very serious quality assurance violations alleged against Holtec dry storage/transport dual purpose casks. See Attachment D for a summary of these allegations by Commonwealth Edison/Exelon whistleblower Oscar Shirani, who led a national nuclear utility consortium audit of Holtec cask quality assurance, as well as for a memo written by NRC Region III dry cask storage inspector Dr. Ross Landsman

backing up Shirani's allegations (the hand written notes at the end are by Oscar Shirani). These alleged quality assurance violations call into question the structural integrity of the Holtec casks to be used at DCNPP's ISFSI, especially under the extreme forces that would be experienced during a terrorist attack.

Significantly, Dr. Lam, the only engineer on the NRC Atomic Safety Licensing Board Panel that heard the State of Utah's contention against the Private Fuel Storage application for a license to operate an ISFSI at the Skull Valley Goshute Indian Reservation, filed a dissenting opinion against license approval. He pointed out, among other things, that quality assurance breakdowns in the design and manufacture of Holtec casks calls into question those casks' ability to withstand an accidental F-16 fighter jet crash without releasing radioactivity above permissible levels. NRC Commissioner Greg Jaczko agreed with Dr. Lam's dissent. If quality assurance failures with Holtecs make them potentially vulnerable to accidental airplane crashes, then it stands to reason that it would also make them even more vulnerable than previously believed to intentional terrorist attacks of various types. But NRC has completely failed to address this.

On page 63, NAS points out perhaps the major reason that safety and security short cuts are taken with dry cask storage of irradiated nuclear fuel. It reports that "The vendors informed the committee that cost is the chief consideration of their customers when making purchasing decisions." Not safety, nor security, nor public health or environmental protection, but cost is driving nuclear utility and cask vendor decision making when it comes to dry cask storage decisions. PG&E's desire to cut its costs, and Holtec's desire to win such contracts, leads to cutting corners on safety and security, thus increasing the vulnerability of the DCNPP ISFSI to terrorist attack.

In its "EVALUATION OF POTENTIAL RISKS OF DRY CASK STORAGE" on page 64, NAS reports "Dry casks were designed to ensure safe storage of spent fuel, not to resist terrorist attacks…The robust construction of these casks provides some passive protection against external assaults, but the casks were not explicitly designed with this factor in mind." For this reason, well organized and executed terrorist attacks could breach dry storage casks and release their contents. The casks are by no means invulnerable or impervious to terrorist attacks of various sorts.

NAS goes on "…the protection requirements for these installations [ISFSIs] are lower than those for reactors and spent (sic) fuel pools. The guard force is required to carry side arms, and its main function is surveillance: To detect and assess threats and to summon reinforcement." (page 64) Well trained, well equipped, determined (even suicidal) attackers could thus breach casks and release radioactivity before ISFSI guard forces could summon external reinforcements to repel such an attack. The present philosophy of NRC and nuclear utilities like PG&E for ISFSI security amounts to "too little, too late" in a world of high-speed, high-intensity terrorist attacks.

On page 65, NAS reports "A terrorist attack that breached a dry cask could *potentially* result in the release of radioactive material from the spent fuel into the environment through one or both of the following two processes: (1) Mechanical

dispersion of fuel particles or fragments; and (2) dispersion of radioactive aerosols (e.g. cesium-137)…the latter process would have far greater offsite radiological consequences." (emphasis in original) An explosive attack that breached a cask, combined with an incendiary attack, could disperse highly volatile radioactive poisons such as Cesium-137 long distances downwind and downstream. Cesium-137 has a 30 year half life, and thus a 300 to 600 year hazardous persistence. A release of Cesium-137 due to a terrorist attack on the DCNPP ISFSI could make large areas of land and coastline downwind and downstream uninhabitable for decades or even centuries. This is what happened downwind and downstream of the Chernobyl nuclear power plant, albeit by accident rather than terrorist attack. NRC must address such risks, but has failed to do so thus far.

The NAS reported "In the wake of the September 11, 2001 attacks, additional work has been or is being carried out by government and private entities to assess the security risks to dry casks from terrorist attacks. Sandia National Laboratories is currently analyzing the response of dry casks to a number of potential terrorist attack scenarios at the request of the Nuclear Regulatory Commission…Sandia is analyzing the responses of three vertical cask designs and one horizontal design to a variety of terrorist attack scenarios…Several attack scenarios are being considered in the Sandia analyses. They include large aircraft impacts and assaults with various types and sizes of explosive charges and other energetic devices…" One of the tested designs is the Holtec cask system, which is proposed for use at DCNPP's ISFSI (p.65-66). NAS reported in 2005 that "Most of this work is still in progress and has not yet resulted in reviewable documents." It is not clear when these studies will be completed, and how much access to the results concerned members of the public will have. But it marks an unacceptable omission on NRC's part that these Sandia studies were not even mentioned in its draft supplemental EA and FONSI, given their direct relevance to terrorist attack risks at the DCNPP ISFSI.

Relevant questions include: were remotely fired TOW anti tank missiles included in these studies? Were shaped charges included? Were high explosives included? Were water-borne, air-borne, and land-based attack scenarios included? Was incendiary attack included along with explosive attack scenarios?

NAS admits on page 65 that "…the committee did not examine surveillance requirements or the placement or effectiveness of vehicle barriers and guard stations at commercial nuclear plants." This is a major omission in the NAS study. After all, NAS already concluded that surveillance is the main purpose of guard forces at ISFSIs. If they are not doing adequate surveillance, then the guard forces at ISFSIs are largely ineffective. But even good surveillance would not prevent an attack from being delivered before armed external reinforcements could be called in, so such attacks would not be deterred, especially if carried out by suicidal attackers as occurred on 9/11/2001.

Not knowing the placement or effectiveness of vehicle barriers at ISFSIs is also a major omission by NAS, especially after the 1995 Oklahoma City bombing that destroyed a large federal building. NRC has failed to adequately address the effective of

vehicle barriers at DCNPP's ISFSI.

At page 67, NAS reports "In general, the analyses show that some types of impacts will damage some types of casks. For some scenarios there could be substantial cask-to-cask interactions, including collisions and partial tip overs." NRC has failed to address the consequences of such cask damage, and the risks associated with inter-cask collisions and tip overs as a result of terrorist attacks. One risk of cask tip overs that NRC should address is the disruption of air cooling, and the risks associated with the resultant overheating of irradiated nuclear fuel.

Also at page 67, NAS reports "…the committee judges that no cask provides complete protection against all types of terrorist attacks." NAS also mentions the possibility that a certain terrorist attack scenario, discussed in its classified report, could result in large scale radioactivity releases from dry casks. NRC must address such risks in its supplemental EA. NRC's proposed FONSI is dead wrong.

Dr. Gordon Thompson points out that terrorists could even choose to use a nuclear explosive device against a nuclear power plant (including the reactor core, waste pool, ***and dry casks***) in order to multiply the nuclear explosive's radioactivity release. In this sense, nuclear power plants and the wastes stored on site (both in pools and dry casks) must be regarded as the ultimate dirty bomb – a potentially catastrophic pre-deployed weapon of mass destruction, just waiting to be detonated. [Dr. Gordon Thompson, Institute for Resource and Security Studies, "Robust Storage of Spent Nuclear Fuel: A Neglected Issue of Homeland Security," January, 2003, available online at http://www.nirs.org/reactorwatch/security/sechossrpt012003.pdf] NRC should even address this risk, that terrorist would use a nuclear explosive device against DCNPP's reactor, waste storage pools, and ISFSI in order to release the vast quantities of deadly radioactivity on-site to blow downwind and flow downstream.

