

OCT 29 2012



**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

**APPLICATION OF DOMINION NUCLEAR CONNECTICUT, INC.  
TO MODIFY SITING COUNCIL CERTIFICATE (DOCKET NO. 265)  
FOR THE EXISTING INDEPENDENT SPENT FUEL STORAGE  
INSTALLATION (DRY STORAGE SYSTEM)  
AT MILLSTONE POWER STATION,  
ROPE FERRY ROAD WATERFORD, CONNECTICUT**

**OCTOBER 29, 2012**

**Dominion Nuclear Connecticut, Inc.**

**Millstone Power Station**

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1. Certification of Service (Notice to Government Officials)
2. Legal Notice (New London Day)
3. List of Adjacent Property Owners; Certification of Service; Sample Notice Letter
4. Waterford Conservation Commission comment letter dated August 29, 2012
5. Waterford Planning and Zoning Commission comment letter dated August 28, 2012
6. Docket No. 265 Decision & Order, Opinion and Findings of Fact
7. Revised Project Plans
8. Revised Drainage Report dated April 2012
9. Environmental Site Assessment and Wetlands Report Update dated March 30, 2012
10. March 24, 2003 Letter from the Connecticut State Historic Preservation Officer
11. April 1, 2003 Letter from the Connecticut Department of Environmental Protection

## **EXECUTIVE SUMMARY**

### **2004 ISFSI Approval**

On August 25, 2003, Dominion Nuclear Connecticut Inc. (DNC) filed an application with the Connecticut Siting Council (the Council) to establish an Independent Spent Fuel Storage Installation (ISFSI) at Millstone Power Station (MPS). (Council Docket No. 265). The Council approved the Docket No. 265 application on May 27, 2004, subject to certain conditions and limitations.

Pursuant to the Council's approval, DNC was authorized to complete all subsurface infrastructure work for the ISFSI, a total of 135 Horizontal Storage Modules (HSMs), including, without limitation, site clearing, grading and sub-grade construction activity, backfilling, installation of a perimeter security fence and haul road, installation of stormwater drainage improvements and underground utilities and installation of a concrete pad large enough to accommodate the first 49 HSMs (the Phase 1 site improvements). The 135 HSMs would be used in conjunction with the existing spent fuel pools to provide spent fuel storage (85 HSMs) for the continued operation of MPS Unit 2 (MPS2) and MPS Unit 3 (MPS3) and provide for a contingency of up to 50 HSMs for spent fuel from the MPS Unit 1 (MPS1) spent fuel pool.

### **Status of Spent Fuel Movement to the ISFSI**

Following completion of Phase 1 site improvements, DNC installed ten (10) HSMs on the first (eastern-most) reinforced concrete pad at the ISFSI. In February of 2005, DNC loaded spent fuel into two (2) HSMs. DNC loaded spent fuel into three (3) additional HSMs in July of 2006 and three (3) additional HSMs in October 2007. No spent fuel movement to the ISFSI occurred in 2008. In 2008, DNC did, however, receive delivery of, assemble and place nine (9) additional HSMs on the first concrete pad for future spent fuel loading activities. DNC loaded spent fuel into three (3) additional HSMs in both April 2009 and October 2010. No spent fuel

was loaded in 2011. DNC loaded spent fuel into four (4) additional HSMs in June 2012, for a total of eighteen (18) loaded HSMs.<sup>1</sup>

#### Proposed ISFSI Modifications

DNC is seeking permission to complete construction of the concrete pad for all 135 HSMs, modify certain ISFSI drainage improvements and widen areas adjacent to the ISFSI loading aprons to assist with loading operations. These modifications will also require the temporary relocation of the Protected Area fence currently surrounding the ISFSI to accommodate construction activities. The modified ISFSI will occupy the same foot print as identified and approved in the Docket No. 265 application. Assembly and installation of HSMs and the loading of the HSMs with Dry Shielded Canisters (DSCs) containing spent fuel will be staged in future years to support the operational needs of MPS.

#### Projected Fuel Movement from MPS2 and MPS3

Since the Council's approval of the Docket No. 265 application, DNC's projections for movement of spent fuel to the ISFSI have been modified in response to changes in plant operations and spent fuel management strategies. As discussed in more detail in Section II.F. below, the modifications require the movement of spent fuel to the ISFSI at a rate slightly faster than previously contemplated.

#### MPS1 Spent Fuel

DNC's current strategy for managing the MPS1 spent fuel includes its storage in the MPS1 spent fuel pool until the U.S. Department of Energy (DOE) accepts the MPS1 spent fuel for permanent disposal. Given the significant uncertainty associated with efforts to establish a national repository for spent fuel, DNC is analyzing whether its current MPS1 spent fuel

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<sup>1</sup> Information regarding the movement of spent fuel to the ISFSI is provided to the Council as a part of DNC's Annual ISFSI Report filed pursuant to Condition No. 12 of the Docket No. 265 approval.

management strategy will continue. Based on the results of the analysis, DNC may consider moving the MPS1 spent fuel from the MPS1 spent fuel pool to the ISFSI.

