

STATE OF VERMONT  
PUBLIC SERVICE BOARD

Petition of Entergy Nuclear Vermont Yankee, )  
LLC, and Entergy Nuclear Operations, Inc., For a ) Docket No. 8300  
Certificate of Public Good Pursuant to 30 V.S.A. )  
§ 248 and 10 V.S.A. § 6522 to Construct a Second )  
Independent Spent Fuel Storage Installation )  
("ISFSI") at the Vermont Yankee Nuclear Power )  
Station )  
)  
)  
)  
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PREFILED TESTIMONY OF ROB EVANS

On Behalf of the Vermont Agency of Natural Resources, Department of Environmental  
Conservation, River Corridor and Floodplain Protection Program

Summary of Testimony

Mr. Evans is the State Floodplain Manager and provides an overview of the potential impacts of the Project on river corridors and flood hazard areas and outlines the steps required to comply with the Flood Hazard Area and River Corridor Rule and Criterion 1D - Floodways.

**Q1. Please state your name, place of employment, and position.**

1 A1. My name is Rob Evans. I am the State Floodplain Manager and supervise the River  
2 Corridor and Floodplain Protection Program within the Watershed Management Division  
3 of the Vermont Department of Environmental Conservation.

4

**Q2. Please describe your educational and professional background and tenure at the  
6 Agency of Natural Resources.**

7 A2. I have been employed as the State Floodplain Manager for six and half years. As a  
8 primary liaison to FEMA Region 1, I serve as the National Flood Insurance Program  
9 Coordinator for the State, responsible for providing technical assistance and regulatory  
10 support on floodplain management, flood hazard mapping, flood insurance, and flood  
11 hazard mitigation. I supervise a staff of regional floodplain managers and river scientists  
12 that support state and local regulation and protection of floodplains and river corridors.  
13 The program floodplain managers review projects and issue permit decisions for  
14 compliance with the Flood Hazard Area and River Corridor Rule (Environmental  
15 Protection Rule, Chapter 29). Program floodplain managers and scientists also review  
16 and comment on projects subject to Act 250 and Section 248 that have the potential to  
17 impact Criterion 1D-Floodways as defined by the Secretary of Natural Resources. In  
18 addition, our section provides technical assistance, education, and outreach on river  
19 corridor and flood resilience planning; floodplain and river corridor assessment and  
20 mapping; and river and floodplain restoration/protection projects.

21

1 Prior to working for the Agency of Natural Resources, I worked for the State of  
2 Wyoming Department of Environmental Quality as a project manager and district surface  
3 water hydrologist.

4 My resume is attached as **Exhibit ANR-REE-1**.

5  
6 **Q3. While at the Agency, have you engaged in any training or classes related to your**  
7 **work with floodplains and river corridors?**

8 A3. Yes, I have taken a myriad of workshops and trainings related to the floodplain  
9 management discipline. In order to maintain my Certified Floodplain Manager  
10 accreditation, I must take a minimum of 16 continuing education credits every two years.

11  
12 **Q4. Have you previously provided testimony to the Public Service Board, the**  
13 **Environmental Court, or the District Commissions?**

14 A4. I have provided direct testimony on the New England Clean Power Link project and have  
15 reviewed testimony provided by program technical staff under my supervision.

16  
17 **Q5. What is the purpose of your testimony?**

18 A5. The purpose of my testimony is to give the Agency's overall perspective on the Project as  
19 it relates to the Flood Hazard Area and River Corridor permit requirements (hereafter,  
20 state floodplain permit) and Criterion 1D – Floodways, and whether the Project meets the  
21 Flood Hazard Area and River Corridor Rule and Criterion 1D.

22

1 **Q6. Will the Project require a state floodplain permit pursuant to the state Flood**  
2 **Hazard Area and River Corridor Rule?**

3 A6. Yes, the project will require a state floodplain permit under the Flood Hazard Area and  
4 River Corridor Rule. The proposed dry cask storage pad is regulated under Section 248  
5 and is located within the river corridor of the Connecticut River. Therefore, under the  
6 Rule, the Project is “development exempt from municipal regulation” requiring a state  
7 floodplain permit.

8  
9 **Q7. What is a river corridor?**

10 A7. A river corridor defines the lateral space necessary for a river or stream to establish or  
11 maintain a meander geometry that is vertically stable and least erosive, and defines the  
12 area where fluvial erosion is most likely to occur as a river adjusts over time. Fluvial  
13 erosion hazards can result from the erosion or scouring of riverbeds and banks during  
14 high flow conditions of a river. Fluvial erosion becomes a hazard when life, property, or  
15 infrastructure is placed in close proximity to a river or stream. The Agency identifies and  
16 maps river corridors statewide. River corridors are regulated under the Flood Hazard  
17 Area and River Corridor Rule. Since 2003, the Agency uses the river corridor to  
18 determine the Act 250 Floodway under Criterion 1D in consideration of flood-related  
19 erosion hazards. As part of the Section 248 process, the Agency makes determinations  
20 and recommendations under Criterion 1D-Floodways utilizing the Agency-mapped river  
21 corridor.

