



YANKEE ATOMIC ELECTRIC COMPANY

49 Yankee Road, Rowe, Massachusetts 01367

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10 CFR 50.4
10 CFR 50.82(a)(7)

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555 - 0001

Yankee Atomic Electric Company
Yankee Nuclear Power Station Independent Spent Fuel Storage Installation
NRC License No. DPR-3 (NRC Docket No. 50-029)

Subject: Revision 3 to the Yankee Nuclear Power Station Post-Shutdown Decommissioning Activities Report

Pursuant to the requirements of 10 CFR 50.82(a)(7), Yankee Atomic Electric Company provides Revision 3 to the Yankee Nuclear Power Station (YNPS) Post-Shutdown Decommissioning Activities Report (PSDAR) (Enclosure 1). Enclosure 1 is a complete copy of the YNPS PSDAR.

The PSDAR was updated to reflect the revised Decommissioning Cost Estimate and the revised Cost Estimate for the Management of Irradiated Fuel and Greater than Class C (GTCC) Waste that were submitted to the NRC on December 14, 2015, as part of the three-year update to the Independent Spent Fuel Storage Installation (ISFSI) Decommissioning Funding Plan (Reference 1) in accordance with 10 CFR 72.30(c).

This letter contains no commitments.

If you have any questions regarding this submittal, please do not hesitate to contact me at (413) 424-5261 ext. 303.

Respectfully,

Brian Smith
ISFSI Manager

NM5501

Reference:

1. Letter from C. Pizzella (YAEC) to Document Control Desk (NRC), Three-Year Update to the Independent Spent Fuel Storage Installation Decommissioning Funding Plan, dated December 14, 2015 (BYR 2015-036).

Enclosure:

1. Yankee Nuclear Power Station Post-Shutdown Decommissioning Activities Report, Revision 3

cc: D. Dorman, NRC Region I Administrator
R. Powell, Chief, Decommissioning Branch, NRC, Region 1
J. Goshen, NRC Project Manager
J. Giarrusso, Planning, Preparedness & Nuclear Section Chief, MEMA
J. Cope-Flanagan, Assistant General Counsel, MDPU
J. Reyes, State of Massachusetts Office of the Attorney General

ENCLOSURE 1 TO BYR 2016-004
YANKEE NUCLEAR POWER STATION
POST-SHUTDOWN DECOMMISSIONING ACTIVITIES REPORT
REVISION 3

YANKEE NUCLEAR POWER STATION (YNPS)

**POST-SHUTDOWN
DECOMMISSIONING
ACTIVITIES REPORT (PSDAR)**

(Previously Maintained as part of the FSAR)

January 2016 Revision

Issued as Revision 3

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INTRODUCTION AND OVERVIEW OF THE PSDAR

Pursuant to 10CFR50.82(a)(4)(i) and Regulatory Guide 1.185, the PSDAR contains information concerning post-shutdown activities remaining at the Yankee Nuclear Power Station (YNPS). Section 50.82(a)(4)(i) requires that licensees develop a post-shutdown decommissioning activities report (PSDAR). Licensees with an approved decommissioning plan; however, may "replace their decommissioning plans with a PSDAR update that uses the format and content specified in this document" (Reference 13). The YNPS Decommissioning Plan (Reference 1), which was approved on February 14, 1995 and later became part of the Final Safety Analysis Report (FSAR), described all remaining decommissioning activities, but in considerably more detail than that required in the PSDAR. Yankee Atomic Electric Company (YAEC) has elected to relocate pertinent information to a PSDAR, which conforms to the guidance in RG 1.185.

HISTORICAL BACKGROUND

YNPS achieved initial criticality in 1960 and began commercial operations in 1961. The Nuclear Steam Supply System is a four loop pressurized water reactor designed by Westinghouse Electric Corporation. The original thermal power design limit of 485 MWt was upgraded to 600 MWt in 1963. The Turbine Generator, also designed by Westinghouse, was rated to produce 185 MWe. Commercial operation ceased in 1992 after about 31 years of operation. During its operation, YNPS achieved an average capacity factor of about 74%.

