

<p><b>DOCKET NO. 265A</b> - Dominion Nuclear Connecticut, Inc. }          Application to Amend and Modify the Certificate of Environmental }          Compatibility and Public Need for the existing independent spent }          fuel storage installation at Millstone Power Station, Rope Ferry }          Road, Waterford, Connecticut pursuant to Connecticut General }          Statutes § 4-181a(b) for the limited purpose of determining if }          changed conditions related to the existing independent spent fuel }          storage installation justify a modification of the Decision and Order.</p>	<p>Connecticut  Siting  Council  May 2, 2013</p>
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**Findings of Fact**

**Introduction**

1. On May 27, 2004, under Docket 265, the Connecticut Siting Council (Council) granted a Certificate of Environmental Compatibility and Public Need to Dominion Nuclear Connecticut, Inc. (DNC) to construct an Independent Spent Fuel Storage Installation (ISFSI) at the Millstone Power Station. DNC was permitted to complete all subsurface infrastructure work to accommodate 135 Horizontal Storage Modules (HSM) and install concrete pads to accommodate 49 HSMs. (DNC 1, p. 6)
2. On October 31, 2012, DNC, in accordance with the provisions of General Statutes §16-50k and §4-181a(b), applied to the Council for certain modifications to the existing ISFSI and to modify Condition 15 of the Council's May 27, 2004 Decision and Order (D&O) to install all remaining concrete pads to accommodate the full build-out of 135 HSMs. DNC is not proposing to install 135 HSMs as part of this application. (DNC 1, p. 1; DNC 4, pp. 1-2)
3. On November 15, 2012, the Council voted to approve the application as complete and to approve the schedule for the proceeding. Consistent with the Council's jurisdiction, the proceeding was specifically limited to determining if changed conditions related to the existing ISFSI justify a modification of Condition 15 of the Council's May 27, 2004 D&O and modifications to certain physical features of the ISFSI within the existing footprint. (Council Meeting Minutes, November 15, 2012; Transcript 1 – 12/20/12 at 2:00 p.m. [Tr.1], pp. 5, 23, 113-114; Transcript 3 – 01/29/13 at 1:00 p.m. [Tr. 3], p. 5)
4. The parties in this proceeding are the applicant, Town of Waterford, Southeastern Connecticut Council of Governments, Attorney General George Jepsen, Dr. Milton C. Burton, Clarence O. Reynolds, Geralyn Cote Winslow, William H. Honan, and the grouped party, pursuant to General Statutes §16-50n(c), Connecticut Coalition Against Millstone (CCAM)/Nancy Burton (Burton)/Black Point Beach Club Association (BPBCA). (Record; Council Administrative Notice 17, Tr. 1, pp. 10-11; Tr. 3, p. 6)
5. Pursuant to General Statutes § 16-50m, the Council, after giving due notice thereof, held a public hearing on December 20, 2012, beginning at 2:00 p.m. at the Waterford Town Hall, 15 Rope Ferry Road, Waterford, Connecticut. The Council continued the public hearing in New Britain on January 29, 2013. (Council's Hearing Notices of 11/16/12 and 11/30/12; Tr. 1, p. 4; Transcript 2 – 12/20/12 at 7:00 p.m., [Tr. 2], p. 4; Tr. 3, p. 4)
6. The Council visited the existing ISFSI site on December 20, 2012, beginning at 1:00 p.m. (Council's Field Review Notice of December 12, 2012)
7. Pursuant to CGS § 16-50l(b), public notice of the filing of the application was published in the The Day on October 25 and 26, 2012. (DNC 2)
8. Pursuant to CGS § 16-50l(b), notice of the application was sent to all abutting property owners by certified mail. (DNC 1, p. 3, Attachment 3)

9. Pursuant to CGS § 16-50l(b), DNC provided notice of the application to all federal, state and local officials and agencies listed therein. (DNC 1, pp. 2-3, Attachment 1)
10. On November 28, 2012, DNC erected a four-foot by six-foot sign along Rope Ferry Road. The sign included the Applicant's name, purpose of the application, the date and location of the Council's public hearing, and contact information for the Council. (DNC 7)

