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Washington, D.C. 20555-0001
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**REVISED GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR
LICENSING OF NUCLEAR POWER PLANTS**

**COMMENTS OF RICHARD BLUMENTHAL, ATTORNEY GENERAL OF
CONNECTICUT**

SUMMARY

The Nuclear Regulatory Commission's ("NRC") proposed revisions to the generic environmental impact statement for license renewal of nuclear power plants released July 31, 2009 ("Revised GEIS" or "Statement") are completely inadequate and unacceptable. This Statement is required to thoroughly consider environmental impacts common to all nuclear power stations that may be caused or threatened by extending the current licenses at operating nuclear plants for twenty additional years. The GEIS is required by law to identify and evaluate all reasonably foreseeable potential environmental impacts resulting from the proposed government action, but it fails to meet those basic legal requirements.

NRC – inexcusably – has completely and specifically ignored three significant environmental impacts of relicensing nuclear power plants: 1) the continued and increased storage of spent nuclear fuel onsite because the federal government no longer has any plan or proposal for the permanent storage of high level reactor waste; 2) the threat of terrorist attacks on nuclear facilities; and 3) emergency response and evacuation

of the facilities and surrounding areas. As a result, NRC's environmental impact statement is so unrealistic that it is useless.

NRC must thoroughly and accurately reevaluate the impacts resulting from a fire, accident or attack on any relicensed facility, and especially on stored spent nuclear fuel on-site ("SNF"), as those risks will be profoundly increased by the continued operation of nuclear power stations and the permanent termination of the Yucca Mountain waste storage project. NRC must also consider the impact of any accident or attack at a relicensed nuclear power station in the context of realistic and effective evacuation plans. Finally, the revised generic environmental impact statement must clearly identify and acknowledge the potential impacts from a terrorist attack on natural resources and the environment. Until all relevant data is presented and thoroughly reevaluated, NRC's environmental impact statement will be legally inadequate and unacceptable.

BACKGROUND

The Atomic Energy Act of 1954 ("AEA") authorizes the NRC to issue commercial nuclear power stations operating licenses for a period of up to 40 years and permits renewals upon expiration. NRC regulations, in turn, authorize renewals for a period of up to 20 years.

As described in detail below, the National Environmental Policy Act mandates that federal agencies proposing projects that could result in significant environmental impacts provide a detailed study of these impacts for public review and comment. Pursuant to NRC regulations, 10 CFR Part 51, renewal of a nuclear power station operating license requires the preparation of an environmental impact statement ("EIS").

In 1996, NRC released a Generic Environmental Impact Statement for License Renewal of Nuclear Power Plants (“GEIS”) NUREG-1437. This document was designed to assess environmental impacts associated with continued operation of power plants as a result of a decision by NRC to permit relicensing. The GEIS was intended to address generic issues that apply to all license renewal applications. Plant specific supplemental EISs would be required for each license renewal application to address those issues not covered in the GEIS.

The NRC committed to review and update the GEIS periodically. The 2009 revised GEIS is specifically intended “to incorporate lessons learned and knowledge gained” since 1996. Revised GEIS p. S-2.

On July 31, 2009, NRC published a proposed rule for public comment on the revised GEIS for nuclear plant relicensing. On October 7, 2009, the deadline for public comment was extended to January 12, 2010.

Interests of the State of Connecticut

As chief legal officer of the State of Connecticut, the Attorney General has long supported efforts to protect human health and safety and the environment from improper use of radioactive materials. Connecticut is a densely populated state containing several current or decommissioned nuclear power sites. In addition, the Attorney General is currently involved as an interested governmental body in the relicensing proceedings for the Indian Point nuclear power plant. *See* In the Matter of Entergy Nuclear Operations, Inc., ASLBP No. 07-858-03-LR-BD01, Memorandum and Order (July 31, 2008). Indian Point is located in New York, close to the border with Connecticut, and fully one-third of Connecticut’s citizens reside within the 50 mile ingestion pathway zone (“EPZ”) for

Indian Point. Relicensing of nuclear power plants will directly affect the citizens of the State. The State of Connecticut, therefore, has a strong interest in ensuring the safety of nuclear power plants near or within its borders.

The Atomic Energy Act and NEPA

Section 161(b) of the Atomic Energy Act empowers the Nuclear Regulatory Commission to “establish rule[s], regulation[s], or order[s]” to “protect health or to minimize danger to life or property.”¹ The NRC's authority to protect the public

...cannot be read simply to permit the Commission to provide adequate protection; another section of the Act “requires” the Commission to do that much. We therefore must view section 161 as a grant of authority to the Commission to provide a measure of safety above and beyond what is “adequate.” The exercise of this authority is entirely discretionary. If the Commission wishes to do so, it may order power plants already satisfying the standard of adequate protection to take additional safety precautions.²

The AEA prohibits the NRC from issuing a license to operate a nuclear power plant if it would be “inimical to the common defense and security or to the health and safety of the public.” 42 U.S.C. § 2133(d). Public safety is “the first, last, and a permanent consideration in any decision on the issuance of a construction permit or a license to operate a nuclear facility. “Petition for Emergency and Remedial Action, 7 NRC at 404, citing *Power Reactor Development Corp. v. International Union of Electrical Radio and Machine Workers*, 367 U.S. 396, 402 (1961) (“*Power Reactor Development Corp.*”).