YNPS shut down on October 1, 1991 in response to regulatory uncertainties associated with the integrity of the Reactor Vessel. During the outage and before February 26, 1992 all fuel assemblies, control rods, and neutron sources were removed from the Reactor Vessel and stored in the Spent Fuel Pit. A total of 533 fuel assemblies are stored in the Spent Fuel Pit. Plant systems required to support spent fuel storage and to support permanently defueled operations were in service until 2003.

On February 26, 1992, the YAEC Board of Directors decided to cease power operations permanently at YNPS. By letter, dated February 27, 1992 (Reference 2), YAEC notified the Nuclear Regulatory Commission (NRC) of the Company's decision to permanently cease power operations at the YNPS. After notifying the NRC, YAEC initiated decommissioning planning and other plant closure activities to safely reduce radioactivity at the site to residual levels, allowing release of the site for unrestricted access.

On August 5, 1992, the NRC amended the YNPS Facility Operating License (DPR-3) to possession only status (Reference 3). This, combined with other amendments and program changes, formed the basis of the Decommissioning Plan. The plan (Reference 1) was submitted by YAEC in accordance with the requirements of 10CFR50.82(a) [pre-1996], that required submittal of a proposed Decommissioning Plan within two years of the permanent cessation of operations. The Decommissioning Plan was subsequently approved on February 14, 1995 (Reference 4). A commitment from the approval process required that the Decommissioning Plan be incorporated into the FSAR.

Plant closure activities, which were commenced following the decision to cease power operations, were completed in December 2006 and the NRC License was reduced to the ISFSI in the Summer of

2007, in accordance with applicable regulatory requirements and YAEC's commitment to maintain the facility in a safe and economical manner. These activities have included site security modifications, control rod disposal, decontamination, disposal of radioactive components, lay-up of plant equipment, demolition of plant structures and final grading.

After deciding to close YNPS permanently, YAEC reviewed the plant licensing basis to evaluate the applicability of existing Technical Specifications and NRC regulations to a permanently defueled condition. Beginning in June 2002, spent fuel and GTCC waste were transferred to dry casks and placed on the onsite Independent Spent Fuel Storage Installation (ISFSI). The transfer activities were concluded in June 2003. The remaining Technical Specifications that are applicable have been relocated to the Yankee Quality Assurance Program (Reference 14).

DECOMMISSIONING ALTERNATIVE

Following an evaluation of the three decommissioning alternatives, YAEC selected DECON as the most appropriate alternative for decommissioning YNPS. YAEC's choice of a decommissioning alternative is consistent with NUREG-0586, "Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities," (Reference 6). In that document, the NRC concluded that DECON and SAFSTOR alternatives are reasonable for decommissioning a pressurized water reactor. Implementation of the DECON alternative is within the 60 year limit (after cessation of operation) in 10CFR50.82(a)(3).

DESCRIPTION OF DECOMMISSIONING ACTIVITIES

Since 1993 YAEC has removed and disposed of the steam generators, pressurizer, reactor vessel and reactor vessel internals. The reactor vessel internals components, which are Greater-Than-Class-C (GTCC) waste, remain onsite and are stored within a dry cask along with the 15 dry casks of spent fuel located at the onsite ISFSI. YAEC has sought accelerated acceptance of its spent fuel by the Department of Energy (DOE) in accordance with the current fuel disposal contract. The DOE's position is that they have not yet determined whether priority will be accorded shutdown reactors, or if priority is granted, under what specific circumstances it might be granted.

As of August 2007, all plant systems and components have been dismantled and disposed of in accordance with the YNPS Decommissioning Plan and Final Safety Analysis Report (References 1 and 12), with the exception of those associated with the ISFSI. Measures have been implemented to prevent recontamination of surveyed areas prior to final license termination. Partial release of the site has been approved by the NRC to reduce the site licensed area to the dry cask storage facility.

The final phase of decommissioning involves the dismantlement and decontamination of the ISFSI and its supporting systems, structures, and components. In the final phase of decommissioning, the possession only license will be terminated.

A. License Termination

The final phase of decommissioning will take place after all spent fuel and GTCC waste is taken off-site in order to complete the dismantlement and decontamination of the ISFSI.