#### **State Agency Comment**

11. Pursuant to CGS § 16-50j(h), on December 14, 2012, the following State agencies were solicited by the Council to submit written comments regarding the proposed facility: Department of Agriculture, Department of Energy & Environmental Protection (DEEP), Department of Public Health, Council on Environmental Quality, Public Utilities Regulatory Authority, Office of Policy and Management, Department of Economic and Community Development, the Department of Transportation, and the Department of Emergency Services and Public Protection. (Record)
12. The Council received written comment from the DEEP on December 19, 2012 stating that DEEP prefers that all spent nuclear fuel be transferred from "wet pool storage" to "dry cask" storage in the ISFSI as there is no near-term national solution to the nuclear waste storage issue. Additionally, the DEEP stated the proposed modifications to the ISFSI would have no impact on any State or Federally listed species and the existing buffer between the ISFSI site and statutory coastal resources is satisfactory. (DEEP comments of December 19, 2012)
13. No other State agencies commented on the proposal. (Record)

#### **Municipal Consultation**

14. DNC met with the Waterford's First Selectman, Daniel Steward, and Planning Director, Thomas Wagner on April 10, 2012 to discuss the project. (DNC 1, p. 3)
15. DNC submitted a technical report on June 27, 2012 to officials of the Town of Waterford and the Town of East Lyme, as portions of the Millstone property is within 2,500 feet of the East Lyme border. (DNC 1, p. 3)
16. DNC conducted a public information forum in Waterford on August 15, 2012. The forum was attended by State and local officials and members of the general public. (DNC 1, pp. 3-4)
17. The Waterford Conservation Commission reviewed the proposal and submitted written comment to the DNC stating the project would not result in significant environmental impact. (DNC 1, p. 4, Attachment 4)
18. The Waterford Planning and Zoning Commission reviewed the proposal and provided written comment to DNC recommending that the Council continue with the conditions set forth in the Decisions and Order issued for Docket 265, including an ISFSI space limitation of 135 HSMs. (DNC 1, p. 4, Attachment 5)

### **Nuclear Regulatory Commission Licenses**

19. DNC operates under federal licenses issued by the United States Nuclear Regulatory Commission (NRC) in accordance with the Atomic Energy Act as amended and Title 10 Part 50 of the Code of Federal Regulations (CFR) for the operation and maintenance of a nuclear-fueled electric generation facility consisting of Millstone Unit 1, Unit 2, and Unit 3. (Council Administrative Notice 17; DNC 1, Attachment 6; Tr.1, p.5-6)
20. NRC regulations under 10 CFR 72 authorize DNC to store spent nuclear fuel in casks fabricated under a Certificate of Compliance at the ISFSI and establish conditions on the general licenses issued for spent nuclear fuel storage facilities, including, but not limited to, the adoption of security measures and the design of structures, systems and components to withstand the effects of natural phenomena such as earthquakes, tornadoes, hurricanes, floods, and tsunamis, without impairing their capability to perform their intended design functions. (Council Administrative Notice 7; Council Administrative Notice 17; Council Administrative Notice 18; DNC 5, R. 6; Burton/CCAM 2, p. 3)
21. The NRC Certificate of Compliance for the DNC dry storage system placed on the ISFSI pad expires on January 23, 2015. Each individual storage module and canister is authorized to be used by the NRC for a period of 20 years from the time it is loaded with spent nuclear fuel. DNC started loading spent nuclear fuel in 2005. The NRC regulations under 10 CFR 72 allow for renewal of a dry storage system Certificate of Compliance for up to forty years. (Tr. 1, pp. 86-87; DNC 1, p. 9; DNC 6, R. 15)
22. The federal and state Supreme Courts have recognized that the NRC's prime area of concern in the licensing context is national security, public health, and safety. (Council Administrative Notice 18)
23. The NRC authorizes storage of spent nuclear fuel at an ISFSI in two ways: NRC specific license or NRC general license. Pursuant to a U.S. Court of Appeals decision regarding the necessity of an environmental impact statement relative to the NRC rulemaking concerning temporary storage and permanent disposal of nuclear waste, the NRC has suspended the issuance of licenses for new nuclear power plants and the reissuance of licenses for existing nuclear power plants pending the completion of an Environmental Impact Statement on spent fuel storage. This suspension applies to NRC specific licenses only. It does not apply to general NRC licenses, which DNC currently holds. (Council Administrative Notice 7; Council Administrative Notice 9; BPBCA 2, p. 2)
24. The NRC has undertaken the preparation of an Environmental Impact Statement (EIS) for the storage of spent nuclear fuel at commercial nuclear power plant sites consistent with the U.S. Court of Appeals decision. The NRC's EIS is expected to be completed in 2014. (Council Administrative Notice 9; BPBCA 2, p. 2)