The National Environmental Policy Act, 42 U.S.C § 4321, *et seq.* (“NEPA”), mandates that federal agencies involved in activities that may have a significant impact

¹ 42 U.S.C. § 2201(b), (i).

² *Union of Concerned Scientists v. NRC*, 824 F.2d 108, 110 (D.C. Cir. 1987).

on the environment complete a detailed statement of the environmental impacts and project alternatives. NEPA provides, in pertinent part, as follows:

The Congress authorizes and directs that, to the fullest extent possible . . .

(2) all agencies of the Federal Government shall -- . . .

(C) include in every recommendation or report on proposals for legislation and other major Federal actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on --

(i) the environmental impact of the proposed action,

(ii) any adverse environmental effects which cannot be avoided should the proposal be implemented,

(iii) alternatives to the proposed action,

(iv) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and

(v) any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

42 U.S.C. § 4332.

NEPA directs that federal agencies, such as the NRC, must study certain issues and that the reviewing agency must take a "hard look" at these issues, but does not direct what result an agency must reach. Federal appellate courts have been very clear that NEPA is an important federal law and compliance is mandatory. "NEPA was created to ensure that agencies will base decisions on detailed information regarding significant environmental impacts and that information will be available to a wide variety of concerned public and private actors. *Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 575 (9th Cir. 1998)" (quoted in *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 175 (5th Cir. 2000)).

Thus, the fundamental goal of an evaluation under NEPA is to require responsible government agencies involved with a given project to undertake a careful and thorough analysis of the need for that project and its impacts before committing to proceed with the project. As the Tenth Circuit has held:

The purpose of NEPA is to require agencies to consider environmentally significant aspects of a proposed action, and, in so doing, let the public know that the agency's decisionmaking process includes environmental concerns. *Baltimore Gas & Elec. Co. v. Natural Resources Defense Council*, 462 U.S. 87, 97, 76 L. Ed. 2d 437, 103 S. Ct. 2246 (1983); *Sierra Club v. United States Dep't of Energy*, 287 F.3d 1256, 1262 (10th Cir. 2002).

Utahns For Better Transportation v. United States Dept. of Transp., 305 F.3d 1152, 1162 (10th Cir. 2002).

As the District of Columbia Circuit has held:

"NEPA was intended to ensure that decisions about federal actions would be made only after responsible decision-makers had fully adverted to the environmental consequences of the actions, and had decided that the public benefits flowing from the actions outweighed their environmental costs." *Jones v. District of Columbia Redevelopment Land Agency*, 162 U.S. App. D.C. 366, 499 F.2d 502, 512 (D.C. Cir. 1974). . . .

Illinois Commerce Com. v. Interstate Commerce Com., 848 F.2d 1246, 1259 (D.C. Cir. 1988).

It is not only the government decision-makers who are to be served by an EIS, but the citizens of this nation as well. As one court noted: "The purpose of an EIS is to 'compel the decision-maker to give serious weight to environmental factors' in making choices, and to enable the public to 'understand and consider meaningfully the factors involved.' *County of Suffolk [v. Secretary of Interior]*, 562 F.2d at 1375 (citing *Sierra Club v. Morton*, 510 F.2d 813, 819 (5th Cir. 1975))." *Town of Huntington v. Marsh*, 859 F.2d 1134, 1141 (2d Cir. 1988)(emphasis added).

Nuclear Power Stations

There are 104 nuclear power stations in the United States and most have been in operation for decades. Since 1996, about 30 nuclear plant facilities with a total of 50 reactors have undergone supplemental environmental impact evaluations as part of the relicensing process. Many more are expected to do so.

Periodically, the fuel used in a reactor must be replaced as the ratio of radioactive U-235 to U-238 drops below a point sufficient to maintain efficient operation. When this occurs, the spent fuel, which is still very hot, is transferred into a boron-water pool located near the reactor in order to cool, usually for a minimum of five years. The federal government once planned to re-fabricate the fuel by removing a portion of the U-238, thus increasing the ratio of U-235 to U-238. This effort was terminated by order of President Jimmy Carter as part of a nuclear weapons non-proliferation program. With nowhere to go, the spent fuel from each operating plant began to accumulate in the various pools around the country. In some cases, older, cooled fuel has been moved out of spent fuel pools into concrete and steel casks, known as dry cask storage, but still kept on-site at individual nuclear power stations. Dry cask storage, however, is not a permanent solution.

The Nuclear Waste Policy Act of 1982 ("NWPA") makes the federal government responsible for providing a spent fuel national repository. The NWPA, as amended in 1987, designates Yucca Mountain, Nevada, as the appropriate site for that repository. Yucca Mountain is not open and, as will be discussed in detail later, very likely will not open. Consequently, spent nuclear fuel ("SNF") produced by commercial power stations

continues to accumulate, largely in spent fuel pools at individual power stations, often near highly populated areas.