#### Summary of Municipal Review and Input

DNC representatives met informally with Waterford officials on April 10, 2012, to discuss preliminary plans for the ISFSI modifications. The Council's formal 60-day municipal consultation process commenced on June 27, 2012 when DNC representatives met with public officials in Waterford and East Lyme and submitted copies of technical information regarding the proposed ISFSI modifications.

On August 15, 2012, DNC presented the ISFSI modification proposal at a joint public informational forum hosted by Waterford and East Lyme. This forum was attended by State and local elected officials, municipal Planning and Zoning and Conservation Commissioners and members of the general public. Notice of the meeting was mailed by DNC to 165 Waterford residents who own land and/or live near MPS. Municipal comments on the ISFSI modification proposal were received from the Waterford Conservation Commission and Waterford Planning and Zoning Commission.

**STATE OF CONNECTICUT  
CONNECTICUT SITING COUNCIL**

**APPLICATION OF DOMINION** :  
**NUCLEAR CONNECTICUT, INC. TO** :  
**MODIFY SITING COUNCIL** :  
**CERTIFICATE (DOCKET NO. 265) FOR** :  
**THE EXISTING INDEPENDENT SPENT** :  
**FUEL STORAGE INSTALLATION (DRY** :  
**STORAGE SYSTEM) AT MILLSTONE** :  
**POWER STATION, ROPE FERRY ROAD** :  
**WATERFORD, CONNECTICUT** : **OCTOBER 29, 2012**

**I. INTRODUCTION**

A. Authority and Purpose

This information and the accompanying attachments (the Application) are submitted by Dominion Nuclear Connecticut, Inc. (DNC) pursuant to Chapter 277a, Section 16-50k(a) of the Connecticut General Statutes (Conn. Gen. Stat.), as amended, and Sections 16-50j-1, et seq. of the Regulations of Connecticut State Agencies (RCSA), as amended. The Application proposes certain modifications to the existing Independent Spent Fuel Storage Installation (ISFSI) at the Millstone Power Station (MPS) in Waterford, Connecticut (the Town or Waterford).

B. Applicant

DNC is the majority owner and the licensed operator of MPS<sup>2</sup>. DNC is a Delaware corporation, operating MPS pursuant to licenses issued by the U.S. Nuclear Regulatory Commission (NRC) in accordance with 10 Code of Federal Regulations (CFR) Part 50. DNC and its affiliates have extensive experience in the operation of nuclear power stations.

Subsidiaries of DNC's indirect parent company, Dominion Resources, Inc. (Dominion),

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<sup>2</sup> DNC owns Millstone Power Station Units 1 and 2 (MPS1 and MPS2) in their entirety and owns 93.47% of Millstone Power Station Unit 3 (MPS3). The remaining interest in MPS3 is owned by the Massachusetts Municipal Wholesale Electric Company (4.8%) and Central Vermont Public Service Corporation (1.73%).



currently own and operate four nuclear power stations, including MPS. Dominion currently maintains on site spent fuel dry storage systems at MPS, at its Surry and North Anna Power Stations in Virginia and at its Kewaunee Power Station in Wisconsin.

Correspondence and/or communication regarding this submission may be addressed to:

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C. Application Fee

The estimated total cost for construction of the ISFSI modifications would be approximately \$11,300,000.00. Pursuant to RCSA § 16-50v-1a(b) of the Regulations of Connecticut State Agencies, a fee of \$11,300.00 accompanies this submission in the form of a check payable to the Council.

D. Notice of Intent to File

Copies of the Application have been sent by certified mail, return receipt requested to municipal, regional, state and federal officials pursuant to Conn. Gen. Stat. § 16-50l(b). A Certification of Service, along with a list of parties served with a copy of the Application is included

in Attachment 1.

Notice of DNC's intent to file the Application was published on two separate occasions in the *New London Day*, pursuant to Conn. Gen. Stat. § 16-50**l**(b). A copy of the Legal Notice is included as Attachment 2. A Publisher's Affidavit or Certificate of Publication will be submitted to the Council as soon as it is available. In accordance with Conn. Gen. Stat. § 16-50**l**(b), Attachment 3 contains a certification that notice of DNC's intent to file the Application was sent to each person appearing of record as an owner of property that may be considered to abut the MPS property or as a courtesy notice, as well as a list of property owners to whom such notice was sent and a sample notice letter.

E. Municipal Consultation

On April 10, 2012, DNC representatives met with Waterford's First Selectman Daniel Steward and Planning Director Thomas Wagner to discuss preliminary plans for modifications to the ISFSI. Conn. Gen. Stat. §§ 16-50**l**(e) and 16-50x(d) require the submission of certain technical information to the Town of Waterford, as the host municipality, at least 60 days prior to the submission of the ISFSI modification application to the Council. Technical information regarding the proposed modifications was provided to public officials in the Town of Waterford on June 27, 2012. Pursuant to the requirements of Conn. Gen. Stat. § 16-50**l**(e), technical information was also provided to officials in the Town of East Lyme on June 27, 2012, as portions of the MPS property are located within 2,500 feet of the East Lyme-Waterford municipal boundary. Copies of DNC's technical information were filed, in bulk, with the Council.