NAS admitted in 2005 that the data on terrorist risks to dry cask storage was incomplete. It also made clear that such data is kept secret as classified or safeguards information by NRC. Although the studies at Sandia of terrorist attack scenarios against dry storage casks was underway as of 2005, it is entirely unclear that NRC included any results from these studies in its supplemental EA, or that even it did include them, it did so accurately.

It's interesting that Sandia has been chosen to once again test casks' ability to withstand attacks. In the late 1970s and early 1980s, terrorist attack tests were conducted at Sandia against irradiated nuclear fuel transport containers. The test, employing some type of armor piercing rocket launcher, succeeded in tearing a gash in the shipping container's metal wall. The dummy fuel rods within were torn asunder by the path of the projectile. This would undoubtedly have resulted in a radiological release had it been an actual high-level radioactive waste shipment (in fact, if depleted uranium fuel dummies were used, it likely did release harmful radioactivity and toxic heavy metals into the Sandia environment). This information is documented in a 1992 television exposee done by a Las Vegas television station, available for review in the NIRS video library. NRC

should have learned nearly 30 years ago that nuclear waste casks are vulnerable to terrorist attacks. Available weaponry has only grown more potent since that time. These long ago tests at Sandia are relevant to the DCNPP ISFSI, for the Holtec casks are dual purpose, storage ***and transport.***

Significantly, NAS reported on page 68 that "In the committee's opinion, there are several, relatively simple steps that could be taken to reduce the likelihood of releases of radioactive material from dry casks in the event of a terrorist attack:

--Additional surveillance could be added to dry cask storage facilities to detect and thwart ground attacks.

--Certain types of cask systems could be protected against aircraft strikes by partial earthen berms. Such berms also would deflect the blasts from vehicle bombs.

--Visual barriers could be placed around storage pads to prevent targeting of individual casks by aircraft or standoff weapons. These would have to be designed so that they would not trap jet fuel in the event of an aircraft attack.

--The spacing of vertical casks on the storage pads can be changed, or spacers (shims) can be placed between the casks, to reduce the likelihood of cask-to-cask interactions in the event of an aircraft attack.

--Relatively minor changes in the design of newly manufactured casks could be made to improve their resistance to certain types of attack scenarios."

Such NAS recommendations, echoed and even expanded upon by the Principles for Safeguarding Nuclear Waste at Reactors and IEER's HOSS proposal (Attachments A and B), would constitute NEPA alternatives that NRC should have explored in its supplemental EA. Not to have done so is a dereliction of duty by NRC to protect the public. NRC's failure to identify ways that DCNPP's ISFSI could be better secured against terrorist attacks, and the potentially catastrophic radioactivity releases that could result, is outrageous, especially considering that NRC is under court order by the 9th Circuit Court of Appeals to do so.

At page 69, NAS reports "…The costs of recovery [after a terrorist attack on an ISFSI] could be high, however, especially if the cask could not be repaired or the spent (sic) fuel could not be removed with equipment available at the plant. A special facility might have to be constructed or brought onto the site to transfer the damaged spent fuel to other casks." NRC has failed to address any such scenarios.

Although NAS reports that "breaches in dry casks could be temporarily plugged with radiation-absorbing materials until permanent fixes or replacements could be made," and that "The most significant contamination would likely be largely confined to areas near the cask storage pad and could be detected and decontaminated," NAS did not address how high the doses to workers, emergency responders, and nearby residents

would be from such contamination and loss of radiation shielding. NAS also did not address the risk of an incendiary device being used to volatilize certain radionuclides such as cesium isotopes, causing fallout downwind and downstream to farflung distances. Nor did it address economic damage due to stigma effects, as would occur in the surrounding region if such an attack took place at DCNPP. NRC, for its part, addressed no such questions in its woefully inadequate EA and FONSI, but must do so to comply with NEPA and the federal courts.

At page 69, NAS reports "All storage cask designs are vulnerable to some types of terrorist attacks for which radionuclide releases would be possible." NRC inappropriately rejects such a well considered finding in its supplemental EA.

At page 70, the NAS recommends that "The Nuclear Regulatory Commission should consider using the results of the vulnerability analyses for possible upgrades of requirements in 10 CFR 72 for dry casks, specifically to improve their resistance to terrorist attacks." It went on "…there appear to be minor changes that can be made by plant operators and cask vendors to increase the resistance of existing and new casks to terrorist attacks." These upgrades to regulations, and changes to dry storage cask designs, manufacturing, and installation, would constitute positive alternatives under NEPA that NRC should have considered, and implemented. NRC has thus far entirely neglected its NEPA responsibilities in this regard.

Despite NAS's analyses and recommendations from over two years ago, NRC instead has issued a FONSI, and has allowed PG&E to build the ISFSI while disregarding the very real risks of potential terrorist attacks on the site. The precautions that could have been integrated into the original design and installation could now only be added at much greater cost. But they should still be required, for the costs, to public health, the environment, and the economy, of a successful terrorist attack against and large-scale radioactivity release at the DCNPP ISFSI would be much higher still.

Even the on-site contamination referred to by NAS could shut down a multi billion dollar, 2,290 megawatt-electric nuclear power plant (Diablo Canyon) for an indefinite period as clean up and decontamination took place, causing hundreds of millions of dollars in economic losses. If DCNPP had to be permanently abandoned due to severe, widespread on-site radioactivity contamination due to a successful terrorist attack, then the losses would reach the billions of dollars. While NIRS and many other organizations support a permanent shut down of DCNPP for numerous reasons, even NRC and PG&E, which are in favor of DCNPP's continued operation for decades to come for their own short-term, short-sighted economic interests, should take the risks of terrorism more seriously than they have thus far.

At page 98, NAS reports that "In 1979-80 at the German Army facility in Meppen, a 'hollow charge' (i.e., shaped charge) weapon was fired at a ductile cast iron plate and fuel assembly dummy to simulate a CASTOR cask. The cask plate was perforated…From this experiment, the German government concluded that the wall thickness of the cask should not be less than 300 millimeters." 300 millimeters equals 30

centimeters, or over 11.8 inches. But the metallic layers of U.S. casks are ***much*** thinner! As mentioned above, the inner canister wall thickness on Holtec casks, as would be used at the DCNPP ISFSI, are only ½ inch (or 1.3 centimeter) thick steel. Granted, Holtec casks are comprised of additional layers of metal and concrete. But as cited above in the NAS study, Holtec's design was not developed to withstand terrorist attacks. And as shown below, even concrete "flak jackets" (actually originally designed for radiation shielding along) would be obliterated by anti-tank weapons, as shown at Aberdeen Proving Ground in 1998.