### **Scope of Jurisdiction**

25. The federal government has preemptive authority over radiological health and safety issues associated with nuclear power plants and for oversight of on-site and off-site emergency preparedness. State agencies may not regulate the dry storage activities authorized by the NRC relative to radiological health and safety or impose siting standards in a manner that would frustrate or undermine NRC decisions related to the storage of spent nuclear fuel. (Council Administrative Notice 17; Council Administrative Notice 18; Tr. 1, pp. 5-8)

26. Based on the broad mandate in the Atomic Energy Act, as amended, for the NRC to have complete control of the safety and nuclear aspects of energy generation, Congress intended to occupy the field of radiological risks and environmentally related effects of the storage of spent nuclear fuel, including radiological effects of a potential terrorist attack on a storage facility authorized by the NRC. That authority and the regulations promulgated thereunder approving the use of spent storage facilities make clear that Congress did not intend for the states to have regulatory or decision-making power in this field. Therefore, considerations of environmental risks related to radiological safety fall squarely within the field preempted by federal law. (Council Administrative Notice 18)
27. With respect to environmental concerns, the state Supreme Court has ruled that the Council's jurisdiction is limited to nonnuclear environmental effects. The Council has no role in determining whether DNC should use dry cask storage or some other storage vehicle, no role in preventing on-site transfer of spent fuel, no role in selecting specifications for construction of the dry cask storage containers, and no role in determining whether the site and the installation, including the cask storage pads, are adequate to withstand the weight of the casks or threats posed by natural phenomena such as earthquakes and tornados, or the threat of sabotage. (Council Administrative Notice 17; Council Administrative Notice 18; Tr. 1, pp. 6-7)
28. Consistent with the Council's jurisdiction, the Docket 265A proceeding was specifically limited to determining if changed conditions warrant modification of Condition 15 of the Council's May 27, 2004 D&O and to nonnuclear environmental effects of modifications to certain physical features of the existing ISFSI. (Tr.1, pp. 5, 23, 113-114; Tr. 3, p. 5)

#### **Changed Conditions**

29. Pursuant to the Nuclear Waste Policy Act of 1982, the ISFSI provides for interim storage of spent nuclear fuel until such time as the United States Department of Energy (USDOE) establishes a permanent national repository or other method of permanent disposal. (DNC 5, R.6; Council Administrative Notice 3; Council Administrative Notice 17)
30. During the proceedings for Docket 265, there was no national repository for spent nuclear fuel. At the time, USDOE intended to submit a license application to the NRC for construction of a national repository at Yucca Mountain in Nevada with a target date to accept spent nuclear fuel for permanent disposal by 2010. (Council Administrative Notice 17; Tr. 1, p. 26)
31. In January 2010, the Obama Administration established a Blue Ribbon Commission (BRC) to conduct a comprehensive review of the full range of scientific and technical options available for storage, processing and disposal of civilian use nuclear fuel. As a result, USDOE withdrew its Yucca Mountain license application with the NRC. The BRC submitted its final report to the USDOE on January 26, 2012 with several national policy recommendations. (DNC 1, pp. 8-9; DNC 4, p. 2; Council Administrative Notice 1; Council Administrative Notice 9; Council Administrative Notice 13)
32. In January 2013, USDOE issued a "Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste" (Strategy) that responded to the recommendations in the BRC final report. The Strategy endorses a national waste management system containing a pilot interim storage facility by 2021 with an initial focus on spent nuclear fuel from shut-down reactors; a larger, full-scale interim storage facility available by 2025 that will have sufficient capacity to provide flexibility in the waste management system and limit the federal government's liability associated with spent nuclear fuel; and a geologic repository by 2048. (Council Administrative Notice 13)

33. In addition to changes in national policy, there have been changes in DNC's planned plant operations and management of spent fuel since the Docket 265 decision. DNC has revised the spent fuel loading schedule so that 49 HSMs would be loaded by calendar year 2021 rather than calendar year 2025. DNC has also identified changes in the original ISFSI pad design that would improve the spent fuel loading process. (Council Administrative Notice 17; DNC 1, p. 12; DNC 4, p. 2; DNC 9; Tr. 1, pp. 61-63)