On August 15, 2012, DNC presented the ISFSI modification proposal at a joint public informational forum hosted by Waterford and East Lyme. This forum was attended by State and local elected officials, municipal Planning and Zoning and Conservation Commissioners and members of the general public. DNC sent notice of this meeting to 165 property owners who live or

own property near MPS.

At its regular meeting of August 23, 2012, the Waterford Conservation Commission (CC) endorsed specific findings related to the ISFSI modification proposal. A copy of the CC's August 29, 2012 letter to Kevin Hennessy, Director of Federal, State and Local Affairs for Dominion Resources Services, Inc. outlining its findings is included in Attachment 4. Most significantly, the CC found that the ISFSI modification proposal would not involve activity within 100 feet of a wetland area or the Town's 100 foot upland review area; the proposed drainage improvements will not increase peak discharge to the receiving wetlands by more than 1 cubic foot per second (cfs); the proposed soil erosion and sediment control measures will prevent the discharge of sediment into the storm water system; and the ISFSI modifications will not result in significant adverse environmental impacts at MPS.

At its regular meeting on August 27, 2012, the Waterford Planning and Zoning Commission (PZC) reviewed the ISFSI modification proposal and issued several recommendations for consideration by DNC and the Council. The PZC's recommendations are contained in an August 28, 2012 letter to Stephen Scace, MPS Site Vice President and included in Attachment 5. In that letter, the PZC recommends that the Council continue with the conditions set forth in its Docket No. 265 approval subject to the acceptance of the revised HSM installation and fuel loading schedule described in the ISFSI modification application. The PZC recognizes the importance of the ISFSI and the need to maintain full core reserve capabilities in the MPS2 and MPS3 spent fuel pools and asks the Council to continue to monitor efforts that will result in the permanent removal of spent fuel from MPS. The PZC "appreciates the potential safety benefits" of moving MPS1 spent fuel to the ISFSI and hopes to work with DNC on any plans it may have to reuse the MPS1 site following decommissioning. The PZC letter goes on to state that future manufacturing uses at

the MPS1 site would be consistent with the Town's 1985 Management Guidelines for the site.<sup>3</sup>

## **II. ISFSI MODIFICATION PROPOSAL**

### **A. Description of MPS**

MPS is located on an approximately 520-acre parcel south of Rope Ferry Road (Conn. Route 156) in the southwest portion of the Town of Waterford, Connecticut (the Property). The Property is bounded on the north by Rope Ferry Road (Conn. Route 156), 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. The Property is traversed by an Amtrak rail line.

The MPS power generating units, turbine buildings, associated support buildings and the ISFSI are located in the southernmost portion of the Property within a 55.3 acre area encompassed by physical barriers and to which access is controlled (known as the Protected Area).<sup>4</sup> The Protected Area was established and is maintained in accordance with requirements established by the U.S. Nuclear Regulatory Commission (NRC). Physical security measures, including perimeter intrusion detection systems, physical barriers, isolation zones and security lighting, are used to establish and maintain the Protected Area.

Portions of the Property, outside of the Protected Area, are developed with employee parking areas, office and storage buildings, training facilities, an electric switchyard and a transmission line corridor extending from the switchyard to the north. In the northeast portion of the Property, DNC maintains baseball and soccer fields which are used by the Town of Waterford. All remaining portions of the Property are maintained as open space.

### **B. 2004 MPS ISFSI Approval**

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<sup>3</sup> DNC has no current plans to reuse the MPS1 site for any purpose.

<sup>4</sup> As part of DNC's original ISFSI project, the Protected Area was extended to encompass the ISFSI area and adjacent Equipment Laydown Area expanding the MPS Protected Area from 49.3 acres to 55.3 acres.

On August 25, 2003, DNC filed an application with the Council to establish an ISFSI at MPS. (Docket No. 265). As discussed at length during the Docket No. 265 proceeding, the ISFSI provides for interim storage of spent fuel until such time as the U.S. Department of Energy (DOE) fulfills its statutory and contractual obligations and accepts the fuel for permanent disposal<sup>5</sup>. The approved ISFSI would support a total of 135 HSMs located on two separate concrete pads. Spent fuel, which has been adequately cooled in each of MPS's spent fuel pools for at least five years, is sealed inside a steel canister and placed in the HSM. A total of 85 HSMs in the ISFSI were proposed to be used in conjunction with the existing spent fuel pools to provide spent fuel storage for the operation of MPS2 and MPS3 through the end of each unit's license periods.<sup>6</sup> Up to 50 additional HSMs were projected to be needed to store spent fuel from the MPS1 spent fuel pool.