22

1 **Q8. Has the Agency created a river corridor map for the Connecticut River?**

2 A8. In January 2015, the agency published a statewide river corridor map on the web-based  
3 ANR Natural Resources Atlas. However, during the initial development of the statewide  
4 river corridor map, the Agency recognized that the Connecticut River flows in a unique  
5 geologic and geographic setting and is influenced by numerous impoundments. In order  
6 to create an appropriate river corridor for the Vermont side of the Connecticut River, the  
7 Rivers Program is in the process of conducting a separate analysis to review the influence  
8 of features such as escarpments and impoundments that affect fluvial processes, valley  
9 bottom lands, floodplains, river planform, and corridor widths. In the interim, the  
10 Agency will continue to make site specific river corridor maps and floodway  
11 determinations to inform regulatory compliance in river corridors, which has been  
12 standard practice for over a decade. The Vermont Supreme Court affirmed the  
13 Secretary's authority to make floodway determinations, without adopting an  
14 administrative rule, based on the plain language of the statute, which authorizes the  
15 Secretary to make such determinations (In re Woodford Packers, Inc., 2003 VT 60, ¶ 12-  
16 13, 175 Vt. 579, 830 A.2d 100).

17

18 **Q9. Has the Agency created a river corridor map for the project site in Vernon and is**  
19 **the project within the river corridor?**

20 A9. Yes, a river corridor map has been created for the site and is attached as **Exhibit ANR-**  
21 **REE-2**. The proposed dry cask storage pad is within the river corridor.

22

1 **Q10. What is a flood hazard area?**

2 A10. A flood hazard area defines the area that would be inundated by the 1% annual chance  
3 flood (i.e. the 100-year flood). Flood Insurance Rate Maps and Flood Insurance Studies  
4 published by the Federal Emergency Management Agency (FEMA) designate the flood  
5 hazard area and are the basis of the National Flood Insurance Program (NFIP). The flood  
6 hazard area is regulated under the Flood Hazard Area and River Corridor Rule to ensure  
7 the state's compliance with the NFIP. The Agency uses the FEMA-designated flood  
8 hazard area to determine the Act 250 Floodway in consideration of flood inundation  
9 hazards. As part of the Section 248 process, the Agency makes determinations and  
10 recommendations under Criterion 1D-Floodways and uses the FEMA-mapped flood  
11 hazard area.

12  
13 **Q11. Is the project within the Flood Hazard Area?**

14 A11. No, the project sits at an elevation that is more than 20 feet above the 1% annual chance  
15 flood elevation and thus is not within the regulatory Flood Hazard Area.

16  
17 **Q12. What is the difference between flood inundation hazards and fluvial erosion  
18 hazards?**

19 A12. FEMA-designated flood hazard areas show where inundation would occur during a flood  
20 that has a 1% chance of occurring in any given year. While this hazard information is  
21 very important, the FEMA inundation areas have only been mapped for approximately

1 20% of Vermont stream miles and post-flood damage surveys have shown that fluvial  
2 erosion, not inundation, is the most common natural hazard type in Vermont.

3 River corridors account for the fact that rivers change vertically and horizontally over  
4 time, and, therefore, are not as likely to become outdated as FEMA maps, which are  
5 based on the elevation and location of the river at the time when the maps are produced.

6 Within river corridors, floodplains may be formed and maintained over time. This means  
7 that regulation within river corridors may consistently help mitigate both erosion and  
8 inundation hazards in comparison to regulation within their FEMA map counterpart  
9 alone.

10

11 **Q.13 Is Entergy required to obtain a state floodplain permit?**

12 A.13 Yes.

13

14 **Q14. Has Entergy applied for a state floodplain permit?**

15 A14. No.

16

17 **Q15. What is the standard for evaluating a project under the Flood Hazard Area and  
18 River Corridor Rule and Criterion 1D-Floodways?**

19 A15. Under the Flood Hazard Area and River Corridor Rule and Criterion 1D-Floodways, the  
20 Agency looks at impacts to flood hazard areas and river corridors. The Rule requires  
21 projects in flood hazard areas and river corridors to meet a No Adverse Impact standard  
22 by demonstrating that development will not increase flood elevations or velocities,

1 decrease flood storage volume, or increase erosion hazards. Additionally, development  
2 must comply with floodplain management standards to ensure that flood risk is  
3 minimized. In accordance with the DEC Flood Hazard Area and River Corridor  
4 Protection Procedure dated December 5, 2014, the Agency makes recommendations to  
5 the Public Service Board under Criterion 1D using the same No Adverse Impact and  
6 Floodplain Management Standards. However, in accordance with Criterion 1D, the  
7 Agency may make any additional recommendations it deems necessary to ensure that  
8 development within an Act 250 floodway will avoid restricting or diverting the flow of  
9 flood waters and endangering the health, safety, and welfare of the public or of riparian  
10 owners during flooding.

11  
12 **Q16. Will the project meet the standards in the Flood Hazard Area and River Corridor**  
13 **Rule and the Flood Hazard Area and River Corridor Protection Procedure?**

14 A16. Yes. The project as proposed will be located behind the existing dry cask storage pad and  
15 further away from the Connecticut River. The proposed location meets the No Adverse  
16 Impact standard in the Flood Hazard Area and River Corridor Rule and the Flood Hazard  
17 Area and River Corridor Protection Procedure since it will not increase flood elevations,  
18 velocities, or exacerbate fluvial erosion.

19  
20 **Q17. Does the Agency have any additional concerns under Criterion 1D-Floodways?**

21 A17. No.

22



1 **Q18. What information would you need from Entergy to issue a state floodplain permit?**

2 A18. An application and supporting documents.

3

4 **Q19. Does this conclude your testimony?**

5 A19. Yes.