NAS went on "Other tests were carried out at the Centre d'Etude de Gramat in France in 1992 on behalf of the Germany Federal Ministry of Environment, Nature Protection and Nuclear Safety (BMU)…These tests involved shaped charges directed at a CASTOR cask (type CASTOR IIa, the cask was one third of the regular length) filled with 9 fuel element dummies with depleted uranium. The fuel rods were pressurized to 40 bars to simulate fuel burn-up, but the cask interior was at atmospheric pressure or at reduced pressure of 0.8 bars. The shaped charge perforated the cask and penetrated the fuel elements. This damaged the fuel and resulted in the release of fuel particles from the cask." Given such field testing data, NRC must address the risks of such terrorist attacks upon dry casks at DCNPP. U.S. cask systems such as Holtecs seem even more vulnerable to such terrorist attacks than are CASTORs. NRC should clearly establish different cask systems' abilities to withstand various terrorist attack scenarios, so that the use of the various cask systems can be rated against one another as alternatives, under NEPA, for dry cask storage at Diablo Canyon.

NAS continued "In 1998, a demonstration was carried out at the Aberdeen Proving Ground in the United States using an anti-tank weapon on a CASTOR-type cask. The purpose of this demonstration was to show that a concrete jacket on the exterior of the cask could prevent perforation. The weapon was first fired at the cask without the jacket. It perforated the front wall of the cask. The concrete jacket was effective in preventing perforation of the cask."

The illogic of NAS's statement above is the assumption that terrorists would only have a single anti-tank missile at their disposal. Why couldn't a terrorist attack employ two or more anti-tank missiles – the first would obliterate the concrete jacket (as the video of the Aberdeen test indeed showed happened), and the second could then perforate the CASTOR or other dry cask. Combined with an incendiary attack that caused a severe, high-temperature, long-duration fire, volatile radionuclides such as cesium-137 could then be deposited downwind as fallout carried out and up by the fire, and escaping with the smoke clouds, falling out over long distances downwind, and flowing long distances downstream.

See Attachment C for a NIRS backgrounder on the lessons learned from the Aberdeen Proving Ground test. The lessons learned apply directly to DCNPP's ISFSI.

LESSONS LEARNED FROM THE 9/11 COMMISSION REPORT

If the NRC needs further convincing that terrorist attacks against nuclear power plants in the U.S. are not "remote and speculative," but rather a clear and present danger, we point to The 9/11 Commission Report, the public version of which was published on July 22, 2004 [see http://www.9-11commission.gov/report/911Report.pdf].

At page 154, the 9/11 Commission reports that "KSM [Khalid Sheikh Mohammed, one of the masterminds of the 9/11 attacks] describes a grandiose original plan: a total of ten aircraft to be hijacked, nine of which would crash into targets on both coasts—they included those eventually hit on September 11 plus CIA and FBI headquarters, ***nuclear power plants***, and the tallest buildings in California and the State of Washington." (emphasis added)

At page 245, the 9/11 Commission reports "During the Spain meeting [in July 2001], Atta also mentioned [to Binalshibh] that he had considered targeting a nuclear facility he had seen during familiarization flights near New York—a target they referred to as 'electrical engineering'." Atta refers to Mohammed Atta, the lead hijacker on 9/11, while Ramzi Binalshibh is sometimes referred to as "the 20th hijacker" of 9/11, who played a key role in planning the attacks. As documented in the HBO documentary "Imagining the Unimaginable" by Rory Kennedy, the nuclear power plant referred to almost certainly is the Indian Point Nuclear Power Plant. 50 million people live within 20 miles of Indian Point, which is not far north of New York City on the Hudson River.

Nuclear power plants, including the atomic reactors themselves, as well as the high-level radioactive wastes stored on-site in storage pools and dry storage casks, represent pre-deployed radiological bombs, awaiting detonation. For this reason, the 9/11 Commission's finding on "dirty bombs" are also relevant to NRC's supplemental EA.

At page 342, the 9/11 Commission reports "…From 1998 to 2001, a number of very good analytical papers were distributed on specific topics. These included…*Bin Laden's Interest in Biological, Radiological Weapons* (February, 2001)…"

At page 366, the 9/11 Commission reports that complex international terrorist organizations such as al Qaeda can execute catastrophic radiological attacks.

At page 380, in a section of the report entitled "Proliferation of Weapons of Mass Destruction," the 9/11 Commission states "In the public portion of his February 2004 worldwide threat assessment to Congress, DCI [Director of Central Intelligence] Tenet noted that Bin Laden considered the acquisition of weapons of mass destruction to be a 'religious obligation.' He warned that al Qaeda 'continues to pursue its strategic goal of obtaining a nuclear capability.' Tenet added that 'more than two dozen other terrorist groups are pursuing CBRN [chemical, biological, ***radiological***, and nuclear] materials.' " (emphasis added)

At page 387, the 9/11 Commission defines nuclear reactors as "vital facilities," and recommends that nuclear power plants be integrated with border and broader screening systems, so that terrorists' access to them is restricted. NIRS would counter that nuclear power plants are not "vital," per se, but rather radioactive bull's eyes on the landscape at continual risks of catastrophic radioactivity releases due to accidents or attacks.

If the 9/11 Commission's findings are not enough to convince the NRC that terrorist attacks against nuclear power plants are not "remote and speculative," but rather a clear and present danger, consider the following media reports.

On October 30, 2001 the Washington Post reported on page A13 in an article entitled "In Afghan Jail, a Terrorist Who Won't Surrender" that apprehended Islamic extremist Salahuddin Khaled told reporter William Branigan "In America, there are more important places, like atomic plants and reactors [that] they could attack…"

On February 1, 2002, Eric Pianin and Walter Pincus for the Washington Post published an article entitled "U.S. Warns Nuclear Plants of Terrorist Threat: Officials Say They Cannot Verify Al Qaeda Member's Description of Plan to Crash Airplane." Since the NRC was the federal agency issuing the warning about the intercepted intelligence to the 103 operating reactors in the U.S., it seems odd that NRC has maintained ever since that terrorist attacks against nuclear power plants are "remote and speculative," and to be excluded from NEPA analyses—a position the federal courts have rejected.

Then on September 9, 2002, The Guardian in London ran "Al-Qaida leaders say nuclear power stations were original targets: Reporter meets contender for next Bin Laden." The article relayed an interview by senior al Jazeera reporter Yosri Fouda of none other than Khaled al-Sheikh Mohammed and Ramzi bin al-Shaibah themselves, before they were later apprehended in Pakistan by U.S. forces. The article reports "two unnamed nuclear power plants were the original targets of the September 11 plot, known to its perpetrators as the Holy Tuesday Operation, but al-Qaida feared that such an attack 'might get out of hand.' " Relying on the moral restraint of al Qaeda does not seem like a wise homeland security policy for defending nuclear power plants against terrorist attacks. The article goes on "It was decided to abandon nuclear targets for the moment," Mohammed explained. "I mean for the moment," he added." This would seem to indicate that such attacks on nuclear power plants have not been ruled out by al Qaeda in the future.

The point being, ISFSIs are part of nuclear power plants, and would be vulnerable during any attack on a nuclear power plant, or could be targeted directly, especially since they are located out in the open, in plain view, in the U.S. Other countries, such as Germany and Switzerland, have required dry cask storage installations to be located within reinforced concrete buildings, to serve as a deterrent against line-of-site, remotely fired missile terrorist attacks. As reported by Deutche Welle [at http://dw-world.de/english/0,3367,1430_A_708550_1_A,00.html] on July 12, 2002, "the

[European] commission also feels that above ground temporary storage facilities [for highly radioactive waste] would represent ideal targets for terrorists and should hence be gradually removed." How can NRC deny the terrorist threat to ISFSIs, when the European Commission recognized it five years ago?