Revised Generic Environmental Impact Statement

The NRC released the Revised GEIS for License Renewals for Nuclear Plants in July, 2009. The Revised GEIS purports to evaluate the environmental impacts associated with proposed 20-year license extensions.

The Connecticut Attorney General offers the following comments on the Revised GEIS.

Spent Nuclear Fuel And Yucca Mountain National Waste Repository

As noted above, the Nuclear Waste Policy Act, as amended in 1987, designated Yucca Mountain, Nevada as the nation's nuclear waste repository. Over the last 20 years approximately \$14 billion has been spent to study and develop the site by the Department of Energy ("DOE"). DOE submitted an application to the NRC for a license to operate the repository. Secretary of Energy Dr. Steven Chu has publicly stated that "Yucca Mountain as a repository is off the table. . . . The NRC is saying that the dry cask storage at current sites would be safe for many decades, so that gives us time to figure out what we should do for a long-term strategy."³ On July 30, 2009, Senator Harry Reid announced that DOE and the federal administration will terminate all funding related to license review in the 2011 budget and that the only future funding will be that necessary to conclude the project.⁴

³ Technology Review, May 14, 2009, <http://www.technologyreview.com/business/22651/?nlid=2027>

⁴ Reid Announces Yucca Mountain License Application Funds To Be Eliminated in Budget, July 30, 2009, http://reid.senate.gov/newsroom/073009_yucca.cfm

Yucca Mountain has no reasonable chance of opening in the foreseeable future and most likely will never open. Even if it ever did open, it would probably already be too small for all of the waste it was to accommodate. Department of Energy ("DOE") facilities have accumulated approximately 13,000 tons of waste, and civilian power reactors have generated an additional 58,000 tons. The Report to the President and the Congress by the Secretary of Energy on the Need for a Second Repository, December 2008, p.5. As civilian reactors add about 2,000 tons annually, current estimates are that by the time the last existing reactor finishes its period of licensed operation, total waste generated by the current fleet of reactors will total between 109,300 and 130,000 tons, depending on how many reactors are granted license extensions. *Id.* Yucca Mountain, even if it opened tomorrow, is statutorily limited to hold only 77,000 tons of waste. *See* National Waste Policy Act of 1982, Public Law 97-425, 42 U.S.C. 10101 *et seq.*, § 114(d). In fact, the head of DOE's civilian nuclear waste program told Congress that by 2010 -- this year -- the amount of waste produced by the country's 104 nuclear power plants plus defense waste will already exceed the total allowable storage capacity for Yucca Mountain. *See* The Report to the President and the Congress by the Secretary of Energy on the Need for a Second Repository, December 2008, p. 2.

Most of the accumulated spent fuel is still in water-filled storage pools located next to nuclear reactors but almost always *outside* the reactors' protective containment domes. The danger created by these high-density storage pools in the event of an accident or terrorist attack is obvious. The two operating reactors at the Indian Point nuclear power station, for example, are located in one of the most densely populated areas of the country, an area which includes not only New York City and much of

southern New York and northern New Jersey, but also much of the State of Connecticut, within its potential exposure zone.

NRC has never properly evaluated the environmental consequences of an accident or attack at a spent fuel storage area and it must do so now in the Revised GEIS. Section 1.7.2 of the Revised GEIS, however, states that “[t]he NRC will not make a decision or any recommendation on the basis of the information presented in this GEIS regarding the disposition of” SNF.

The facts, as developed over the last several decades, clearly contradict NRC’s assumption that SNF storage is safe. In fact, an accident or attack on a SNF pool could result in a loss of coolant and subsequent fire releasing deadly amounts of radiological material and toxic fumes. An NRC report issued in October 2000 described in detail what can occur if there is a loss of coolant in a fuel pool:

This reaction of zirconium and air, or zirconium and steam is exothermic (i.e., produces heat). The energy released from the reaction, combined with the fuel’s decay energy, can cause the reaction to become self-sustaining and ignite the zirconium. The increase in heat from the oxidation reaction can also raise the temperature in adjacent fuel assemblies and propagate the oxidation reaction. The zirconium fire would result in a significant release of the spent fuel fission products which would be dispersed from the reactor site in the thermal plume from the zirconium fire. Consequence assessments have shown that a zirconium fire could have significant latent health effects and resulted (sic) in numbers of early fatalities.⁵

A Department of Energy report indicates that such a fire would release considerable amounts of cesium-137, an isotope that accounted for most of the offsite radiation exposure from the 1986 Chernobyl accident.⁶ Another report, authored by NRC,

⁵ NRC Report October, 2000 at 3-1 (internal citation omitted).

