

Mendiola, Doris

Subject: FW: Beyond Nuclear Comments regarding Docket ID NRC-2014-0002
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From: Paul Gunter [<mailto:paul@beyondnuclear.org>]
Sent: Thursday, April 10, 2014 4:51 PM
To: Bladey, Cindy
Subject: Beyond Nuclear Comments regarding Docket ID NRC-2014-0002

Please find our comments attached.

Thank you,

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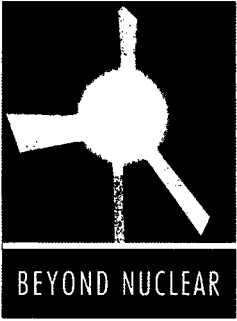
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April 10, 2014

Beyond Nuclear comment regarding Docket ID NRC-2014-0002

NSIR/DPR-ISG-02 DRAFT INTERIM STAFF GUIDANCE (ISG) EMERGENCY PLANNING EXEMPTION REQUESTS FOR DECOMMISSIONING NUCLEAR POWER PLANTS

Beyond Nuclear replies in support of maintaining offsite radiological emergency planning and preparedness at licensee expense so long as irradiated nuclear fuel (high-level radioactive waste) remains stored onsite at a nuclear generating station.

Beyond Nuclear does not support the current Interim Staff Guidance (ISG) conclusions that licensees that have commenced the decommissioning process (including “mothballing”, prompt dismantlement and the establishment of onsite Independent Spent Fuel Storage Installations) can be exempted from offsite emergency planning as non-conservative, wrong and contrary to the best interest of public health, safety and environmental protection.

Beyond Nuclear further identifies that the ISG reflects a blatant bias that unduly subordinates the public health and safety to a nuclear industry agenda to evade

future financial costs and public health and safety liability issues. All offsite emergency planning and preparedness must be diligently required and enforced due to the significant risks posed by high-density, closed-framed irradiated nuclear fuel (high-level radioactive waste) pool storage on-site. Even onsite dry cask storage systems must be regarded under certain circumstances as enhanced target sets of significant potential hazard to the public health and safety to warrant continued emergency planning and preparedness.

The NRC ISG currently maintains that exemptions from offsite emergency planning and preparedness can be approved for licensees that have permanently ceased operations based on a set of industry biased and non-conservative assumptions.

- NRC assumes that spent fuel pools provide adequate protection to the public health and safety under all circumstances because of the low probability of an accident or recriticality and an increased probability that the irradiated fuel is air coolable following any such event.
- NRC assumes that it is possible for licensees to reasonably demonstrate that an offsite radiological release is not postulated to exceed the EPA PAGs at the site boundary in order to be exempt from offsite emergency planning.
- NRC further assumes that licensees can be exempt based on the belief that after one year of decay time, in the case of an event that could lead to a zirconium fire, licensees would have 10 to 12 hours to implement appropriate mitigative measures, as well as, offsite protective actions, if necessary, without preplanning.

Beyond Nuclear disagrees with the NRC claim is that “after a certain amount of time, the overall risk of a zirconium fire become insignificant due to two factors: 1) the amount of time available for preventative and mitigating actions, and, 2) the increased probability that the fuel is air coolable.

Beyond Nuclear agrees with the statement that whenever and wherever irradiated nuclear fuel is stored onsite, it presents a potentially significant risk to the public health and safety. For this fundamental reason alone, Beyond Nuclear asserts that offsite emergency planning and preparedness must be maintained as long as high-level nuclear waste is stored onsite in wet or dry configurations.

The expert work and testimony of Dr. Gordon Thompson concludes that the potential for an irradiated fuel fire once wet or passive cooling is lost real and its consequences would be devastating.¹

“(T)he closed-form configuration of the high-density racks would create a major problem if water were lost from a spent-fuel pool. The flow of air through the racks would be highly constrained, and would be almost completely cut off if residual water or debris were present in the base of the pool. As a result, removal of radioactive decay heat would be ineffective. Over a broad range of water-loss scenarios, the temperature of the zirconium fuel cladding would rise to the point (approximately 1,000 degrees C) where a self-sustaining, exothermic reaction of zirconium with air or steam would begin. Fuel discharged from the reactor for 1 month could ignite in less than 2 hours, and fuel discharged for 3 months could ignite in about 3 hours. Once initiated, the fire would spread to adjacent fuel assemblies, and could ultimately involve all fuel in the pool. A large, atmospheric release of radioactive material would occur. For simplicity, this potential disaster can be described as a "pool fire".