MAJOR SECURITY BREACHED AT PALISADES NUCLEAR POWER PLANT, AS REPORTED BY *ESQUIRE* MAGAZINE

NRC's security competence must be seriously questioned in the aftermath of revelations of a major security breach at Palisades nuclear power plant in Michigan documented in an article entitled "Mercenary" in the June 2007 edition of *Esquire* magazine. [see http://www.esquire.com/features/mercenary0607] The head of security at Palisades, William E. Clark, obtained his position despite false claims of security clearances on his resume. He apparently lacked any real qualifications for such a job to begin with. But what's worse, Clark did (falsely) claim to be a cold blood assassin for hire, and exhibited such troubling behaviors as making death threats as jokes, and sometimes not as jokes, while also threatening to commit suicide. He also kept an arsenal of weapons at his home. In mid May, U.S. Congressman Ed Markey from Massachusetts issued a series of questions to NRC Chairman Dale Klein regarding the security breach, which implicated Seabrook Nuclear Power Plant and one other as well (for Clark worked at those facilities as well). See Attachment F for Congressman Markey's letter to the NRC Chairman. Incredibly, given the seriousness of this security breach in a post 9/11 world, a review of Commission Correspondence – 2007 [http://www.nrc.gov/reading-rm/doc-collections/congress-docs/correspondence/2007/] seems to indicate that the NRC Chairman has not yet responded to Congressman Markey's urgent questions.

CONCLUSION

NIRS and other public interest, safe energy, and environmental groups have warned the nuclear establishment of the risks of intentional attacks upon nuclear power plants since long before 9/11/2001.

For example, NIRS "Groundswell" newsletter of December 1985 warned about nuclear power plants (and, by extension, the vast amounts of deadly high-level radioactive waste stored on-site) being targeted during wartime in an article entitled "When Reactors Become Weapons." The article included a book review of Nuclear Power Plants as Weapons for the Enemy by Bennett Ramberg.

Then on November 1, 2001, in the aftermath of the 9/11 attacks, NIRS joined with scores of other groups to publish the "Mandate for Securing America's Electricity Supply," calling on federal agencies such as NRC to take the terrorist threat to nuclear power plants and radioactive wastes seriously. See the Mandate at Attachment E. [see http://www.nirs.org/reactorwatch/security/mandateforsecuringamerica.htm for the full list of signatory groups]

Ever since, NIRS has continued to raise security contentions against reactor license extensions and new reactor licenses in NRC licensing proceedings. NIRS has joined with scores of grassroots groups across the country, filing an emergency enforcement petition with NRC to address the extreme vulnerability of boiling water reactor waste storage pools to terrorist attack. NIRS has joined national coalition efforts to file petitions for rulemaking with NRC, to pressure NRC to strengthen its requirements for defending nuclear power plants against terrorist attack. As mentioned above, NIRS has worked with nearly 150 groups across the U.S. to urge NRC, Congress, and the nuclear industry to fortify ISFSIs against terrorist attack in the "Principles for Safeguarding Nuclear Wastes at Reactors." (Attachment A) See http://www.nirs.org/reactorwatch/security/securityhome.htm for documentation of all these initiatives.

What has NRC's response been to our good faith pleas? Absolute rejection at every turn, which indicates yet again that NRC puts the nuclear power industry's financial and PR interests far ahead of the public's interest in safety and security. NRC's rejections and obfuscations in the face of the terrorist threat to nuclear power plants and the high-level radioactive wastes stored there can no longer stand. As the 9th Circuit Court of Appeals ordered, NRC should perform a supplemental EA that is clearly understandable and scientifically defensible. Nearly six years after the horrific attacks of 9/11, NRC should at long last begin to take its mandate seriously, to protect public health and safety, and the environment, and to provide for the common defense and security. It can begin by starting over on its NEPA EA for terrorist attack risks at the DCNPP ISFSI.

ATTACHMENT A

Principles for Safeguarding Nuclear Waste at Reactors

http://www.citizen.org/documents/PrinciplesSafeguardingIrradiatedFuel.pdf

First released: Sept. 13, 2006
Updated list of signatories: June 4, 2007

Principles for Safeguarding Nuclear Waste at Reactors

The following principles are based on the urgent need to protect the public from the threats posed by the current vulnerable storage of commercial irradiated fuel. The United States does not have a near-term solution for the permanent storage of high-level nuclear waste. The proposed Yucca Mountain site is unsafe for geologic storage of nuclear waste and the program remains mired in bad science, mismanagement, and yet another design overhaul. Even if licensed, Yucca Mountain could not legally contain all of the waste produced by existing reactors. Under the U.S. Department of Energy's unrealistically optimistic scenario, Yucca Mountain is not predicted to begin receiving waste until at least 2017 and transporting waste to the site would take more than 30 years. Meanwhile, irradiated fuel at reactor sites remains vulnerable to accidents and attacks.

The undersigned organizations' support for improving the protection of radioactive waste stored at reactor sites is a matter of security and is in no way an indication that we support nuclear power and the generation of more nuclear waste.

♦ **Require a low-density, open-frame layout for fuel pools:** Fuel pools were originally designed for temporary storage of a limited number of irradiated fuel assemblies in a low density, open frame configuration. As the amount of waste generated has increased beyond the designed capacity, the pools have been reorganized so that the concentration of fuel in the pools is nearly the same as that in operating reactor cores. If water is lost from a densely packed pool as the result of an attack or an accident, cooling by ambient air would likely be insufficient to prevent a fire, resulting in the release of large quantities of radioactivity to the environment. A low-density, open-frame arrangement within fuel pools could allow enough air circulation to keep the fuel from catching fire. In order to achieve and maintain this arrangement within the pools, irradiated fuel must be transferred from the pools to dry storage within five years of being discharged from the reactor.

♦ **Establish hardened on-site storage (HOSS):** Irradiated fuel must be stored as safely as possible as close to the site of generation as possible. Waste moved from fuel pools must be safeguarded in hardened, on-site storage (HOSS) facilities. Transporting waste to interim away-from-reactor storage should not be done unless the reactor site is unsuitable for a HOSS facility and the move increases the safety and security of the waste. HOSS

facilities must not be regarded as a permanent waste solution, and thus should not be constructed deep underground. The waste must be retrievable, and real-time radiation and heat monitoring at the HOSS facility must be implemented for early detection of radiation releases and overheating. The overall objective of HOSS should be that the amount of releases projected in even severe attacks should be low enough that the storage system would be unattractive as a terrorist target.
Design criteria that would correspond to the overall objective must include:

- Resistance to severe attacks, such as a direct hit by high-explosive or deeply penetrating weapons and munitions or a direct hit by a large aircraft loaded with fuel or a small aircraft loaded with fuel and/or explosives, without major releases.
- Placement of individual canisters that makes detection difficult from outside the site boundary.

♦ **Protect fuel pools:** Irradiated fuel must be kept in pools for several years before it can be stored in a dry facility. The pools must be protected to withstand an attack by air, land, or water from a force at least equal in size and coordination to the 9/11 attacks. The security improvements must be approved by a panel of experts independent of the nuclear industry and the Nuclear Regulatory Commission.