⁶ See US Department of Energy, Health and Environmental Consequences of the Chernobyl Nuclear Power Plant Accident, DOE/ER-0332 (Washington, DC: DOE, June 1987).

concludes that, in the event of a pool fire, approximately 100 percent of the pool's inventory of cesium would be released to the atmosphere.⁷

The emission of radioactive particles from a spent fuel pool accident would lead to horrific consequences. The NRC study stated that human fatalities within the first year of such an event "can be as large as for a severe reactor accident even if fuel has decayed several years."⁸ The radioactive fallout from this type of release could also make uninhabitable tens of thousands of acres of land.

The Revised GEIS inexplicably and insupportably asserts that high density fuel storage pools pose no significant environmental risk. *See*, Revised GEIS, p. S-17. This claim is completely refuted by a report by the National Academy of Sciences, the NRC's own technical staff and independent experts. *See* Jan Beyea, Report to the Massachusetts Attorney General on the Potential Consequences of a Spent-fuel Pool Fire at the Pilgrim or Vermont Yankee Nuclear Plant (May 25, 2006). This report showed that fuel storage pools are susceptible to fire and radiological release from a wide range of conditions, including natural phenomena, operator error, equipment failure, or intentional attack. The environmental impacts of a fire in a spent fuel pool may be severe, extending over a geographic area larger than one state's boundaries and continuing for decades.

In the October, 2000, study referred to above, the NRC admitted that:

"the risk analysis in this study did not evaluate the potential consequences of a sabotage event that could directly cause off-site fission product

⁷ *See* V L Sailor et al, Severe Accidents in Spent Fuel Pools in Support of Generic Safety Issue 82, NUREG/CR-4982 (Washington, DC: NRC, July 1987).

⁸ *See* NRC Report October, 2000 at 3-34.

dispersion, for example, a vehicle bomb driven into or otherwise significantly damaging the SFP [Spent Fuel Pool]. . . ."⁹

Accordingly, the environmental evaluation must study the consequences to human health and safety and the environment from any incident, including an accident or attack on the accumulated stored fuel in a storage system, because those possibilities pose obvious risks that were not discussed in the original 1996 GEIS and have been explicitly excluded in the Revised GEIS. Until this evaluation is complete, the requirements of NEPA have not been met.

As noted above, Section 1.7.2 of the Revised GEIS expressly states that NRC "will not make a decision or any recommendation on the basis of the information presented in this GEIS regarding the disposition of" SNF. This section continues that the agency's rules "leave[] the onsite storage of spent nuclear fuel during the term of plant operation as the only option at the time of license renewal." *Id.* While acknowledging that the NWPA mandates that the federal government is responsible for high level nuclear waste, the Revised GEIS only states that the "NRC is confident that there will eventually be a licensed high-level waste repository." *Id.* The Revised GEIS thus concludes that SNF "will be safely stored either onsite or at offsite interim storage facilities." *Id.*

This approach is inconsistent with NEPA. The purpose of an environmental review is to allow decision makers to know and understand the full range of potential impacts to public health and safety and the environment from a proposed action. This critical goal cannot be achieved if major impacts are ignored.

⁹ NRC Report February, 2001, NUREG -1738, at 4-15. This report is respectfully incorporated by reference.

Specifically, the Revised GEIS states it documents the means used by the NRC “to evaluate the environmental consequences of renewing the licenses of commercial nuclear power plants and operating the plants for an additional 20 years” Revised GEIS, S-3. The Revised GEIS then lists a series of important potential environmental impacts to land use, air quality, surface water, groundwater, and threatened and endangered species. Revised GEIS, pp. S-6 through S-11. Nowhere does the Revised GEIS describe the potential impact to these resources from a fire or other incident at a spent fuel pool. This failing alone is a violation of NEPA because the Revised GEIS fully recognizes that relicensing will result in materially increased storage of SNF onsite at each nuclear power station, but fails to address the environmental consequences of that additional storage.

Beyond the complete failure of the Revised GEIS to address the issue of increased SNF resulting from relicensing, the document is based upon a fundamental error – a continuing assumption that there will be a national repository for off-site disposal of spent fuel. As long ago as 1979, the United States Court of Appeals for the District of Columbia Circuit, in *State of Minnesota v. NRC*, 602 F.2d 412, 413-14 (D.C. Cir. 1979), questioned whether there would be offsite storage available for SNF from certain power stations after license termination. Intervenors in that case argued that any expansion of on-site storage could occur only after analysis of environmental implications.

NRC staff believed that NEPA did not require the preparation of an environmental impact statement, because any modifications as to where and how SNF would be stored would not “significantly affect the quality of the human environment.” See Atomic Safety and Licensing Appeal Board. *Id.* at 414-15. The D.C. Circuit found

that the Commission's "implicit" policy conclusion that a "reasonable assurance that methods of safe permanent disposal of high-level wastes can be available when they are needed" was unsupported by the record and remanded the issue to the Commission to undertake a record-based rulemaking proceeding to establish a supportable policy. *Id.* at 417. The result was the 1984 Waste Confidence Decision which established several findings necessary to permit the continued licensing of nuclear power plants in the absence of an existing national storage repository. The key findings were that the Commission found reasonable assurance that one or more mined geologic repositories for commercial SNF will be available by the years 2007-2009, and that sufficient repository capacity will be available within 30 years beyond the expiration of any reactor operating license to dispose of existing commercial SNF originating in such reactor and generated up to that time. The Commission also found reasonable assurance that SNF will be managed in a safe manner until sufficient repository capacity is available to assure the safe disposal of all SNF. 49 Fed. Reg. 34658 (Aug. 31, 1984). After making these findings, NRC amended its regulations to say that the environmental impacts of onsite SNF storage are not properly part of a relicensing proceeding. (10 C.F.R. § 51.23(a)).