The Council approved the Docket No. 265 application on May 27, 2004, subject to certain conditions and limitations. A copy of the Council's Decision and Order (D&O), Opinion and Findings of Fact (FOF) in Docket No. 265 is included in Attachment 6. Pursuant to the D&O, DNC was authorized to complete all subsurface infrastructure work for a total of 135 HSMs, including, without limitation, site clearing, grading and sub-grade construction activity, backfilling, installation of a perimeter security fence and haul road, installation of stormwater drainage improvements and underground utilities and installation of a single concrete pad large enough to accommodate 49 HSMs<sup>7</sup>.

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<sup>5</sup> Nuclear Waste Policy Act of 1982, as amended, 42 U.S.C. §§ 10101 et seq.

<sup>6</sup> In November 2005, the NRC extended the operating licenses for MPS2 to 2035 and MPS3 to 2045.

<sup>7</sup> The D&O requires that the HSMs shall be installed in numeric order, as shown on the approved plan, starting along the east side of the ISFSI area.

C. Status of ISFSI Improvements and Fuel Loading

Construction of the ISFSI began in 2004 and, in accordance with the Council's approval, has been developed in phases. As of the date of this filing, the following site improvements have been completed.

- Installation of all subsurface improvements to provide a stable foundation for a full build-out of the ISFSI supporting 135 HSMs.
- Installation of a reinforced concrete pad capable of supporting 20 HSMs and an adjacent reinforced concrete loading apron.
- Construction of a haul road from the developed area of the MPS power block to the ISFSI.
- Installation of stormwater drainage improvements including the installation of a trench drain in the reinforced concrete apron, the installation of drainage improvements around the ISFSI area and upgrades to the stormwater discharge structure at location discharge serial number (DSN) 011 to the east of the ISFSI.
- Installation of a security fence to encompass the new ISFSI within the MPS Protected Area.
- Installation of underground utilities in and around the ISFSI area.
- Installation of a gravel and crushed stone surface on unfinished areas within the ISFSI area and adjacent "Equipment Laydown Area".
- Placement of excess fill material to the designated "Soil Placement Area" located to the north of the Amtrak rail line.

Following completion of these improvements, DNC installed ten (10) HSMs on the eastern-most reinforced concrete pad at the ISFSI. In February of 2005, DNC loaded spent fuel into two (2) of the HSMs. DNC loaded spent fuel into three (3) additional HSMs in July of 2006 and three (3) additional HSMs in October 2007. No spent fuel movement to the ISFSI occurred in 2008. In 2008, DNC did, however, receive delivery of, assemble and place nine (9) additional HSMs on the first concrete pad for future loading activities. DNC loaded spent fuel into three (3) HSMs in April of 2009 and three (3) HSMs in October of 2010. No spent fuel was loaded in

2011. DNC loaded spent fuel into four (4) additional HSMs in June 2012. As of the date of this filing, 18 of the 19 HSMs on the eastern-most ISFSI pad have been loaded with spent fuel.<sup>8</sup>

D. Status of National Spent Fuel Repository

As recently discussed in DNC's Seventh Annual ISFSI Report, efforts to license the proposed Yucca Mountain nuclear waste repository have slowed or halted. The Administration has taken alternate steps to reconsider what path the nation might take to deal with permanent disposal of spent nuclear fuel. As a result, the DOE sought to withdraw its Yucca Mountain license application previously filed with the NRC. In September 2011, at the direction of the NRC Commissioners, the Yucca Mountain licensing proceeding and further activities were suspended.

In January 2010, the Administration established a Blue Ribbon Commission 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. The Blue Ribbon Commission submitted its final report to the DOE on January 26, 2012. In it, the Commission made several recommendations, including:

- Transferring the responsibility for the nation's waste management program to a new organization, independent of DOE, dedicated to the safe storage and, ultimately, disposal of spent nuclear fuel.
- Commence development of at least one geologic disposal facility and at least one consolidated storage facility and prepare for the transport of spent fuel to these facilities.
- Change the manner in which fees being paid into the Nuclear Waste Fund are treated in the Federal budget to ensure that the money for these long-term disposal alternatives is available in the future.

The DOE is assessing the recommendations of the Blue Ribbon Commission and is

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<sup>8</sup> Information regarding fuel movement to the ISFSI is provided to the Council as a part of DNC's Annual ISFSI Report filed pursuant to Condition No. 12 of the D&O.

expected to report back to Congress.

E. Proposed ISFSI Modifications

To accommodate future off loads of spent fuel from the MPS2 and MPS3 and possibly MPS1 spent fuel pools, the build-out of the ISFSI concrete pads to accommodate 135 HSMs is planned. The ISFSI modification details, shown on the Project Plans included in Attachment 7 will not extend beyond the limits of the existing ISFSI area identified and approved in the Docket No. 265 application. Assembly and installation of the HSMs and the loading of the HSMs with spent fuel will continue to be staged in future years to support the operational needs of MPS.