#### **Existing ISFSI**

34. Millstone Power Station consists of a 520-acre parcel located south of Rope Ferry Road in the southwest portion of the Town of Waterford, Connecticut. The Millstone Power Station property is bounded on the north by Rope Ferry Road, on the west by Niantic Bay, on the south by Long Island Sound and Jordan Cove, and on the east by Gardiner's Wood Road. (DNC 1, p. 5)
35. The power generating units, turbine buildings, and associated support buildings are located in the southernmost portion of the Property within a 55.3-acre area to which access is controlled (Protected Area). The Protected Area was established and is maintained in accordance with requirements established by the NRC. (DNC 1, p. 5)
36. Areas outside of the Protected Area consist of employee parking areas, office and storage buildings, training facilities, an electric switchyard and transmission lines. DNC maintains baseball, soccer and football fields used by the Town in the northeast portion of the property. All remaining areas of the Property are maintained as open space. (DNC 1, p. 5)
37. The existing ISFSI is located within the Protected Area in the eastern portion of the power station area, east of Millstone Unit 3, and has its own security measures (ISFSI Protected Area). (DNC 1, Tab 7)
38. Construction of the ISFSI commenced in 2004. Work included subsurface work to provide a stable foundation for 135 HSMs, the installation of a concrete pad capable of supporting 20 HSMs, a concrete loading apron, a stormwater drainage system, security fencing, and underground utilities. (DNC 1, p. 7)
39. The existing concrete pad, located in the eastern portion of the ISFSI, supports 19 HSMs, 18 of which are loaded with spent fuel. Spent fuel is loaded into spent fuel canisters at the respective Millstone Unit, and moved to the ISFSI using a spent fuel transporter on a reinforced haul road. (Docket 265 record; DNC 1, Tab 7)
40. An existing 34-foot wide concrete HSM loading apron is immediately west of the existing concrete pad. The loading apron is sloped slightly so that runoff flows into a trench drain in the middle of the apron. (DNC 1, p. 8)
41. The remaining area of the ISFSI is covered with gravel. (DNC 1, Tab 7)
42. DNC is considering fabrication of future HSMs on-site, although a final determination has not been made. Presently, HSMs are fabricated by Transnuclear and shipped by rail from Virginia, creating delivery time issues. DNC would submit appropriate information to the Council if DNC intends to pursue on-site fabrication. (DNC 1, p. 14; Tr. 3, pp. 21-23)

### **Proposed ISFSI Modifications**

43. DNC proposes to widen the existing ISFSI by 15 feet, opposite HSM units 37-67, to increase the operational turning radius of the spent fuel transporter. The expanded area would total 0.23 acre. (DNC 1, p. 9, Tab 8)
44. After the first loading apron was installed and spent fuel transferred to the HSMs, DNC identified the sloped design of the loading apron as a hindrance as the spent fuel transporter could not easily align with the HSM. DNC proposes to eliminate the loading apron trench drain to create a level pad. This would allow the spent fuel transporter to align more easily with the HSM, thus reducing the amount of time it takes to load the canister. All new loading aprons would feature this design change. The existing loading apron with the trench drain would not be redesigned, as only seven HSMs remain to be loaded. (DNC 1, pp. 9-10; Tr. 2, pp. 41-42)
45. DNC proposes to install five new catch basins on the west side of the ISFSI to compensate for the elimination of the loading apron trench drains. The catch basins would connect to new reinforced concrete drainage pipes that would convey flows to existing drainage systems outside of the ISFSI. (DNC 1, p. 10, Tab 7)
46. Reconstruction of the ISFSI drainage system would not significantly increase stormwater run-off from the site and no modifications to stormwater discharge structures would be required. (DNC 1, p. 10, Tab 8)
47. Some of the final drainage design improvements are considered “safeguards information” for the physical protection of plants by the NRC. (Council Administrative Notice 10; DNC 1, p. 11)
48. DNC seeks to modify the Council’s Docket 265 D&O Condition No. 15 to allow DNC to install a concrete pad that would accommodate 135 HSMs, rather than a pad that could only accommodate 49 HSMs. This would allow DNC to complete all necessary pad construction work during one construction interval, reducing the time and cost necessary for future pad installations. (DNC 1, p. 11; DNC 9; Tr. 3, pp. 31-32)
49. The concrete pad would cover the entire ISFSI area and would serve to support the HSMs as well as accommodate the operations of the spent fuel transporter. The pad would vary in thickness and reinforcement to account for HSM and non-HSM areas. (Tr. 2, pp. 34-35, 38)
50. Project construction would require some work within the existing ISFSI Protected Area. In order to minimize the impact of certain required security measures on the construction schedule, the ISFSI Protected Area would be relocated to an area around the existing HSMs, excluding the remainder of the ISFSI. Once construction is completed, the ISFSI protected area would revert back to the perimeter of the ISFSI area. (DNC 1, p. 11; Tr. 2, pp. 39-40, 51-53)
51. The estimated project cost is \$11,300,000. (DNC 1, p. 2; Tr. 2, pp. 118-119)
52. DNC seeks to install the new concrete pads as soon as possible prior to a scheduled fuel transfer in 2015. (DNC 9)