Decommissioning of the ISFSI would consist primarily of the disposal of the Vertical Concrete Casks (VCCs) and the concrete storage pad. The VCC design minimizes neutron activation, thereby generating minimal radioactive waste. The decommissioning cost estimate assumes that all of the material that comprises the VCCs and ISFSI storage pad will be dismantled and shipped to the low-level radioactive waste disposal site.

The 10CFRPart 50 license may be terminated after the last stage of final status surveys and independent NRC verification. Site restoration activities will then be conducted.

OTHER DECOMMISSIONING CONSIDERATIONS

The dismantlement and decontamination of contaminated systems, structures and components was accomplished using the following three approaches: decontamination in place, dismantlement and decontamination, or dismantlement and disposal. Furthermore, a combination of these methods was used to reduce contamination levels, worker radiation exposures, and project costs. General considerations applicable to these activities and are summarized below. An approved work control process was used to perform demolition, decommissioning, and or decontamination work activities. ISFSI decommissioning activities will be evaluated after the spent fuel and GTCC material are removed from the site.

A. General Decommissioning Activities Relating to Removal of Radiological Components & Structures

Components were safely and efficiently removed using techniques and appropriate methods for the particular circumstances and consistent with Decommissioning Work Packages. Openings in components were typically covered and sealed to minimize the spread of contamination. The components were moved to a processing area for volume reduction and packaging into containers for shipment to a processing facility for decontamination or a low-level radioactive waste disposal facility. Buried contaminated components (e.g., piping, drains, etc.) were decontaminated in place or excavated.

B. Decontamination Methods

Contaminated systems and components were removed and sent to an off-site processing facility or to a low level radioactive waste disposal facility. On-site decontamination of systems and components were generally limited to activities needed to maintain personnel exposure as low as is reasonably achievable, to expedite equipment removal, and to control the spread of contamination.

Application of coatings and hand wiping were the preferred methods for stabilizing or removing loose surface contamination. If other methods were utilized (e.g., grit blasting, high pressure water), airborne contamination control and waste processing systems were used as necessary to control and monitor any releases of contamination.

Contaminated and activated concrete as well as other contaminated materials was removed and sent to a low-level radioactive waste disposal facility. Concrete removal methods, such as scabbling and scarifying, controlled the removal depth to minimize the waste volume produced. Vacuuming the dust and debris effluent with HEPA filtration minimized the need for additional respiratory protection control measures. While these methods represent the most practicable and widely used decontamination methods available at this time, YAEC also considered new decontamination technologies as appropriate.

C. **Dismantlement Methods**

YAEC used two basic dismantlement methods:

- *Mechanical Methods* - Mechanical methods machine the surfaces of the material that is being cut. Typically, these methods are capable of cutting remotely without generating significant amounts of airborne contamination. This attribute made these methods attractive for removing most of the contaminated piping, equipment, and components at YNPS. The outside diameter machining method, in particular, was best suited for cutting large bore contaminated piping.
- *Thermal Methods* - Thermal methods melt or vaporize the surfaces of material. The cutting debris is transported from the cut region with a gas jet or water spray. Although thermal methods are significantly quicker than mechanical methods, they have high power requirements and generate airborne contamination when used on contaminated systems in air. Generation of airborne contamination was easily controlled when the method was used underwater. Thermal methods are suitable for segmenting large vessels in areas that can easily be sealed, filtered, or maintained underwater. The method is also suitable for use at a cutting station with air filtration. Thermal methods are appropriate for removing structural steel if it has been decontaminated or if a local contamination envelope with HEPA filtration is established. Appropriate lead and/or PCB paint removal controls must also be implemented.

D. **Special or Unusual Programs**

There were no special or unusual programs. All procedures and processes used at YNPS were consistent with those considered in the Final Generic Environmental Impact Statement (FGEIS).

E. **Removal of Low Level Radioactive Waste (LLW) and Compaction or Incineration**

LLW was processed in accordance with plant procedures and sent to LLW disposal facilities. While no incineration of low level Radwaste (to remove radionuclides) occurred onsite, YAEC has used an off-site licensed facility. YAEC has no intention; however, to use onsite compaction to support the decommissioning of the ISFSI.