Water could be lost from a spent-fuel pool through leakage, boiling, siphoning, pumping, displacement by objects falling into the pool, or overturning of the pool. These modes of water loss could arise from events, alone or in combination, that include: (i) acts of malice by persons within or outside the plant boundary; (ii) an aircraft impact; (iii) an earthquake; (iv) dropping of a fuel cask; (v) accidental fires or explosions; and (vi) a severe accident at an adjacent reactor that, through the spread of radioactive material and other influences, precludes the ongoing provision of cooling and/or water makeup to the pool.

¹ Environmental Impacts of Storing Spent Nuclear Fuel and High-Level Waste from Commercial Nuclear Reactors: A Critique of NRC's Waste Confidence Decision and Environmental Impact Determination, Dr. Gordon Thompson, February 6, 2009, Section 5.1, pg., 18

As Dr. Gordon Thompson has previously testified, Beyond Nuclear also principally points out that the NRC ISG does not address hostile actions that include irradiated nuclear fuel storage pools and/or closely congregated dry cask storage units as target sets deployed in the open atmosphere. Relaxation of public emergency planning and preparedness is synonymous with the relaxation of public security vigilance. It is irresponsible of the NRC to be dismissive of the possibility of deliberate intrusions onto nuclear power plant sites with malvalent intent that could include the introduction of strategically placed high explosive shaped charges with the intent to drain down irradiated fuel pool cooling water and destroy irradiated fuel configurations. Such intrusions represent a reasonable threat to public health, safety and security to warrant continued emergency planning and preparedness.

Numerous nuclear power plant irradiated fuel storage sites are also located within ten miles of General Aviation airfields where pilot and passenger screening are non-existent and cargo manifests are not supervised nor inspected. Private aircraft(s) malvalently equipped as Improvised Explosive Devices can turn any one of these high-density storage pools (many, such as the GE boiling water reactors are elevated to the upper region of the reactor building without any defensive superstructure and all outside of any rated radiological containment structure) into a pre-deployed radiological weapon of mass destruction.

Numerous Independent Spent Fuel Storage Installations (ISFSI) of closely congregated dry cask storage systems present target sets to a clear direct-line-of-site to shoulder or vehicle launched armor piercing / high explosive/ incendiary rockets, projectiles or high caliber rifle ordinance. Some number of locations for these direct-line-of-site to target sets are easily accessible from nearby main highways.

The National Academies Such has already identified just such a reasonable threat by the back in 2005 stating that terrorist attacks pose a threat to irradiated nuclear fuel pool storage systems.²

- *“Terrorists view nuclear power plant facilities as desirable targets because of the large inventories of radionuclides they contain. The committee believes that knowledgeable terrorists might choose to attack spent fuel pools because:*
- *at U.S. commercial nuclear power plants, these pools are less well protected structurally than reactor cores;*
- *they typically contain inventories of medium – and long-lived radionuclides that are several times greater than those in individual reactor cores.”* p. 36
- *“A loss-of-pool-coolant event resulting from damage or collapse of the pool could have severe consequences.”*

Beyond Nuclear therefore rejects the conclusion of the NRC ISG that nuclear power plant owners can be exempted from emergency planning and preparedness once they have permanently ceased power operations but continue to maintain onsite storage of high-level nuclear waste (irradiated nuclear fuel assemblies) in wet or dry storage configurations.

Sincerely,

----/s/----

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² Safety & Security of Commercial Spent Nuclear Fuel Storage Public Report. National Academy of Sciences, April 2005, <http://www.nap.edu/books/0309096472/html/>