Yucca Mountain did not open by 2007. As long ago as 1990, NRC amended the Waste Confidence Rule findings to reflect later dates of availability of the national repository. The NRC added that it found "reasonable assurance that at least one geologic repository will be available within the first quarter of the twenty-first century, and sufficient repository capacity will be available within 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license)" 55 Fed. Reg. 38474 (Sept. 18, 1990). NRC also amended the Rule to read: "The Commission

finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts for at least 30 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin, or at either onsite or offsite [dry cask storage facilities].” *Id. See* 55 Fed. Reg. 38472 (Sept. 18, 1990).

NRC is currently seeking to amend the Rule to give itself more time. NRC claims that it finds reasonable assurance to expect that sufficient mined geologic repository capacity can be available within 50-60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of any reactor to dispose of the commercial high-level nuclear waste and spent fuel originating in such reactor and generated up to that time. 73 Fed. Reg. at 59551. The Commission also seeks to amend the Rule also to read that “The Commission finds reasonable assurance that, if necessary, spent fuel generated in any reactor can be stored safely without significant environmental impacts for at least 60 years beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor in a combination of storage in its spent fuel storage basin and either onsite or offsite independent spent fuel storage installations.” 73 Fed. Reg. at 59551.

The NRC has also published a separate alternative proposed rule which would amend 10 C.F.R. § 51.23(a) to say that if necessary, spent fuel generated in any reactor can be stored safely and without significant environmental impacts beyond the licensed life for operation (which may include the term of a revised or renewed license) of that reactor at its spent fuel storage basin or at either onsite or offsite independent spent fuel storage installations. 73 Fed. Reg. 59547 (Oct. 9, 2008).

Therefore, NRC's position has been for decades that onsite spent fuel storage is a temporary situation and that the fuel must be relocated to a safe, secure federal facility. This point is, in fact, the basis for NRC's original Waste Confidence Rule which, in turn, is the basis for all of NRC's assumptions regarding SNF in the original GEIS of 1996 and the current Revised GEIS. Because the federal government has unequivocally terminated the Yucca Mountain project, there is no federal repository under consideration and no plan for an alternative. Spent fuel has nowhere to go and will accumulate indefinitely at the 100 plus nuclear power stations around the country. The NRC's fundamental SNF premise underlying all assumptions in the Revised GEIS is now demonstrably false. Consequently, the Revised GEIS is flawed from its inception and clearly violates NEPA.

In sum, no national repository is under construction, or even in planning. Thus NRC must assume that all SNF will accumulate at existing nuclear power stations and evaluate the environmental impacts of 20 years of additional amounting quantities of spent nuclear fuel – along with all of the existing fuel which is not going to Yucca Mountain or anywhere else – in the Revised GEIS.

Emergency Evacuation Impacts Not Considered

The Revised GEIS clearly and unequivocally states that “NRC will not make a decision or any recommendation on the basis of information presented in this GEIS regarding emergency preparedness at nuclear power plants.” Revised GEIS, Section 1.7.3. The Revised GEIS states that existing emergency plans “cover preparations for evacuation, sheltering, and other actions to protect residents. . . .” *Id.* The Revised GEIS concludes that the Federal Emergency Management Agency (“FEMA”) “has the lead in overseeing offsite planning and response. . . .” *Id.*

Under NEPA, a reviewing agency is required to consider the impact on the environment resulting from the total effects of the contemplated action and other past, present, and "reasonably foreseeable" future actions. See 40 C.F.R. 1508.7 (1990). Furthermore, NEPA mandates that federal agencies contemplating "major federal actions significantly affecting the quality of the human environment," 42 U.S.C. § 4332(2)(C), are obligated to include in the recommendation or report on the anticipated action an environmental impact statement ("EIS"), as "evidence that an agency has considered the reasonably foreseeable environmental effects of a proposed major action before making a decision to take the action." *Town of Orangetown v. Gorsuch*, 718 F.2d 29, 34 (2d Cir. 1983), *cert. denied*, 465 U.S. 1099 (1984).