### **Environmental Considerations**

53. The project would have no effect on wetlands or watercourses. (DNC 1, p. 15)
54. No vegetation or habitats would be directly affected, as all modifications would be within previously disturbed and currently industrially-maintained areas. (DNC 1, p. 16, Tab 7)

55. The ISFSI is not within a flood hazard area as delineated by the Federal Emergency Management Agency. The ISFSI pad elevation is 21 feet above mean sea level (amsl). The flood elevations observed for Super Storm Sandy (2012) and Tropical Storm Irene (2011) were approximately nine feet amsl. (DNC 15; Burton 4; Tr. 1, pp. 73-74, 77; Tr. 3, pp. 69-70)
56. The project would not affect any State or federally endangered, threatened or special concern species. (DNC 1, p. 16; DEEP comments of December 19, 2012)
57. The project would have no adverse effect on historic, architectural or archeological resources listed in or eligible for the National Register of Historic Places. (DNC 1, p. 17)
58. Noise levels would not exceed state criteria at the boundaries of the Millstone property. (DNC 1, p. 16)
59. The project would not alter the visual impact of the approved ISFSI site. (DNC 1, p. 17)

#### **Alternatives to the Proposed ISFSI Modifications**

60. During the proceedings for Docket 265, DNC presented, and the Council considered, several spent fuel management alternatives that included: no action, thus continued wet storage, inter-unit transfer of spent fuel, modifying the capacity of existing spent fuel pools, constructing an additional spent fuel pool, shipping and storage of spent nuclear fuel to a national repository, transferring spent fuel to other NRC-licensed nuclear reactor facility spent fuel storage areas, reprocessing spent fuel and installing dry storage either above ground, with and without a berm, or below ground. The Council approved the above-ground dry storage system because it facilitated DNC's continued operation under its current license; it provided flexibility in a license renewal application pending before the NRC during the Docket 265 proceeding; and it accommodated a prudent schedule for planning and implementing a national repository. (Council Administrative Notice 17)
61. During the proceedings for Docket 265, the Department of Environmental Protection considered alternative methods of spent fuel storage and concluded that dry storage was the preferred alternative. DEEP further reaffirmed their preference for dry storage over wet pool storage in their Docket 265A comments of December 19, 2012. (Council Administrative Notice 17; DEEP comments of December 19, 2012)
62. During the proceedings for Docket 265, DNC presented, and the Council considered, four alternative locations for the ISFSI that were on the DNC property but outside of the Protected Area. The Council approved the existing ISFSI site because it is the farthest from residential areas, and its proximity to Unit 2 and Unit 3 and the associated Protected Area. (Council Administrative Notice 17; Tr. 1, p. 115)
63. During the proceedings for Docket 265, there was discussion of an earthen berm around the ISFSI to provide added security and a visual buffer. The berm, proposed to be 92 feet wide and 22 feet high, would have encroached into designated wetland areas, required approximately 70,000 cubic yards of fill, and caused the relocation of a rail spur and access road to the east. The Council concluded these disadvantages weighed against constructing a berm. (Council Administrative Notice 17)

**Figure 1:** Proposed ISFSI modifications. Although the Council has approved the installation of 49 HSMs to date, this schematic shows the ISFSI with a full build-out of 135 HSMs. (DNC 1, Tab 7)