F. **Soil Pavement and Concrete Remediation**

Soils and pavement was being surveyed and characterized in accordance with the site radiological characterization program. As necessary, soils, concrete and pavement was

remediated (i.e., removed, processed and disposed of at a licensed facility) if determined to contain contamination levels above the derived concentration guideline levels (DCGLs) established in the License Termination Plan.

G. Processing and Disposal Site Locations

Currently, there are several facilities available for (1) the processing of waste materials to achieve volume reduction prior to disposal or (2) the disposal of low-level radioactive waste.

H. Removal of Mixed Wastes

Mixed wastes were managed according to all applicable federal and state regulations including NRC handling, storage, and transportation regulations. Mixed wastes from YNPS were transported only by authorized and licensed transporters and shipped only to authorized and licensed facilities. YAEC used an appropriate approved process to render mixed waste non-hazardous onsite. A thermal desorption system was used to remove PCB materials from soils.

I. Storage/Removal of Spent Fuel and GTCC Waste

In June 2003, YAEC completed transfer of spent fuel and GTCC waste to an onsite Independent Spent Fuel Storage Installation (ISFSI). YAEC cannot make a precise determination of when spent fuel and GTCC waste will be removed from the YNPS site because the availability of a licensed DOE high level waste repository is uncertain. Currently, YAEC expects that the turnover of spent fuel and GTCC waste to the DOE will be completed in 2031.

J. License Termination Plan, Final Radiological Survey and Site Release Criteria

The objective for decommissioning the Yankee Nuclear Power Station (YNPS) is to reduce residual radioactivity to levels that permit release of the site for unrestricted use and for termination of the 10CFR50 license, in accordance with the Nuclear Regulatory Commission's (NRC's) site release criteria set forth in 10CFR20, Subpart E. The purpose of the YNPS License Termination Plan (LTP) is to satisfy the requirements of 10CFR50.82, "Termination of License" using the guidance provided in Regulatory Guide 1.179, "Standard Format and Content of License Termination Plans for Nuclear Reactors". NRC staff review guidance, in the form of NUREG-1700 and NUREG-1757 was also considered.

In May 1997, YAEC submitted to the Commission for approval an LTP for YNPS, pursuant to 10CFR50.82, as amended by 62 Fed. Reg. 39091 (July 29, 1996). YAEC's LTP employed a survey methodology based on the "Manual for Conducting Radiological Surveys in Support of License Termination (Reference 9)," known as the NUREG-5849 Methodology. Subsequently, the Commission, jointly with a group of other federal agencies, approved an alternative survey methodology, known as NUREG-1575, "Multi-Agency Radiation Survey and Site Investigation Manual" (MARSSIM – Reference 10). In May 1999 (Reference 11), YAEC advised the Commission that it intended to shift from the NUREG-5849 Methodology to MARSSIM and withdrew its previously submitted LTP application. YAEC submitted a new LTP in 2003 incorporating the more recent regulatory guidance and descriptive of the

MARSSIM final status survey (FSS). The LTP was approved by the NRC on July 28, 2005. FSS was conducted to verify that structures and open land areas met the release criteria. An independent NRC contractor also conducted verification surveys, to confirm YNPS FSS results that the remaining structures and open land areas met the unrestricted release criteria. After final status surveys and NRC verification were completed, individual surveyed structures and open land areas were approved for release from the NRC License. YAEC will, nevertheless, maintain control over the site until termination of its 10CFRPart 50 license.

With the exception of decommissioning activities at the ISFSI to be undertaken when all fuel and GTCC waste have been removed from the site, all decommissioning and dismantlement activities have been completed at this site.

K. Site Restoration

Following termination of the YNPS possession only license by the NRC, YAEC will complete the final site restoration activities. The remaining site areas will be graded and landscaped as necessary.