To meet the mandates of NEPA, the Revised GEIS must identify and discuss all anticipated adverse impacts in a clear and comprehensive fashion, including any adverse unavoidable environmental effects resulting from the implementation, alternatives to the proposed action, the relationship between short-term uses and the long-term maintenance of the environment, and any irretrievable commitments of resources involved in the proposed action. Such a detailed statement "insures the integrity of the agency process by forcing it to face those stubborn, difficult-to-answer objections without ignoring them or sweeping them under the rug" and serves as an "environmental full disclosure law so that the public can weigh a project's benefits against its environmental costs." *Sierra Club v. United States Army Corps of Eng'rs* (Sierra Club II), 772 F.2d 1043, 1049 (2d Cir. 1985); *see also Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 349 (1989).

This Revised GEIS contains no consideration of the larger scale impacts of an accident or attack on emergency evacuation or response. NEPA requires a consideration of all potential impacts from a proposed government project. Nowhere does NEPA allow an agency to decline to examine the environmental impacts of a project because some other agency may have a role. The emergency evacuation plan is a central and critical element of the NRC's reactor permit and regulatory program. Emergency response and evacuation plans will differ in certain respects based on local conditions. But many elements can and should be standardized in order to provide uniform and consistent national standards. For example, protocols for notifying state and local officials and the public can and should be standardized. Similarly, computer modeling of evacuation and emergency training and response procedures should be common to all power stations.¹⁰ Thus, the NRC's NEPA review of the potential impacts resulting from operation of nuclear reactors, and the spent fuel pools and dry cask storage facilities for an additional 20 years must include an analysis of the impacts of standardized elements of emergency response and evacuation for nuclear power stations.

This requirement is particularly important because an accident or attack at a nuclear power facility would cause not only a potential catastrophe for the local population, but would have far reaching downwind effects.¹¹ As was demonstrated by

¹⁰ As an example, the Final Exercise Report, Oct. 24, 2004, (ML 050190165) regarding an emergency exercise at Indian Point noted that the evacuation order was given in English to Spanish-speaking residents near the power plant, Section 1.3, that inaccurate information was given to the public, Section 2.1, that government officials failed to communicate with each other, Section 2.3.1 and that, in one case, an automated telephone system was incomplete and radiation dose assessment personnel were not notified of the staged "accident." Section 2.4.1 These kinds of systemic errors and mistakes could happen at any facility across the country and the environmental consequences need to be evaluated and addressed.

¹¹ Emergency planning for Indian Point, for example, includes plans covering both a 10-mile radius emergency planning zone ("EPZ") and a separate 50-mile radius ingestion pathway EPZ. The 50-mile

the 1986 disaster at the Chernobyl nuclear power station in the Ukraine, not only are people in the immediate vicinity affected by a major release of radioisotopes, but so are vast areas at great distances potentially contaminated, creating disastrous public health and environmental consequences for communities many miles from the actual site. Further, these adverse impacts can continue for many years after the event. Consequently, NRC must evaluate the impacts to human health and safety and the environment of an immediate accident or attack on the entire potentially impacted downwind environment, as well as the collateral impacts of the long-term relocation of large numbers of displaced citizens who live in the immediate vicinity of an affected plant, as well as the potential millions more who live within the 50-mile radius, in the event of major downwind contamination.¹²

Failure to Evaluate Terrorist Attacks

As noted above, the Atomic Energy Act, 42 U.S.C. § 2011 *et seq.*, requires the NRC to ensure that nuclear power plants are secure against sabotage and other deliberate attacks. Specifically, the NRC must determine that the operation of a facility is “in accord with the common defense and security and will provide adequate protection to the health and safety of the public.” 42 U.S.C. § 2232(a).

radius EPZ includes substantial portions of the State of Connecticut, including its largest city, Bridgeport, and its most populous county, Fairfield. The immediate consequences of an evacuation order would affect approximately one-third of the population of Connecticut. In 2003, James Lee Witt, the former director of the Federal Emergency Management Agency (FEMA), issued a report detailing the deficiencies in the emergency evacuation plan for the Indian Point EPZ. Mr. Witt concluded that safe evacuation of the area surrounding Indian Point is highly unlikely, if not impossible. James Lee Witt Associates, Review of Emergency Preparedness of Areas Adjacent to Indian Point and Millstone (2003).

¹² Indian Point Independent Safety Evaluation, July 31, 2008, p.5.

The federal government has acknowledged that there is a continuing and credible threat of terrorist attacks.¹³ As President Obama recently said: “We are at war.”¹⁴ The attempted destruction of an airliner on December 25, 2009, reminds us that terrorist groups can and will continue to plan attacks on the country’s vital interests.¹⁵

The Revised GEIS fails to address the real concerns raised by a potential terrorist attack on a nuclear power station. The Revised GEIS treats the threat of terrorism exactly as it does emergency evacuation and accumulation of spent nuclear fuel. It ignores it. Section 1.7.4 of the Revised GEIS states that the “NRC requires that nuclear power plants be both safe and secure.” The Revised GEIS then concludes that “Security issues . . . are not tied to a license renewal action . . .” *Id.* Because security is deemed by the NRC to be independent of license renewal, “decisions and recommendations concerning safeguards and security at nuclear power stations are ongoing and outside the regulatory scope of this GEIS.” *Id.*

This approach is illogical and inconsistent with NEPA. The purpose of an environmental review is to allow decision makers to know and understand the full range of potential impacts to public health and safety and the environment from a proposed action. Ignoring major impacts is a flat violation of federal law.