♦ **Require periodic review of HOSS facilities and fuel pools:** An annual report consisting of the review of each HOSS facility and fuel pool should be prepared with meaningful participation from public stakeholders, regulators, and utility managers at each site. The report must be made publicly available and may include recommendations for actions to be taken.

♦ **Dedicate funding to local and state governments to independently monitor the sites:** Funding for monitoring the HOSS facilities at each site must be provided to affected local and state governments. The affected public must have the right to fully participate.

♦ **Prohibit reprocessing:** The reprocessing of irradiated fuel has not solved the nuclear waste problem in any country, and actually exacerbates it by creating numerous additional waste streams that must be managed. In addition to being expensive and polluting, reprocessing also increases nuclear weapons proliferation threats.

Signatories (as of June 4, 2007):

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Ken Cook, Executive Director, Environmental Working Group

Erich Pica, Director, Domestic Campaigns, Friends of the Earth

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ATTACHMENT B

If we don't approve Yucca Mt., then what do we do with the wastes?:

"*H.O.S.S.*" *it:*
"Hardened On-Site Storage"

IEER NUCLEAR WASTE MANAGEMENT PLAN
June 4, 2002

[*NOTE: It has been pointed out that even if no more "high-level "radioactive wastes (HLRW) were produced, we would still have to do something with the wastes we have, until such time as a final repository were opened. It's also obvious since 9/11 that the current safety and security practices currently employed to manage HLRW at reactors are inadequate and unacceptable. "What is the alternative?", environmentalists are asked.*

Alternatives exist -- "HOSS" is one. Many feel it's better to be deliberate and not err, than implement an obviously flawed plan just to say "we had to do 'something.'" With HLRW, if we do "something," it must be the "right" thing, because we won't get a second chance to be wrong.]

IEER advocates the following program be carried out by an institution that does not have the conflict of interest that the U.S. Department of Energy (DOE) does, and under more stringent public health and environmental protection standards than those currently in effect:

Interim Management

Interim Hardened On-Site Storage (HOSS) (different from spent fuel pools and dry casks now used) should be used for all spent fuel that can be moved out of pools. Pool storage should be minimized. No new above-ground dry storage of the present varieties should be licensed. Current dry storage should be converted to HOSS. The federal government should pay for HOSS at closed power plant sites since it has defaulted on its obligation to begin taking the waste on January 31, 1998, and has large amounts of ratepayer money dedicated to waste management that it has not spent.

Goals: Hardened On-Site Storage should be able to withstand most terrorist attacks without significant off-site releases. A second level goal is to prevent catastrophic off-site releases in case of even severe attacks. There could be defense in depth as part of the system.
The technology to accomplish HOSS is available.

Interim Hardened On-Site Storage (HOSS) should meet the following criteria:

1. It should not result in catastrophic releases and should be able to resist almost all types of attacks. The amount of releases projected in even severe attacks should be small enough that the storage system would be unattractive as a terrorist target.

2. It should be able to withstand a direct hit by a large commercial airliner full of fuel or anti-tank weapons without catastrophic offsite releases.

3. The individual canister locations should not be easily detectable from offsite.

On-site storage would be needed for ~50 to 60 years -- not much different from what is projected to occur at present.

Long-term Management

The long-term repository plan should proceed as follows:

Ten years of the following scientific and engineering work:

1. Research on natural geologic conditions that retard the movement of radionuclides for long periods.

2. Development of materials that mimic these natural geologic conditions ("Natural analog" materials).

3. Research on geologic environment types that would match the characteristics of these natural analogs.

4. Intensified basic scientific research on the properties of the most important radionuclides under a variety of laboratory conditions.

After this initial work, the process of selecting 2 or 3 repository and natural analog types would be initiated for concentrated work (10 yrs.). Then site selection (10 yrs.).

If the process is sound, disposal could in principle happen in the twenty years to follow. The total time for complete disposal of fuel from existing power plants (40 year license) would be roughly 50 years, maybe sixty. If the power plants are closed down the overall timetable would not be longer than envisioned for Yucca Mountain now.

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Attachment C

Nuclear Information and Resource Service

Armor Piercing Missile
Perforates High-Level Radioactive Waste Storage/Transport Cask
In U.S. Army Aberdeen Proving Grounds Test

The nuclear industry claims that on-site high-level radioactive waste storage casks are invulnerable to terrorist attack even by aircraft. Actual tests suggest otherwise.

On June 25, 1998 the U.S. Army conducted a weapons test depicting the vulnerability of on-site nuclear waste storage casks at nuclear power stations. The demonstration was conducted by International Fuel Containers, Ltd. (IFC) at the Aberdeen Proving Grounds in Maryland. IFC is the U.S. agent for *Gesellschaft für Nuclear-Behälter mbH* (GNB), a large German high-level radioactive waste cask manufacturer owned by Germany's nuclear utilities. The cask is GNB's dual-purpose CASTOR cast-iron cask, used for transport and dry storage of irradiated nuclear fuel. Some 600 of these casks are already in use worldwide including at the Surry nuclear power plant in Virginia. The test was conducted to promote an over pack system.

A video of the test shows a TOW armor piercing anti-tank missile warhead perforating the cask wall. TOW missiles are 5 inches in diameter, less than 4 feet long, and weigh less than 50 pounds. Launched from a portable tripod launcher it has an effective range of nearly two miles. TOW is the most widely distributed anti-tank guided missile in service around the world including the U.S. and 36 other countries. Iran may have obtained 1,750 or more TOW missiles according to the Military Analysis Network.

CASTOR is among the most robust of various models of nuclear waste storage casks in existence. It is licensed by the U.S. Nuclear Regulatory Commission for storage of irradiated nuclear fuel (high-level radioactive waste) in this country. A CASTOR cask has forged iron walls 15 inches thick. Despite this, as the video shows, the TOW missile blasted a hole completely through the wall. If irradiated nuclear fuel had been inside, a serious release of radioactive particles and gases would have occurred.

Rail-car sized casks like the CASTOR can hold over 200 times the long-lasting radioactivity released by the Hiroshima atomic bomb. A terrorist attack on a dry storage cask combining a TOW or another missile to ventilate a cask with a launched incendiary weapon could release large quantities of deadly radioactivity. A gaping hole shown in the video would also breach radiation shielding exposing any closely approaching emergency responders, such as fire fighters, to fatal doses of gamma radiation in minutes.

Other models of dry casks used in the U.S. are much less robust than the tested CASTOR design, having walls of only a few to several inches of steel. Although the casks are most often surrounded by a thick layer of concrete – originally designed as radiation shielding, not a "flak jacket" while storing high-level radioactive waste at

reactor sites, the Aberdeen test clearly shows that the radiation shielding could be obliterated by a TOW missile. Thus, high-level radioactive waste dry storage casks in the U.S. are vulnerable to terrorist attack.

The test was meant to demonstrate that IFC's concrete over pack system or "flak jacket" could absorb a missile or explosive attack, thus protecting the CASTOR behind it. The question, however, remains what if attackers came with more than one missile to destroy the flak jacket then penetrate the CASTOR with a second or third round? Moreover, how rigorously tested are other cask designs currently in use around U.S. reactors without over pack systems to similar attack? How vulnerable are they?