SCHEDULE OF DECOMMISSIONING ACTIVITIES

As stated above, decommissioning is being completed in three phases. The first phase consisted of the decontamination and dismantlement of remaining systems and components that did not support fuel storage. Next, the spent fuel was removed from the SFP and the SFP was drained in 2003. The second phase of decommissioning involved the dismantlement and decontamination of the SFP and its supporting systems, structures and components. The final phase of decommissioning will involve the decommissioning of the ISFSI and the termination of the possession only license. License termination of the ISFSI will occur after all spent fuel has been taken off-site. All decommissioning activities accomplished to date have resulted in no significant adverse environmental impacts.

YAEC completed the second phase of dismantlement and decontamination and final status surveys and License reduction in August 2007. The design and construction of a dry cask storage facility was completed in 2001. Fuel transfer activities commenced in 2002 and were completed in 2003. Following the transfer of spent fuel and GTCC waste from the SFP, decommissioning of the SFP island was completed over a period of approximately three years, including final status surveys. The dry cask storage facility is expected to be operated from 2002 to 2031, when the last fuel assembly is assumed to be taken off-site. Using this assumption, the YNPS license will be terminated after the dry cask storage facility is decommissioned (scheduled to occur in 2033).

Planning sequences and dates are based on current knowledge and could change in the future. Dry storage is addressed in the spent fuel management plans contained in the FSAR. Yankee will continue to inform the NRC of all major changes to the planned decommissioning activities in accordance with 10CFR50.82(a)(7).

DECOMMISSIONING COST ESTIMATE

The current Federal Energy Regulatory Commission (FERC) approved decommissioning cost estimate (Docket # ER13-1397-000) and cost estimate for management of spent fuel and GTCC

waste is based on the Stipulation and Settlement Agreement between YAEC and the Connecticut Public Utilities Regulatory Authority, the Connecticut Office of Consumer Counsel, the Maine Public Utilities Commission, the Maine Office of Public Advocate, the Massachusetts Department of Public Utilities, and the Attorney General of Massachusetts dated April 30, 2013.

This cost estimate includes the cost associated with the projected ISFSI decommissioning costs and a funding assumption of 15 years of operations costs to manage spent fuel and GTCC waste. A funding mechanism provides that damage awards and settlement proceeds that YAEC receives in future phases of its litigation with the Department of Energy (DOE) will be applied to maintain the adequacy of the Nuclear Decommissioning Trust (NDT) to cover 15 years of ISFSI operations (as well as all other projected decommissioning costs). In addition, YAEC has the right to resume collection of decommissioning charges from its customers subject to the submittal of a proposal under section 205 of the Federal Power Act, if needed.

YAEC has an account within its NDT entitled, "ISFSI Radiological Decom," that segregates the funds for radiological decommissioning of the ISFSI from the larger balance of funds for ongoing management of spent fuel and GTCC waste held in the NDT.

The assumptions of the current decommissioning cost estimate are discussed in the Decommissioning Funding Plan submitted to the NRC on December 14, 2015 in accordance with 10 CFR 72.30(c) (Reference 19). The decommissioning cost estimate incorporates the most recent assumptions with respect to the remaining decommissioning activities and related costs (i.e., those associated with the Yankee Nuclear Power Plant ISFSI). The total un-escalated cost estimate for decommissioning the ISFSI, including contingency is \$10.1 million and \$10.4 million in 2015 and 2016 dollars, respectively. This includes \$8.6 million and \$8.8 million for radiological removal and \$1.5 million and \$1.6 million for non-radiological removal in 2015 and 2016 dollars, respectively.

ISFSI operations will continue until DOE removes the spent fuel and GTCC waste, allowing for the decommissioning of the ISFSI. YAEC expects that the ISFSI operating costs will continue to cover a number of categories, including costs for insurance, labor, security, materials and supplies, miscellaneous expenses, outside services, property taxes, regulatory fees, rentals and leases and utilities. The un-escalated cost estimate for the management of spent fuel and GTCC waste from 2016 through 2031, including contingency, is \$145.4 million and \$149.1 million in 2015 and 2016 dollars, respectively. This is based on the estimate submitted to the NRC on December 14, 2015 (Reference 19).

The total un-escalated cost estimate is approximately \$155.6 and \$159.5 million in 2015 and 2016 dollars, respectively, for decommissioning the ISFSI and managing the storage of spent fuel and GTCC waste for the time period of 2016 through 2033.