Clearly, since September 11, 2001, there has been a heightened awareness that nuclear facilities are at risk of terrorist attacks. Such an attack might target the reactor

¹³ Obama Details New Policies in Response to Terror Threat, New York Times, Jan. 8, 2010. <http://www.nytimes.com/2010/01/08/us/politics/08terror.html?hp>

¹⁴ Obama: “We are at war.” New York Times, Jan. 7, 2010. <http://thecaucus.blogs.nytimes.com/2010/01/07/obama-review-revealed-significant-national-security-shortcomings/>

¹⁵ Obama says Al Qaeda in Yemen Planned Bombing Plot and He Vows Revenge. New York Times, Jan. 3, 2010. <http://www.nytimes.com/2010/01/03/us/politics/03>

containment building of a nuclear generating facility, but it might also target potentially more vulnerable targets, such as the spent fuel pools, that have considerably less structural protection. As noted in a Princeton University study, a successful terrorist attack on a spent fuel storage pool at a large nuclear reactor could have consequences “significantly worse than Chernobyl.”¹⁶

NRC cannot maintain that a terrorist attack on a nuclear power station is not a foreseeable risk. In fact, NRC itself has long recognized that nuclear power stations are potentially vulnerable to attack. As early as 1977, the agency’s published design basis threat (“DBT”) regulation explicitly acknowledged the possibility of attack. Final Rule, Requirements for the Physical Protection of Nuclear Power Reactors, 42 Fed. Reg. 10,836 (Feb. 24, 1977).¹⁷ In 1994, the DBT rule was amended to include vehicle based bomb threats. Final Rule, Protection Against Malevolent Use of Vehicles at Nuclear Power Plants, 59 Fed. Reg. 38,889 (Aug. 1, 1994). Further, in 2002, the NRC itself ordered nuclear plant operators “to develop specific guidance and strategies to maintain or restore core cooling, containment, and spent fuel pool cooling capabilities using existing or readily available resources (equipment or personnel) that could be effectively implemented under the circumstances associated with loss of large areas of the plant due to explosions or fire, including those that an aircraft impact might create.” Letter from J. Boska, NRC, to M. Balduzzi, Entergy Operations (July 11, 2007).¹⁸ In fact, one emergency drill at the Indian Point assumed that the facility was attacked by terrorists

¹⁶ Reducing the Hazards from Stored Spent Power-Generator Fuel in the United States, Science and Global Security, 11:1-51, 2003, p. 2

¹⁷ Similarly, the NRC’s 1979 environmental impact statement including a section dealing with possible sabotage attacks.

¹⁸ ML071920023.

using a hijacked 737 airplane.¹⁹ Clearly, NRC cannot maintain that a terrorist attack is not foreseeable when the agency itself has foreseen it.

Other federal agencies have publicly warned of the dangers of terrorist attacks on nuclear power stations. For example, on November 15, 2002, the FBI sent a bulletin to law enforcement agencies, warning them that Al-Qaeda's "highest priority targets remain within the aviation, petroleum, and nuclear sectors."²⁰ The 9/11 Commission's report revealed that Khalid Sheikh Mohammad, the mastermind of the 9/11 attacks, originally planned to hijack additional aircraft to crash into targets on both coasts, including nuclear power plants. The 9/11 Commission Report, at 154. As late as July 2001, the terrorists were considering attacking a specific nuclear facility in New York, which one of the pilots "had seen during familiarization flights near New York." *Id.* at 245.

In addition, on September 4, 2003, the United States General Accounting Office ("GAO") issued a report noting that the nation's commercial nuclear power plants are possible terrorist targets and criticizing the NRC's oversight and regulation of nuclear power plant security. GAO, Nuclear Regulatory Commission: Oversight of Security at Commercial Nuclear Power Plants Needs to Be Strengthened, GAO-03-752 (2003). The GAO weighed in again in 2006 in a separate report stating that, "[a]ccording to the [NRC] . . . , there continues to be a general credible threat of a terrorist attack on the nation's commercial nuclear power plants, in particular by al Qaeda and like-minded Islamic terrorist groups." Testimony Before the Subcomm. on Nat'l Security, Emerging Threats, & Int'l Relations, House Comm. on Gov't Reform, Nuclear Power Plants Have

¹⁹ Final Exercise Report Indian Point, Oct. 24, 2004 (ML 050190165) Appendix 4.

²⁰ Text of FBI Terror Warning, CBSNews.com (Nov. 15, 2002), <http://www.cbsnews.com/stories/2002/11/15/attack/main529501>

Upgraded Security, But the NRC Needs to Improve Its Process for Revising the DBT, GAO- 06-555T, at 1 (2006).

