

Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker  
Governor

Karyn E. Polito  
Lieutenant Governor

Matthew A. Beaton  
Secretary

Martin Suuberg  
Commissioner

Yankee Atomic Electric Company  
49 Yankee Rd  
Rowe, MA 01367  
Attention: Brian Smith, ISFSI Manager

**FEB 23 2016**

RE: Rowe-DSWM-16-253-009  
MassDEP - **Approval**  
Minor Modification Permit  
Post-Closure Environmental Monitoring  
310 CMR 19.000  
Yankee Nuclear Power Station  
49 Yankee Road

Dear Mr. Smith:

On January 13, 2016, the Massachusetts Department of Environmental Protection (MassDEP) received the Minor Modification Permit application (the application), entitled "Proposed 2015 Revisions to the Groundwater and Surface Water Monitoring Program", for the former Yankee Nuclear Power Station (YNPS) in Rowe, MA. The application was prepared by Ransom Consulting, Inc. (Ransom) on behalf of Yankee Atomic Electric Company (Yankee), the owner of the YNPS. The application proposes to amend the June 19, 2007 MassDEP approval of the Final Post-Closure Groundwater Monitoring Plan (the Groundwater Monitoring Plan) for the YNPS, which addressed environmental monitoring at the Beneficial Use Determination (BUD) Fill Area (the former industrial area) and the Southeast Construction Fill Area (SCFA), in accordance with MassDEP's Solid Waste Regulations at 310 CMR 19.000.

In accordance with 310 CMR 19.142, the June 19, 2007 Groundwater Monitoring Plan approval required ongoing groundwater monitoring during the 30-year post-closure maintenance and monitoring period (which ends on June 19, 2037) at groundwater monitoring wells MW-104A, MW-105B, MW-106A, MW-107C, and Sherman Spring (SP-1) in the BUD Fill Area, and also at monitoring wells CFW-1, CFW-5, and CFW-6 in the SCFA. On December 6, 2011, MassDEP issued correspondence to Yankee, which approved the decommissioning of numerous additional groundwater monitoring wells at the YNPS, but which required Yankee to retain, maintain and preserve monitoring wells MW-102A, MW-102B, MW-102C, MW-105A, MW-105C, MW-107B, MW-107D, and MW-107E throughout the 30-year post-closure maintenance and monitoring period.

### Proposed Modifications

The application proposes the following modifications to the June 19, 2007 Groundwater Monitoring Plan

approval:

1. Discontinue all groundwater monitoring in the BUD Fill Area, except continue monitoring for tritium only, in monitoring well MW-107C and Sherman Spring, every five years.
2. Abandon and properly decommission all remaining groundwater monitoring wells in the BUD Fill Area, i.e. MW-102A, MW-102B, MW-102C, MW-105A, MW-105C, MW-107B, MW-107D, and MW-107E. Decommissioning will include grouting the full depth of each well, in accordance with MassDEP's "Standard References for Monitoring Wells, Policy #WSC-310-91, dated April, 1991" (Standard Referencs).
3. Discontinue surface water sampling at the Deerfield River (upstream/SW-408, and downstream/Monroe Dam), Sherman Reservoir (SW-011), and locations SW-2 and SW-3 on Wheeler Brook.
4. Continue monitoring at the SCFA of groundwater monitoring wells CFW-1, CFW-5, & CFW-6 and surface water locations SW-1, SW-4, & SW-5 in Wheeler Brook every five years, but reduce monitoring parameters to: dissolved oxygen, oxidation/reduction potential, specific conductance, temperature and turbidity (as field parameters); and alkalinity, calcium, iron, manganese, and chemical oxygen demand (as laboratory parameters).

Ransom states that the proposed reductions in environmental monitoring are justified based on monitoring results to date. Ransom states that the next monitoring event is scheduled for 2019, however MassDEP notes that the actual scheduled monitoring events, according to the Groundwater Monitoring Plan, are 2016, 2021, 2026, 2031, and 2036.