DNC began moving spent fuel to the ISFSI in 2005. To date, DNC has loaded spent fuel into 18 of the 19 existing HSMs located on the first concrete pad, in the easterly portion of the ISFSI. During these seven years of completed loading operations, DNC has identified several areas where changes to certain site construction features and details would improve the overall performance and efficiency of the fuel loading process.

First, the sloped grade to the west side of the northern-most ISFSI loading apron (opposite HSM units 37-67) will be leveled, in a westerly direction by 15 feet to allow for the widening of the area adjacent to the loading apron. Excess material removed from the ISFSI area to accommodate this widening will be transported and stored at the previously designated "Soil Placement Area" located on the Property, north of the Amtrak rail line. The wider area adjacent to the loading apron will better accommodate the turning radius of the spent fuel transporter.

Second, in the middle of the concrete loading apron adjacent to HSM Units 1-25, is a trench drain. The loading apron is sloped from the face of the HSM units to the trench drain. DNC has learned over the last seven years that the slope of this loading apron unnecessarily



complicates the alignment of the DSC during the spent fuel loading process. In the future, concrete loading aprons and HSM foundations will be constructed with a more level finish and will incorporate an alternative storm drainage collection system, thereby eliminating the need for the trench drain.

Third, changes proposed to the existing storm drainage system in the ISFSI area are designed to accommodate stormwater run-off from the modified loading aprons and HSM concrete pads. The new drainage system will consist of a series of existing and relocated catch basins and manholes located to the west of the concrete loading aprons and interconnected to storm drain piping. A portion of the new stormwater system will be routed to the north, and connect to existing catch basin (CB) No. 7 at the northeast corner of the ISFSI. Stormwater entering the remainder of the catch basins will continue to be routed to the south of the ISFSI, and connect to an existing drainage manhole (MH) No. 15 at the southwest corner of the ISFSI. Both CB No. 7 and MH No. 15 are part of the existing storm drainage system approved by the Council in the Docket No. 265 application. All stormwater from the ISFSI area will continue to be routed to the approved discharge location east of the ISFSI and the rail spur, known as DSN-011. The minor changes to the ISFSI drainage design including the changes in the routing of storm drainage flows will not significantly increase stormwater run-off from the site and will not require any modifications to discharge outlet structure DSN-011.<sup>9</sup> DNC's consultants have updated the hydrologic and hydraulic analyses for the ISFSI modification project. A Revised Drainage Report for the ISFSI modifications has been prepared and is included as Attachment 8. The actual drainage pipe location, length and diameter installed as part of the full build-out

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<sup>9</sup> As presented in the Docket No. 265 application and discussed in Section III.B. below, the installation of discharge structure DSN-011 was the only ISFSI site feature that had a direct input on wetlands or watercourses on the Property.

condition at the ISFSI may vary from that shown on the project plans. Details regarding these drainage design improvements are considered “Safeguards Information” by the NRC and protected from public disclosure in accordance with 10 CFR 73.12. Any alternative pipe sizes incorporated into the final drainage design will, however, maintain adequate capacity to accommodate stormwater flows from the ISFSI site. No stormwater drainage improvements are proposed or necessary in the Soil Placement Area.

Fourth, DNC seeks the Council’s approval to modify D&O condition No. 15 and allow for the installation of the concrete pads large enough to accommodate 135 HSMs at the ISFSI. DNC would continue to move spent fuel to the ISFSI in accordance with and as required by plant operations and spent fuel management strategies at MPS. (See Section II.F. below).

Finally, to facilitate implementation of the ISFSI site modifications and build-out of the concrete HSM pads, the Protected Area fence around the ISFSI will be temporarily relocated. This will allow the new construction activities to be completed outside of the modified Protected Area. The existing Protected Area fence will be restored to its current location once construction of the ISFSI modifications is completed. All of the existing HSMs that contain spent fuel must and will be retained within the Protected Area at all times during construction of the ISFSI modifications. This arrangement will facilitate time sensitive deliveries of materials and allow DNC to establish a personnel and equipment entrance to the work area without having to pass through the rigorous security required for access to the Protected Area.

F. Projected Fuel Movement

In its Docket No. 265 application, DNC described its need for the ISFSI and its plan to load spent fuel in phases in order to maintain full core reserve in the MPS2 and MPS3 spent fuel pools. Since that time, DNC's projections for spent fuel movement to the ISFSI have been updated in response to changes in plant operations and spent fuel management strategies.

First, DNC is taking steps to change its management of the MPS2 spent fuel storage pool to accommodate a new fuel assembly design planned for first use in 2015. DNC is planning to rely, in part, on increased fuel assembly spacing in the MPS2 spent fuel pool by creating some additional empty rack locations. To create these empty rack locations, additional fuel assemblies will need to be removed from the MPS2 spent fuel pool and relocated to the ISFSI. This change will require DNC to load spent fuel into four (4) HSMs at the ISFSI in 2015. These four (4) are in addition to the three (3) HSMs that DNC planned to load in 2015 as shown on the 2003 fuel loading schedule. (See Council FOF No. 28).