CASTOR casks are also designed to transport irradiated nuclear fuel by train or heavy haul truck. However, casks already weighing well over 100 tons each cannot be shipped with an even heavier concrete barrier. The test further demonstrated that "naked" shipment casks would be targets of opportunity to a missile supported terrorist attack.

The video was obtained by Congresswoman Shelley Berkley (D-Nevada) and released to ABC News to demonstrate how vulnerable high-level radioactive waste shipments would be to terrorist attack. Despite this demonstration, both the U.S. Senate and House of Representatives overrode Nevada's veto against the proposed Yucca Mountain national dump for high-level radioactive waste, paving the way for up to 100,000 shipments of high-level radioactive waste by truck, train and barge through 45 states and the District of Columbia.

Congress must investigate the circumstances of this weapon-on-cask test and order that similarly rigorous testing be conducted on all current and proposed high-level radioactive waste cask designs. Dry casks currently storing high-level radioactive waste must be fortified and bunkered against terrorist attack, or else industry and government must factor in the risk of a large scale release of radioactivity due to a terrorist attack that successfully ventilates a cask and then ignites the stored radioactive waste inside.

For further information contact NIRS.

ATTACHMENT D

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

[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.

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.

[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.

- 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.

[See below for Dr. Ross Landsman’s memo to NRC fully supporting Oscar Shirani’s QA allegations against the Holtec casks. Dr. Landsman served as NRC’s Midwest Regional dry cask storage inspector until his recent retirement. Handwritten notes on the memo are by Oscar Shirani.]

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
801 WARRENVILLE ROAD
LISLE, ILLINOIS 60532-4351

January 17, 2001

MEMORANDUM TO: Bruce L. Jorgensen, Chief, Decommissioning Branch

FROM: Ross Landsman, Decommissioning Branch RBL 1/17/01

SUBJECT: ATTENDANCE AT HOLTEC USERS GROUP MEETING

In my quest to become as familiar as I can with the cask world, I attended the Holtec Users Group Meeting in November 2000. During the meeting, I became aware of the following issues.

- Plant Hatch, while loading a Hi-Star Cask, dropped a tie-wrap into the cask. Instead of suspending loading until an analysis (a 72.48) could be performed, they continued to load, and proceeded to weld the lid on the cask. When questioned, Hatch stated that they were taking a chance that they would have to remove the lid. They saw nothing wrong with putting schedule ahead of quality. This is not a very conservative approach and should be stopped. This would never be allowed in Region III. During loading at Point Beach, when they thought that they might have dropped (but did not actually drop) a rubber washer into the cask, they stopped to make sure all the "Is were dotted and the Ts were crossed."

- Susquehanna blows hot air into their cask after draindown and before vacuum drying to pre-remove moisture to shorten the vacuuming time. Several other utility fuel people jumped up and indicated that this should not be done because of fuel cladding damage that might occur. Zirconium cladding doesn't get along with heated oxygen; it oxidized and degrades. Dresden was going to use hot air to try to pre-dry the cask because of all the trouble they had with vacuum drying; but when they heard all the arguments against, they switched to nitrogen. Susquehanna should be stopped; and what about the existing fuel that's already been oxidized in casks?

- During discussions, a Comed QA auditor indicated that U.S. Tool & Die (the fabricator of the Holtec casks) appears to have a broken corrective action system. I just received a copy of the audit and discovered that the corrective action system wasn't the worst thing broken.

Regarding the corrective action system, the auditors had a finding early in the audit that was closed because of promised corrective actions in a licensee CAR (the document that the licensee uses to address findings.) When similar noncompliances were identified after the licensee dispositioned the CAR, a new finding was open. This issue involves bypassing witness hold points during fabrication which the CAR identified as "isolated" with no further action. The new noncompliances are indicative that the correction action system is broken and needs fixing which Comed says they can't push because of a schedule.

The issue more troubling is in the area of special processes, i.e., welding. The audit identified issues such as:

1. Verification requirements and documentation for Welding Procedure Specifications (WPS) is not being performed and not documented in the traveler (PWRP).
2. .The supporting PQRs do not qualify welding without a subsequent PWHT.
3. WPSs need the proper qualification (after-the-fact).
4. NCRs permitted "welding-at-risk" without a qualified and approved WPS.
5. Inadequate information/documentation exists to determine whether or not welders have welded beyond their qualified thickness range.
6. The information in the Data Sheets recorded by the welders is out-of-sequence.
7. The Data Sheets do not reference the NCRs, Rework, Repairs, etc. making it extremely difficult to recreate the work activities.
8. Data Sheets for Hatch Unit 2 indicate the use of E81T1-Ni1 for a seal weld. UST&D cannot determine what this weld was.
9. Verification that the 308 did not encroach upon the carbon steel surface of the overpack is not done to provide assurances that 308 did not contact carbon steel.
10. UST&D knowingly performed welding without an approved procedure and used the NCR process for fabrication activities driven by schedule.
11. The existing system of documentation is ineffective in maintaining an accurate work history and the welders have filled out the documentation incorrectly.

Furthermore, words exist in the audit such as:

1. "needs enormous improvement in the areas of welding and corrective action program to implement its QA program."
2. "they have used the NCR process where it is not intended to be used, i.e., performing welding 'at risk'. They knowingly do welding without an approved procedure, violating both ASME and their own QA manual."
3. "The NCR process is used when errors are discovered in fabrication to justify continuing activities driven by 'schedule'."

The audit was done in June-July, 2000, and still the issues are not resolved. Worse yet, I just discovered that the Audit Team Leader is being moved sideways on site, out of the audit group. These findings will be dropped.

The audit stated that the NRC performed a paper audit in August 1999, and determined that the QA program meets regulatory requirements which was continuously thrown up in the auditor's face. This audit indicates that in no way do they meet our RIII requirements in implementation of the program. Cost and scheduling are controlling the work. This was illustrated by the quality of the first cask received at Dresden which had to have all the sealing surfaces re-machined on site. I did not look at the cask material or fabrication records to determine if the cask was manufactured correctly. I assumed, incorrectly, that the cask was constructed OK. If this was back in the old construction days, we would already have had issued a stop work order. These same fabrication issues are what got the original cask manufacturers in trouble and caused them to go under.

I think these findings alone justify going to owner's group meetings. They are not marketing meetings as Susan states. They are fact finding meetings, lessons learned to be used at our other cask sites. I also plan to attend the VSC-24 owners' group meeting-this spring.

SHIRAN'S NOTES

1. This letter was sent 2 days after OSCAR SHIRANI WAS REMOVED FROM NUCLEAR DEPT. to finance group. (JAN 15, 2001)
- Where's The NRC's Response to this letter ? NoWhere. NRC ignored Dr. Landsman's letter.

2. THIS DOCUMENT SHOWS THAT THE OFFICE OF INSPECTOR GENERAL (OIG)'S INVESTIGATION WAS A LIE AND SHAM THAT SHIRANI NOTIFIED THE NRC IN OCTOBER 2001, ONE MONTH PRIOR TO HIS TERMINATION. NRC KNEW THAT EXELON HAD REMOVED SHIRANI FROM IT'S NUCLEAR DEPARTMENT 8 MONTHS PRIOR TO THE SHIRANI'S TERMINATION ON OCTOBER 2001. EXELON JUST CLOCKED SHIRANI OUT OF THE NUCLEAR IN DECEMBER 2000 TO GET RID OF HIM AFTER 180 DAYS OF HIS WHISTLE BLOWER'S PROTECTION WINDOW EXPIRED FROM ITS FINANCE DEPARTMENT WHICH IS NOT A ACTIVITY

(Part of NRC)

Mandate for Securing America's Electricity Supply

Overview

As national, regional and local environmental and public interest organizations, we wish to express our profound sympathy for those affected by the terrible events of the past month. Now is the time for
our country to put aside narrow and divisive interests and focus on protecting the safety of all who live in the United States.