#### MassDEP Determinations

MassDEP has reviewed the Minor Modification permit application in accordance with MGL c. 111 s. 150A, MGL c. 30A, the Massachusetts Solid Waste Regulations 310 CMR 19.000, the MassDEP's publication Landfill Technical Guidance Manual (the LAC), revised in May, 1997, and the MassDEP's publication Standard References for Monitoring Wells (WSC-310-91). MassDEP approves the Minor Modification permit application in accordance with the regulations at 310 CMR 19.000, subject to the following conditions and requirements.

1. Yankee shall perform environmental monitoring at the YNPS site in accordance with this Modification Permit approval during 2016, 2021, 2026, 2031, and 2036. MassDEP may, in writing, extend or shorten the 30-year post-closure monitoring period, or modify the post-closure monitoring requirements, if deemed appropriate based on protection of public health, safety, and the environment.
2. Except as modified by the conditions of this approval, Yankee shall also comply with the requirements of: MassDEP's Corrective Action Design (CAD) and Closure Certification permit approvals for the SCFA; MassDEP's June 19, 2007 Revised Beneficial Use Determination (BUD) for Structures permit approval; and the MassDEP's review of the Final BWSC Phase II Assessment for the YNPS site, including the Final Risk Assessment.
3. All environmental monitoring shall be performed by a qualified, independent consultant experienced in the solid waste field, in accordance with 310 CMR 19.132 and MassDEP's publication Standard References for Monitoring Wells (WSC-310-91).
4. Groundwater monitoring wells shall be sampled in accordance with the procedures outlined in the MassDEP's publication Standard References for Monitoring Wells (WSC-310-91). Sampling can alternatively be performed in accordance with the USEPA publication Low

Stress (low flow) Purging and Sampling Procedure for the Collection of Groundwater Samples from Monitoring Wells, dated July 30, 1996.

5. Quality Assurance/Quality Control Plan (QA/QC) protocols for all environmental monitoring should generally follow those outlined in the MassDEP's LAC Manual and Standard References manuals.
6. Groundwater monitoring wells MW-105B, MW-107C, CFW-1, CFW-5, & CFW-6, and surface water locations SW-1, SW-4, SW-5 and Sherman Spring shall be sampled during 2016, 2021, 2026, 2031, and 2036. Monitoring wells MW-105B, MW-107C, CFW-1, CFW-5, & CFW-6 shall be protected from damage, and shall be visually inspected and equipped with a new lock during each monitoring event.
7. Groundwater samples from monitoring wells MW-105B and MW-107C shall be analyzed for tritium, as a Hard-to-Detect (HTD) radionuclide.
8. Groundwater samples from monitoring wells CFW-1, CFW-5, and CFW-6 shall be analyzed for dissolved oxygen, oxidation/reduction potential, specific conductance, temperature and turbidity (as field parameters); and alkalinity, calcium, iron, manganese, and chemical oxygen demand (as laboratory parameters).
9. Surface water samples from Sherman Spring shall be analyzed for Dissolved RCRA 8 metals, volatile organic compounds (VOCs) by EPA Method 8260, radionuclides by gamma spectroscopy, and also for the HTD radionuclides tritium and Sr-90. Radiological analyses by gamma spectroscopy shall at a minimum quantify the radionuclides Ag-108m, Cs-134, Cs-137, Co-60, Eu-152, Eu-154, Eu-155, Nb-94, and Sb-125. In addition, any other plant-related radionuclides detected by gamma spectroscopy above MDAs shall be reported as part of these analyses.
10. Surface water samples from surface water locations SW-1, SW-4, and SW-5 shall be analyzed for: dissolved oxygen, oxidation/reduction potential, specific conductance, temperature and turbidity (as field parameters); and Dissolved RCRA 8 metals, VOCs by EPA Method 8260, alkalinity, calcium, iron, manganese, and chemical oxygen demand (as laboratory parameters).
11. All VOC analyses by EPA Method 8260 shall be performed as outlined in 310 CMR 19.132(h)(1-3), specifically methyl ethyl ketone, methyl isobutyl ketone, acetone, and 1,4-dioxane shall be included, and unknown peaks having intensities greater than 5 times the background intensity shall be identified (Tentatively Identified Compounds, or TICs). As outlined at 310 CMR 19.132(i), detection limits for all parameters tested in groundwater samples shall be at or below the Massachusetts Drinking Water Standards & Guidelines (Maximum Contaminant Levels, or MCLs), including the 1,4-dioxane MCL of 0.3 micrograms/liter (ug/l).
12. Yankee shall submit the results of all groundwater monitoring data to MassDEP within 45 days of the date of sampling.
13. Yankee shall ensure that certified, third-party operations & maintenance (O&M) inspections of the BUD Fill Area and SCFA are completed once every two years, in accordance with 310 CMR 19.018, and that third-party inspection reports are submitted to MassDEP within 30 days of the date of the inspection.