Second, the NRC- approved power rating increase for MPS3 in 2008 has resulted in more fuel being discharged during each refueling cycle (8-11 additional fuel assemblies), resulting in the projection for loss of full core reserve in the MPS3 spent fuel pool to change from spring 2019 to fall 2017. This change will require DNC to load more MPS3 fuel (one extra DSC every five (5) years) to maintain full core reserve in the MPS3 spent fuel pool.

Finally, DNC does not intend to wait until 2017 to begin loading fuel from the MPS3 pool. DNC plans to load the first DSC containing MPS3 spent fuel in 2016, at the same time it moves the three (3) additional DSCs from the MPS2 pool.

The projected changes to fuel movement discussed above increases the likelihood that additional HSMs beyond 135 may be necessary in the future. According to DNC's current loading projections, and assuming that present circumstances do not change, approximately nine (9) additional HSMs could be needed in about 2035. Advancements in technology such as storage capacity of canisters or DOE performance would mitigate or even eliminate the need for such additional HSMs. If necessary, DNC anticipates that it will re-evaluate the need to expand the ISFSI beyond 135 HSMs in the 2030 timeframe. Adding additional HSMs beyond the 135 approved by the Council in Docket No. 265 is not proposed as a part of this ISFSI modification application. DNC recognizes that any such proposal would be subject to the appropriate regulatory processes in place at the time any expansion of the ISFSI is being considered.

G. Unit 1 Spent Fuel

DNC's current strategy for managing the MPS1 spent fuel involves its storage in the MPS1 spent fuel pool until the DOE accepts the MPS1 spent fuel for permanent disposal. Given the significant uncertainty associated with the DOE's efforts to establish a national repository for spent fuel and the consequential impact on MPS1 spent fuel management costs, DNC is performing an analysis to determine if modification to its current MPS1 spent fuel management strategy is warranted. Based on the results of the analysis, DNC may consider moving the MPS1 spent fuel from the MPS1 spent fuel pool to the ISFSI. The contingency was the subject of significant discussion during the Docket No. 265 proceeding. If DNC decides to move forward with this effort, MPS1 spent fuel would account for the use of 50 HSMs.

H. On-Site HSM Fabrication

All of the concrete HSM components installed at the ISFSI since 2005 were fabricated at a facility in Virginia and transported by rail or truck to MPS. The HSM components were then assembled at MPS and installed at the ISFSI prior to the movement of spent fuel. By 2014, DNC

anticipates that it will assemble and install twenty three (23) additional HSMs at the ISFSI to accommodate fuel movement activities. DNC's present intention is to pursue plans for fabrication of HSMs on-site, and will provide the Council and the Town with additional information about the location selected and any environmental effects associated with the fabrication process as soon as these plans are available. This on-site fabrication process would require an open area for construction of approximately 100,000 square feet (250' by 400') and the installation of a concrete pad having dimensions of 50' by 250' by 1' deep. DNC has identified an existing parking lot, to the northwest of the ISFSI, as a viable location for HSM fabrication.

### **III. ENVIRONMENTAL EFFECTS**

#### **A. Docket No. 265 Evaluation of Environmental Effects**

A complete evaluation of the environmental effects associated with the full build-out of the ISFSI (improvements for 135 HSMs) was presented to the Council by DNC in the Docket No. 265 application. Following a thorough review of the Docket No. 265 application and extensive record developed during the course of the proceeding, the Council determined that:

the effects associated with the construction, operation, and maintenance of an independent spent fuel storage installation (ISFSI) at the Millstone Power Station including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the Dominion Nuclear Connecticut, Inc. application to modify an existing electric generating facility (Millstone Power Station) to establish an independent spent fuel storage installation on property located off Rope Ferry Road, Waterford, Connecticut.

Council D&O p. 1. (See Attachment 6).

Based on the information provided in this Application and the Council's Findings, Opinion and D&O in Docket No. 265, DNC submits that the proposed ISFSI modifications and

completion of the concrete pads for 135 HSMs will not have a substantial impact on the environment or ecology of the Property or the surrounding area.

B. Wetlands and Watercourses

The ISFSI area, adjacent Equipment Laydown Area and the Soil Placement Area are all located outside the limits of existing tidal and inland wetlands and watercourses on the Property, outside of the Town's designated upland review area and outside identified flood hazard areas<sup>10</sup>. The closest wetland or watercourse is located approximately 150 feet to the east of the ISFSI and is associated with the stormwater drainage outfall structure DSN 011, approved by the Council in Docket No. 265. None of the improvements proposed as a part of the ISFSI modification application will result in any additional impacts on site wetland areas. (Attachment 9 – Environmental Site Assessment and Wetland Report Update dated March 30, 2012 (the Updated ESA)).

All construction activity associated with the ISFSI modifications described above, including modifications to ISFSI site drainage, will occur within the previously disturbed ISFSI area and/or Soil Placement Area. No modifications to the drainage outfall structure DSN 011 are proposed or required as a part of this ISFSI modification plan. (See Attachment 8).