Specifically, we recognize that nuclear power reactors pose an unacceptable threat to the security of the United States. Commercial reactors are extremely vulnerable to attack from both foreign and domestic terrorists. The sobering reality is that security of nuclear power facilities can be neither completely guaranteed nor perfectly realized.

Current security at U.S. nuclear reactors is unacceptable. Significant weaknesses in security were found at nearly one-half (47%) of U.S. commercial reactors tested in recent years. "'Significant' here means that a real attack would have put the nuclear reactor in jeopardy with the potential for core damage and a radiological release, i.e., an American Chernobyl," according to the U.S. Nuclear Regulatory Commission's (NRC) security expert. Structurally, no commercial nuclear reactor is designed to withstand the impact that destroyed the World Trade Center buildings, according to the NRC and the International Atomic Energy Commission. An attack on these facilities by truck bomb or aerial assault, or any number of other scenarios could spread lethal radiation, rendering uninhabitable an area the size of Pennsylvania, according to an analysis by the Atomic Energy Commission (now the NRC) in 1964.

For these reasons, we call for the following actions to be taken by the appropriate authorities:

#1. All NRC licensees must demonstrate that their nuclear facilities are protected against radiological sabotage by meeting a significantly more comprehensive Design Basis Threat (DBT). This includes reactor operators currently holding an operating license and applicants for license extension or new construction.

A revised Design Basis Threat must both encompass currently analyzed threats from ground-based assault, and be broadened to include truck-bombs and aerial

and water-borne attacks. Before receiving an operating license, a licensee must be able to demonstrate that it can guard against the revised Design Basis Threat so as to protect against core damage, a breach of reactor containment and/or damage to irradiated nuclear fuel. By definition, reactor designs that do not feature a reactor containment structure, such as the proposed Pebble Bed Modular Reactor (PBMR), must not be considered suitable for meeting any plausible Design Basis Threat. The upgraded DBT must be met through both enhanced physical security features and increased security force capabilities.

Recognizing that nuclear reactors will continue to be vulnerable targets for some time after they have permanently ceased operation (until the core has cooled and the radioactive waste has decayed) the nuclear waste that is stored must be protected from intentional air and other modes of attack. All permanent and temporary radioactive waste storage, disposal, treatment and transfer sites must meet the strengthened Design Basis Threat to protect against attacks that could have disastrous consequences.

#2. Congress must reject reauthorization of the Price Anderson Act, which limits the liability of the commercial nuclear industry. At a minimum, certain modifications must be made to the Price Anderson Act in light of the events of September 11 if Congress reauthorizes the Act. Any extension of indemnity to the operators of new or relicensed nuclear power plants and nuclear fuel cycle facilities should be made contingent upon the demonstrated ability of the licensee to protect against the revised Design Basis Threat outlined in point #1. In addition, the indemnification of U.S. Department of Energy (DOE) contractors should exclude cases of contractor gross negligence or willful misconduct.

#3. Congress must indefinitely extend the moratorium on nuclear transport and expand it to cover all highly radioactive and radiotoxic waste and materials, including commercial shipments. On September 12 and again on October 7, Energy Secretary Abraham suspended DOE nuclear shipments, acknowledging that radiological shipments are potential terrorist targets. In the long term, government agencies should shift their focus from facilitation and encouragement of nuclear transport to minimizing the amount and frequency of radioactive shipments. U.S. delegates must advocate this position when participating in United Nations and other international fora that develop or recommend international transportation standards.

#4. Congress must indefinitely shelve current proposals for centralized storage of nuclear waste. Such storage would establish additional nuclear targets without meaningfully reducing the risk at operating nuclear power plants. In

addition to the dangers of transporting radioactive materials, a centralized storage facility would itself be a difficult-to-secure target. Specifically, the proposals for nuclear waste storage facilities at Yucca Mountain, Nevada, and on the Skull Valley Goshute Reservation in Utah, would irresponsibly create significant targets close to major population centers. Design proposals for both these facilities feature massive,exposed surface operations, which would establish potentially larger, highly vulnerable and more devastating targets for attack.

#5. Congress must mandate that utility-funded security operations be increased at existing nuclear reactors and maintained throughout plant life and the on-site storage of irradiated nuclear fuel. Current security at U.S. nuclear reactors is unacceptable. The NRC and the International Atomic Energy Agency have acknowledged that the containment buildings housing nuclear reactors are not designed to withstand an attack of the type and scale used against the World Trade Center and Pentagon. Since 1991, despite months of advanced warning and beefed up security forces, nearly half (47%) of U.S. nuclear power plants failed to repel small mock terrorist attacks conducted by the NRC. These exercises did not assess the full Design Basis Threat that NRC regulations require nuclear power plants to protect against. Moreover, these exercises failed to assess the ability of nuclear plants to defend against attacks by truck bomb, aerial, and water-borne assault, three likely scenarios that fall outside the current Design Basis Threat.

#6. Potassium iodide must be stockpiled with state and local health agencies within a radius of 50 miles around all nuclear reactors. While it is not a panacea, the NRC already has approved this program in concept, but has been reluctant to initiate it lest the public grasp that nuclear reactors are fundamentally unsafe. An epidemic of preventable childhood thyroid cancer has ravaged children in the Chernobyl-affected regions of Ukraine, Belarus and western Russia partly because potassium iodide was not distributed in the aftermath of the reactor explosion and fire. The health of thousands of children is believed to have been saved in Poland, where potassium iodide was distributed following the 1986 Chernobyl disaster.

#7. The Federal Aviation Administration (FAA) must require the same or comparable security for general and commercial aviation and determine the practicality of instituting permanent effective no-fly-zones over commercial nuclear power plants.

#8. All NRC licensees must provide a risk assessment of the survivability from terrorist attack on radiation containment and critical safety systems.

#9. The NRC must take significant federal enforcement action, including the suspension or revocation of operating licenses, when repeated licensee failure of upgraded NRC-led security performance evaluations occurs.

#10. All branches of government must ensure that the terrorist attacks do not result in the erosion of fundamental civil liberties. The hallmarks of our free society and our values are manifested and secured in the Bill of Rights. Therefore, it is essential that security programs and activities clearly differentiate between legitimate terrorist threats and the rights of the public to peacefully assemble, exercise free speech, organize and educate.

#11. The mixed oxide nuclear fuel (MOX) program must be eliminated immediately. Giving the green light to a proposed commercial plutonium fuel fabrication plant in South Carolina fosters the creation of a plutonium economy and increases the likelihood of a terrorist-created catastrophe. The manufacture of MOX fuel for use in commercial U.S. nuclear reactors, establishes not only more deadly terrorist targets at the plants themselves (due to the greater amount of plutonium in the MOX fuel than current reactor fuel), but also creates thousands of transports between the fabrication site and the reactors, vulnerable to sabotage or theft. Such a project puts the trigger component of nuclear weapons into the commercial sector where it cannot adequately be protected.