14. MassDEP reserves the right to modify this approval at any time, based on its review of the results of monitoring data, or should MassDEP otherwise determine that additional environmental monitoring is required to protect public health, safety or the environment.
15. MassDEP and its agents and employees shall have the right to enter upon the YNPS site at reasonable times and with reasonable notice, to inspect the groundwater monitoring network, and to otherwise monitor compliance with this Approval and other MassDEP environmental laws and regulations.

Pursuant to 310 CMR 19.033(5), any person aggrieved by the issuance of this approval, except as provided for under 310 CMR 19.033(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A and C. 30A not later than thirty [30] days following the date of issuance of this decision. The standing of a person to file an appeal and the procedures for filing such appeal shall be governed by the provisions of M.G.L. c. 30 A. Unless the person requesting an appeal requests and is granted a stay of the terms and conditions of the permit by a court of competent jurisdiction, the final permit decision shall be effective in accordance with 310 CMR 19.033(3).

Any aggrieved person intending to appeal the decision to the superior court shall first provide notice to the MassDEP of said intention to commence such action. Said Notice of Intention shall include the MassDEP File Number (16-253-009) and shall identify with particularity the issues and reason(s) why it is believed the approval decision was not proper. Such notice shall be provided to the Office of General Counsel of the MassDEP and the Regional Director for the regional office which made the decision, at least five days prior to the filing of an appeal. The appropriate addresses to which to send such notices are:

General Counsel  
MassDEP of Environmental Protection  
One Winter Street-Third floor  
Boston, MA 02108

&

Regional Director  
MassDEP of Environmental Protection  
436 Dwight Street - 5th Floor  
Springfield, MA 01103

No allegation shall be made in any judicial appeal of this decision unless the matter complained of was raised at the appropriate point in the administrative review procedures established in 310 CMR 19.000, provided that a matter may be raised upon a showing that it is material and that it was not reasonably possible with due diligence to have been raised during such procedures or that matter sought to be raised is of critical importance to the public health or environmental impact of the permitted activity.

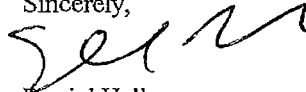
The MassDEP reserves the right to require additional investigatory or remedial work at the YNPS site, including alternative remedial measures, if continued monitoring results indicate such a need. This approval pertains only to the solid waste management aspects of the proposal and does not negate the responsibilities of the owners or operators to comply with any other local, state or federal laws and regulations now or in the future.

Yankee Nuclear Power Station - Rowe  
Monitoring Modification Permit Approval

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If you have any questions concerning this matter, please contact the undersigned of this office, at #413-755-2280, or Larry Hanson of this office, at #413-755-2287.

Sincerely,



Daniel Hall  
Section Chief  
Solid Waste Management

DH/LGH/lgh

Word:yankeemonmod216

Certified Mail, #7011 0470 0001 8408 0225

cc: Rowe Board of Selectmen  
Rowe Board of Health  
MA DPH - Radiation Control Program - Michael Whalen  
USEPA, Region I  
NRC  
DEP/WERO - Michael Gorski, David Howland, Eva Tor  
Franklin Regional Council of Governments  
Citizens Awareness Network - Deborah Katz