YAEC will continue to inform the NRC regarding the status of this funding by complying with the obligations defined in: 1) 10 CFR 50.75(f)(1) and (2) to submit an annual Decommissioning Funding Status Report; 2) 10 CFR 50.82(a)(8)(v) to submit an annual financial assurance status report regarding decommissioning funding; 3) 10 CFR 72.30(c) to resubmit the decommissioning funding plan at intervals not to exceed three years; and 4) 10 CFR 50.82(a)(8)(vii) to submit an annual report regarding the status of the funding for managing the storage of irradiated fuel.

ENVIRONMENTAL IMPACTS

YAEC prepared an Environmental Report [Reference 5] to evaluate all actual or potential environmental impacts associated with the proposed decommissioning activities. This evaluation used as its basis NUREG-0586, "Final Generic Environmental Impact Statement (FGEIS) on Decommissioning of Nuclear Facilities," [Reference 6] and the site-specific environmental assessment from the re-capture of the construction period time duration [Reference 7].

This Environmental Report concluded that the impacts due to decommissioning of the YNPS will be bounded by the previously issued environmental impact statements, specifically the FGEIS and previously issued environmental assessments. This is principally due to the following reasons:

- The postulated impacts associated with the method chosen, DECON, have already been considered in the FGEIS.
- There are no unique aspects of the plant or ISFSI or decommissioning techniques to be utilized that would invalidate the conclusions reached in the FGEIS.
- The methods to be employed to dismantle and decontaminate the site (including the ISFSI) are standard construction based techniques fully considered in the FGEIS.
- The site-specific person-rem estimate for all decommissioning activities has been conservatively calculated using methods similar to and consistent with the FGEIS.

Specifically, this review concludes that the YAEC decommissioning will result in generally positive environmental effects, in that:

- Radiological sources that create the potential for radiation exposure to site workers and the public will be eliminated.
- The site will be returned to a condition that will be acceptable for unrestricted use.
- The thermal impact on the Deerfield River from facility operations will be eliminated.
- Noise levels in the vicinity of the facility will be reduced.
- Hazardous materials and chemicals will be removed.
- Local traffic will be reduced (fewer employees, contractors and materials shipments than are required to support an operating nuclear power plant).

Furthermore, the YNPS decommissioning will be accomplished with no significant adverse environmental impacts in that:

- No site specific factors pertaining to YNPS would alter the conclusions of the FGEIS.
- Radiation dose to the public will be minimal.

- Radiation dose to decommissioning workers will be a fraction of the operating experience.
- Decommissioning is not an imminent health or safety problem and will generally have a positive environmental impact.

The total radiation exposure impact for decommissioning the plant was estimated in the Decommissioning Plan (Reference 1) to be approximately 744 person-rem. This estimate was re-evaluated in 1996, resulting in a lower value of 580 person-rem (Reference 8). The estimate of 580 person-rem has been re-evaluated and the current estimate is 594 person-rem. As of 12/31/05, all decommissioning activities (with the exception of those associated with the ISFSI) with the potential for radiation exposure impact were completed. The total radiation exposure for decommissioning was approximately 594 person-rem. Given the low levels of activation expected on the VCCs and the ISFSI storage pad, the total radiation exposure for decommissioning the ISFSI is expected to be insignificant.

Radiation exposure due to transportation of radioactive waste has been conservatively estimated to be approximately 7 person-rem. This value is bounded by the FGEIS value of 100 person-rem for transportation occupational exposure. In Supplement 1 to NUREG 0586, the very low activity waste dose rates were considered to be so low that they did not have to be considered in the transportation dose estimate. All of the material associated with the VCCs and the ISFSI storage pad that will be shipped to a low-level radioactive waste site is considered to be very low activity waste.

Radiation exposure to off-site individuals for expected conditions, or from postulated accidents is bounded by the Environmental Protection Agency's Protective Action Guidelines and NRC regulations. The public exposure due to radiological effluents will continue to remain well below the 10CFR Part 20 limits and the ALARA dose objectives of 10CFR 50, Appendix I. This conclusion is supported by the YNPS Annual Effluent Release Reports in which individual doses to members of the public are calculated for station liquid and gaseous effluents.