In 2005, the National Academy of Sciences released a report from a study it conducted at the request of Congress, with the sponsorship of the NRC and the Department of Homeland Security, of the security risks posed by the storage of spent fuel at nuclear plant sites. See Nat'l Acad. of Scis., *Safety and Security of Commercial Spent Nuclear Fuel Storage: Public Report (2006)* [hereinafter NAS Study]. Based upon information provided by the NRC, the National Academy of Sciences judged that "attacks with civilian aircraft remain a credible threat." *Id.* at 30 It noted that terrorists might choose to attack spent fuel pools because they are "less well protected structurally than reactor cores" and "typically contain inventories of medium- and long-lived radionuclides that are several times greater than those contained in individual reactor cores." *Id.* at 36. The National Academy of Sciences concluded that the storage pools are susceptible to fire and radiological release from a wide range of conditions, including intentional attacks with large civilian aircraft. *Id.* at 49, 57. According to a report prepared for Congress by the Government Accountability Office, the nation's nuclear power plants remain vulnerable to a terrorist attack.²¹

The threat of attack or sabotage to the nation's nuclear power stations is real and present. Terrorists are still attempting to create a "dirty bomb" or otherwise cause a deliberate release of radioactive material. On October 28, 2008, Dr. Mohamed ElBaradei, Director General of the International Atomic Energy Agency (IAEA), addressed the United Nations General Assembly and warned the world about nuclear

²¹ Nuclear Power Plants Efforts Made to Upgrade Security, but the Nuclear Regulatory Commission's Design Basis Threat Process Should Be Improved, March 2006, GAO-06-388.

terror: "The possibility of terrorists obtaining nuclear or other radioactive material remains a grave threat."²² Dr. ElBaradei also warned of "the potential of terrorists targeting nuclear facilities."²³ He stated that the "safety and security of nuclear material is a legitimate concern of all States" and that "[t]he willingness of terrorists to commit suicide to achieve their evil makes the nuclear terrorism threat far more likely than it was before September 11."²⁴

In December 2008, the Commission on the Prevention of WMD Proliferation and Terrorism (the "WMD Commission") reported: "Terrorist organizations are intent on acquiring nuclear weapons or . . . material. . . ."²⁵ On September 10, 2008, New York City Police Commissioner Raymond Kelly testified to the WMD Commission that:

Everything we know about al Qaeda tells us that they will try to hit us again, possibly the next time with a weapon of mass destruction. We must do everything in our power to stop them before it's too late.²⁶

It is clear that the threat of terrorism is very real and the possibility of an attack or sabotage needs to be considered in any NEPA analysis.

An environmental impact statement, at a minimum, must contain an analysis of all relevant potential environmental impacts. "NEPA was created to ensure that agencies will base decisions on detailed information regarding significant environmental impacts and that information will be available to a wide variety of concerned public and private

²² World At Risk – The Report of the Commission on the Prevention of WMD Proliferation and Terrorism, Graham & Talent (December 2008), <http://www.preventwmd.gov>, at 43.

²³ International Atomic Energy Agency, *Calculating the New Global Nuclear Terrorism Threat* (November 1, 2001) available at www.iaea.org/worldatom/Press/P_release/2001/nt_Pressrelease.shtml.

²⁴ *Id.*

²⁵ *Id.* at 43-44.

²⁶ *Id.* at 112.

actors. *Morongo Band of Mission Indians v. Federal Aviation Administration*, 161 F.3d 569, 575 (9th Cir. 1998)." *Mississippi River Basin Alliance v. Westphal*, 230 F.3d 170, 175 (5th Cir. 2000). As the Ninth Circuit stated:

When we consider the purposes that NEPA was designed by Congress to serve, what was done here is inadequate. Congress wanted each federal agency spearheading a major federal project to put on the table, for the deciding agency's and for the public's view, a sufficiently detailed statement of environmental impacts and alternatives so as to permit informed decision making. The purpose of NEPA is to require disclosure of relevant environmental considerations that were given a "hard look" by the agency, and thereby to permit informed public comment on proposed action ...

Lands Council v. Powell, 379 F.3d 738 (9th Cir. 2004).

NEPA mandates a full analysis of foreseeable impacts. Terrorism is a foreseeable threat to nuclear power facilities and related infrastructure. The Revised GEIS fails to contain the required impact analysis regarding continued accumulation of spent nuclear fuel, emergency evacuations, and the risk of terrorism. Therefore, important data is lacking in this GEIS and, until it is made available, this environmental impact document is incomplete.

CONCLUSION

The NRC has failed to provide a thorough and accurate analysis of all relevant potential impacts and has failed to take a "hard look" at the adverse impacts of this project. Foremost among the critical risks are the problems resulting from an additional 20 years accumulation of spent nuclear fuel without any plans for a federal repository, the need to ensure practical and workable evacuation plans, and the failure to address the environmental consequences of a terrorist attack. The Revised GEIS is fundamentally incomplete and thus the NRC must provide the missing analyses regarding impacts to natural resources and evaluate the long-term impact to these resources from these identifiable risks. NRC must readdress these issues in a satisfactory environmental impact statement before proceeding.

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Respectfully submitted



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