C. Site Ecology

According to the May 2003 Environmental Site Assessment (the 2003 ESA) prepared for the Docket No. 265 application, the ISFSI and associated site improvements will have no significant adverse effect on ecological resources at the Property. The 2003 ESA identified and evaluated vegetative communities and significant terrestrial and marine biological resources that may exist on the Property and potentially be affected by the development of the ISFSI. The

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<sup>10</sup> Waterford Inland Wetland Regulations define the upland review area as the non-wetland area within 100 feet of the wetland boundary.

conclusions of the 2003 ESA, as they relate to on-site ecological resources, were summarized as follows:

- The ISFSI Site, Equipment Laydown Area and Soil Placement Area are located on previously disturbed upland areas with no special habitat value.
- The ISFSI Site is adequately separated from coastal resources, tidal waters, marine habitats and other marine resources.
- Site plans for the ISFSI project include sufficient erosion and sedimentation control measures to avoid impacting existing ecological resources on the Property.
- There are no state or federal threatened, endangered or special concern species known to occur at the ISFSI Site.

All construction activity associated with this Application will occur within the limits of the existing ISFSI area. According to the Updated ESA, the ISFSI modifications will not result in significant environmental impacts and therefore the conclusions of the 2003 ESA remain valid.

#### D. Noise

The construction and operation of the ISFSI has had little or no impact on ambient noise levels beyond the boundaries of the Property. (See 2003 ESA and Updated ESA (Attachment 9)). The closest off-site noise receptor is a residential area approximately 1,700 feet to the northeast of the ISFSI Site. Changes in topography and the existence of dense vegetation between the ISFSI Site and this residential area will significantly reduce, if not eliminate, noise impacts associated with construction activity.

Noise associated with the construction of the complete ISFSI pad and associated modifications will occur on-site for approximately seven (7) months. Construction noise, from the operation of construction equipment and truck traffic, will be limited to daytime hours. The ISFSI at MPS is a passive system for storing spent fuel. There are no operating motors, fans or

other similar devices associated with the HSMs. The only operational noise from the ISFSI is that produced during the spent fuel loading process. (See Council FOF 78 and 79 (Attachment 6)).

E. Historic and Archeological Resources

On March 18, 2003, DNC requested that the Connecticut Historical Commission/State Historic Preservation Officer (SHPO) review the full build-out of the ISFSI project. In a letter dated March 24, 2003, the SHPO, John W. Shannahan, determined that the development of the ISFSI will have no effect on historic, architectural or archeological resources listed on or eligible for the National Register of Historic Places. A copy of the SHPO's March 24, 2003 response letter is included in Attachment 10. All of the proposed ISFSI modifications described in this application will remain entirely within the previously disturbed limits of the ISFSI area. None of these modifications will result in any additional impacts on state or federal historic, architectural or archeological resources previously evaluated in the Docket No. 265 proceeding. (See Updated ESA (Attachment 9)).

F. Visibility

DNC previously assessed the visual impact of the build-out of 135 HSMs at the ISFSI in the Docket No. 265 application. From most locations around the Property, views of the ISFSI are obstructed by changes in topography, existing vegetation (mature trees) and the existing power generating facility itself. The outline of the storage modules may be visible, through the trees, from locations to the east, southeast and northeast, but only during winter months. The Visual Impact Assessment concluded that the visual impact of the ISFSI on surrounding, publicly accessible areas would be negligible. None of the modifications proposed in this Application will change, in any way, the visual impact of the ISFSI.



G. Recreational

The closest recreational resources, as identified in the 2003 ESA, are several ball fields located in the northeast corner of the Property. DNC currently allows the Town of Waterford to use these fields for recreational purposes. The use of these fields has not been affected by development of the existing ISFSI and will not be impacted by any of the ISFSI modifications described in this Application.

H. Public Drinking Water Supply

MPS is supplied with potable water from the City of New London's public water supply system. This system provides water to most of the Town of Waterford. Operation of the ISFSI does not require access to potable water, or any water supply. The existing public drinking water supply system at MPS has not been affected by the development of the ISFSI and will not be impacted by the ISFSI modifications described in this Application.

I. Traffic

Construction associated with the ISFSI modifications will have only minor and temporary impacts on local vehicular traffic. Construction related impacts will be limited to construction worker vehicle trips and truck traffic associated with the import of soil, concrete and related construction materials. Truck traffic associated with construction of the ISFSI will be required to use designated truck routes and adhere to Department of Transportation regulations regarding load weight.

The operation of the ISFSI will have no impact on local traffic at all. As described above, all fuel loading processes occur within the expanded MPS Protected Area. No on- or off-site traffic is impacted by this fuel loading process.

J. State and Local Land Use Controls

1. Connecticut Conservation and Development Policies Plan

The Conservation and Development Policies Plan for Connecticut (2005-2010) (C&D Plan), issued by the Office of Policy and Management, does not specifically reference dry storage systems, or any spent fuel storage system for that matter, related to existing nuclear generating facilities in the State.