The NRC must refuse the licensing of the MOX plant and Duke Power must withdraw its reactors from the MOX program. Surplus weapons plutonium has no place as a commercial fuel and sends a dangerous message to the rest of the world that plutonium is a commodity, not a waste to be secured out of harm's way. The licensing of a plutonium fuel fabrication plant flies in the face of any government's avowal to protect its people from lethal attack or disaster.

#12. The U.S. must initiate an expedited phaseout of nuclear power, improve energy efficiency in all sectors of our economy and initiate a rapid transition to renewable electricity sources. Linked through the extensive and fragile electrical grid system, we recognize that nuclear power plants are one of the most vulnerable components of our electric power infrastructure and present the largest risk of catastrophic damage. As such, nuclear power poses an unacceptable risk to our society and environment.

The phaseout of nuclear power must take place within the context of a transition to a least-cost, environmentally sustainable national energy system, based on full exploitation of decentralized energy efficiency and renewable energy sources, available through existing technology. A distributed, sustainable energy system will provide numerous economic, public health and

environmental benefits beyond reducing the terrorist threat to our nation's infrastructure. Such a transition will spur innovation and channel resources into more labor-intensive sectors of the economy, providing the nation with an engine for continued economic growth and job creation.

In conclusion, we believe that this is the direction we must take: We will either shift from our use of nuclear power to a new era of sustainable electricity production for our country, or we will remain vulnerable to our reactors and, very possibly, pay an unthinkable price. We can and must do better for our families, our country, our freedom and the planet.

Attachment F

COMMITTEES

ENERGY AND COMMERCE
SUBCOMMITTEE ON TELECOMMUNICATIONS AND THE INTERNET
CHAIRMAN

SELECT COMMITTEE ON ENERGY INDEPENDENCE AND GLOBAL WARMING
CHAIRMAN

HOMELAND SECURITY

NATURAL RESOURCES

EDWARD J. MARKEY
7TH DISTRICT, MASSACHUSETTS

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http://markey.house.gov

May 16, 2007

The Honorable Dale E. Klein
Chairman
Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD, 20852

Dear Chairman Klein:

I am writing regarding an article that appeared in the June edition of Esquire.[1] This article indicates that the former security manager at the Palisades nuclear plant in Covert, Michigan is an individual who evidently fabricated much of his background, yet somehow managed to obtain both a job as a security manager of a nuclear power plant and the necessary security clearances. It is also my understanding that at some point prior to his employment at the Palisades reactor, he also worked at the Seabrook nuclear power plant, which is located in New Hampshire, not far from my Congressional district, and that it was at the Seabrook facility where he initially received clearance to have unescorted access to nuclear reactors. If the information contained in this article is true, then there would appear to be serious shortcomings associated with nuclear reactor licensees' clearance process – or perhaps with the process used by the Federal Government itself.

The article provides an extensive examination of the various claims by an individual named William E. Clark, who began his job as the head of security at the Palisades nuclear plant in early 2006 and resigned several weeks ago, before the article was published. Specifically, Mr. Clark evidently claimed, both to the author of the article and others, that:

- He killed people in Viet Nam, New Orleans and Iraq, and had been employed as a marksman for Blackwater Corporation.
- He had been part of the guard force charged with protecting Hamid Karzai in Afghanistan and Paul Bremer in Iraq.
- He had Q level clearance with the Department of Energy (a claim which is reportedly true) and a Top Secret/Sensitive Compartmented Information clearance with the Department of Defense (a claim which is reportedly not true).
- He had been in the French Foreign Legion.
- He had made up some of the above claims because in fact he was a covert operator employed by the Federal Government through a "handler," and his identity needed to be kept secret.

Clearly, if someone was able to obtain a job at a nuclear plant using a falsified resume

[1] http://www.esquire.com/features/mercenary0607

and claiming security clearances that he never obtained, there would appear to be a problem with the process NRC licensees use to evaluate prospective employees. While Mr. Clark has reportedly resigned his position, I am concerned about what this incident portends for the adequacy of the process for vetting and granting clearances to *other* individuals employed at nuclear reactors. Consequently, I ask for your prompt assistance in responding to the following questions:

1) On what date did the Commission first become aware of the possibility that Mr. Clark had fabricated portions of his resume? Who informed the Commission?
2) On what date did the licensee, Entergy, become aware of this? How did the licensee find out?
3) Mr. Clark has reportedly resigned. Has the Commission or the licensee considered the possibility that he may pose a danger to the facility, or to other nuclear facilities, since he now possesses sensitive information regarding the operation of nuclear power plants and any security weaknesses? If so, what is the Commission and/or the licensee doing to ensure that he cannot gain armed or unarmed access to a nuclear power plant? Have other licensees been informed about this situation, and if so, please provide all documentation.
4) According to the article, a company named Nuclear Security Services Corporation reportedly assisted Mr. Clark in identifying and obtaining the position at the Palisades reactor. Has the Commission determined whether this corporation and the individuals running it are themselves adequately and accurately qualified and credentialed for these purposes? If not, do you plan to do so, since this company may have – knowingly or unknowingly – aided Mr. Clark in obtaining a position for which he was presenting false credentials? How many other individuals have been placed at nuclear reactors by this company?
5) Mr. Clark reportedly claimed to his employer that he had been a paid assassin, although it appears that this claim was not in fact true. Can the Commission account for how someone making such a claim, true or not, could be considered eligible for employment at nuclear power plants? Please fully justify your response.
6) Please fully describe the process by which applicants for sensitive positions at nuclear reactors are screened. What background checks are required? How are claims made on resumes verified?
7) Please provide a copy of Mr. Clark's resume. Which claims were verified by licensee or Government personnel?
8) What steps have you taken to verify the specific allegations made in the Esquire article? What have you learned?
9) When did Mr. Clark work at the Seabrook nuclear power plant, and in what capacity? Did he work for any other nuclear power plants, and if so which, and during what time period? For Seabrook and any additional nuclear power plant at which he worked, please describe a) the manner in which his credentials were examined and/or verified by licensee personnel, including whether he made similar claims on his resume or in interactions with licensee employees as are described in the Esquire article, b) the circumstances surrounding Mr. Clark's termination or separation from the power plant, and c) whether, if the circumstances were unusual, the licensee reported them to the Commission (and if so, what actions the Commission took in response to receiving the information).

10) If you've concluded that any of the claims in the article regarding Mr. Clark's various false representations are correct, or if Mr. Clark engaged in similar behavior at Seabrook or other nuclear power plants, a) why exactly did licensee and/or government personnel fail to discover these representations, b) what steps (and on what timeline) is the Commission taking to ensure that any systemic flaws in the clearance process are remedied c) what steps is the Commission taking to hold individuals or the licensee accountable for any failures to follow steps in the clearance process and d) if systemic flaws in the clearance process have been identified, what steps are you taking to require that all background and security checks required of all current licensee employees are redone?

Thank you very much for your attention to this important matter. Please provide your response no later than Friday June 15, 2007. If you have any questions or concerns, please have your staff contact Dr. Michal Freedhoff or Mr. Will Huntington of my staff at 202-225-2836.

Sincerely,

Edward J. Markey

Edward J. Markey