2. Town of Waterford Plan of Preservation, Conservation & Development

According to the Town of Waterford's 2012 Plan of Preservation, Conservation & Development, the Property is designated a public utility use. The proposed ISFSI modifications are not in conflict with the Town's designation of the Property. In fact, the ISFSI modifications will allow for the continued use of the Property for power generation purposes through the end of the MPS2 and MPS3 license periods.

3. Town of Waterford Zoning Regulations

The southerly portion of the Property, south of the Amtrak rail line is zoned I-G, General Industrial District. A small portion of the Property, south of the Amtrak rail line and adjacent to the Gardiner's Wood Road neighborhood is zoned OS, Open Space District. The portion of the Property north of the Amtrak rail line is zoned IP-1, General Industrial Park District.

Pursuant to Section 11.1.7 of the Zoning Regulations, "Public Utility generating plants, [and] uses and facilities appurtenant thereto" (e.g., the ISFSI) are permitted in the I-G zone district. Each of MPS's generating units is located in the I-G portion of the Property. Pursuant to Section 13.1.6, "Public Utility buildings, substations, storage yards and appurtenances" are permitted in the IP-1 district. The MPS training facilities and related office buildings in the northerly portion of the Property are located in the IP-1

portion of the Property.

#### **IV. CONSULTATIONS WITH FEDERAL, STATE AND LOCAL OFFICIALS**

##### **A. U.S. Nuclear Regulatory Commission**

DNC previously described NRC review and oversight of the ISFSI in the Docket No. 265 application. DNC continues to utilize the Transnuclear Standardized NUHOMS System under a general license issued by the NRC pursuant to 10 CFR §72.210. DNC completed the necessary analyses to confirm that the NUHOMS system utilized at MPS satisfies the conditions of the general license described in 10 CFR §72.210 that authorizes the storage of spent fuel in an ISFSI located at any power reactor site licensed by the NRC under 10 CFR Part 50 if the ISFSI utilizes a dry storage system that has been previously certified by the NRC. As indicated in 10 CFR §72.214, the NRC has approved and issued Certificates of Compliance for the NUHOMS system for the storage of spent fuel in use at MPS. No additional licensing or certification is required from the NRC. However, the additional construction activities described in this application and operation of the ISFSI are subject to continuing NRC oversight, including applicable NRC inspection programs.

##### **B. State of Connecticut**

###### **1. Connecticut Department of Energy and Environmental Protection (DEEP)**

The Docket No. 265 application contained a copy of DNC's request for review of the ISFSI proposal by the predecessor agency to DEEP, the Department of Environmental Protection (DEP) Environmental and Geographic Information Center, and the agency's April 1, 2003 response that no extant populations of Federal or State Endangered or Threatened or Special Concern species will be impacted by the ISFSI project. (See Attachment 11). The 2003 ESA, included in the Docket No. 265 filing reached the same conclusion. The Updated ESA, included in Attachment 9 of this Application, determined that the ISFSI modifications will not result in

significant environmental impacts and that the conclusions of the 2003 ESA remain valid.

Construction in the ISFSI area will be managed in accordance with the Connecticut General Permit for Stormwater Associated with Construction Activity.

2. Connecticut Historical Commission/State Historic Preservation Officer

See Section III.E. above.

C. Municipal

1. Municipal Consultation – Town of Waterford

See Section II.D. above.

2. Municipal Consultation – Town of East Lyme

See Section II.D. above.

V. **COMPLIANCE WITH DOCKET NO. 265 CONDITIONS OF APPROVAL**

A. ISFSI Annual Reports

On March 15, 2012, DNC filed its Seventh Annual ISFSI Report with the Council.

Pursuant to the requirements of Condition No. 12 of the D&O, the Annual Report contains information of fuel loading activity; information on the need to expand the ISFSI; status of the federal repository; and projections on anticipated fuel movement to the ISFSI. In addition, the Annual Report regularly includes results from three groundwater monitoring wells around the ISFSI.

1. Status of Fuel Movement

See Sections II.C. and III.F. above.

2. Status of National Repository

See Section II.D. above.

3. Compliance with Other Conditions

DNC respectfully submits that it is currently in full compliance with all conditions of the

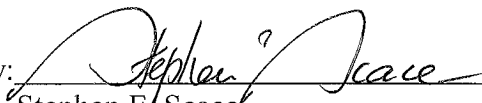
Council's Docket No. 265 approval as set forth in the D&O. Approval of this Application would require the Council to modify Condition No. 15, allowing DNC to install the concrete pad for up to 135 HSMs and permit modifications to certain permanent storm water drainage improvements in accordance with revised project plans included in Attachment 7. All other conditions and requirements can remain in full force and effect.

**VI. CONCLUSION**

Based on the evidence presented in this Application and contained in the Docket No. 265 record, DNC respectfully submits that the ISFSI modifications will not have a substantial adverse environmental effect.

Respectfully submitted,

DOMINION NUCLEAR CONNECTICUT, INC.

By:   
Stephen E. Scace  
Site Vice President – Millstone