No significant impacts are expected from the disposal of low-level radioactive waste (LLW). The total volume of YNPS low-level radioactive waste for disposal was estimated in the Decommissioning Plan to be approximately 132,000 ft³. A total volume of approximately 1,670,000 ft³ of LLW was shipped from the YNPS site for off-site disposal during decommissioning of the plant. A significant portion of this waste contained very low levels of radioactivity (DOT exempt) and was created as a result of remediation activities to satisfy EPA clean-up requirements for PCBs, to satisfy the Massachusetts Department of Public Health (DPH) radiological release criteria of 10 mRem/year and to meet the Massachusetts Contingency Plan regulations for non radiological release criteria under the Department of Environmental Protection (DEP) requirements. The volume of LLW that would have been required to be disposed of to satisfy the NRC's 25 mRem/year release criteria would have been a significantly lower volume in the 300,000 ft³ range, significantly below the FGEIS estimate of 647,670 ft³ for a reference PWR.

The decommissioning cost estimate assumes that all of the material associated with the VCCs and the ISFSI storage pad will be shipped offsite as low-level radioactive waste. This assumption was made to maximize the cost of disposal of radioactive materials in the decommissioning cost estimate. YAEC does not anticipate that this material would be required to be disposed of to satisfy the NRC's 25 mRem/year release criteria.

Since the approval of the Decommissioning Plan (Reference 1) and the issuance of the Decommissioning Environmental Report (Reference 5), YNPS identified the presence of solid Polychlorinated Biphenyls (PCBs) in some paint coatings. As in the case of radiologically contaminated lead paint, asbestos, and other hazardous materials, contaminated paint that contains PCBs will be managed according to all applicable federal and state regulations.

No significant environmental impacts are anticipated in the event that LLW is required to be temporarily stored onsite because adequate storage space exists and LLW storage will be in accordance with all applicable federal and state regulations. Extending the storage period from 2022 through 2031 does not have a significant impact, because all applicable federal and state regulations will be met.

The non-radiological environmental impacts from decommissioning were temporary and were not significant. The largest occupational risk associated with decommissioning YNPS was related to the risk of industrial accidents. The primary environmental effects were short term, small increases in noise levels and fugitive dust in the immediate vicinity of the site, as well as truck traffic to and from the site for hauling equipment and waste. No significant socioeconomic impacts, other than those associated with cessation of operation (loss of jobs and taxes), or impacts to local culture, terrestrial or aquatic resources such as the Sherman Reservoir and Deerfield River were identified.

REFERENCES

1. Letter, J. K. Thayer (YAEC) to T. E. Murley (USNRC), Decommissioning Plan for Yankee Nuclear Power Station (YNPS), December 20, 1993.
2. Letter, A. C. Kadak (YAEC) to T. E. Murley (USNRC), Permanent Cessation of Power Operations at the Yankee Nuclear Power Station, BYR 92-024, February 27, 1992.
3. Letter, M. B. Fairtile (USNRC) to J. M. Grant (YAEC), Issuance of Amendment #142 to Facility License DPR-3 – Yankee Nuclear Power Station, August 5, 1992.
4. Letter, M. B. Fairtile to J. A. Kay (YAEC), Order Approving the Decommissioning Plan and Authorizing Decommissioning of the Yankee Nuclear Power Station, February 14, 1995.
5. Yankee Nuclear Power Station Decommissioning Environmental Report, December 1993.
6. NUREG-0586, Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities, August 1988.
7. Letter, M. B. Fairtile (USNRC) to G. Papanic (YAEC), dated June 2, 1988.
8. USNRC Atomic Safety and Licensing Board Docket No. 50-029-DCOM, Supplemental Affidavit of Russell A. Mellor, September 3, 1996.
9. NUREG-5849, “Manual for Conducting Radiological Surveys in Support of License Termination,” Draft, June 1992.
10. NUREG-1575, “Multi-Agency Radiation Survey and Site Investigation Manual,” December 1997.
11. Letter, D.K. Davis (YAEC) to USNRC, “Withdrawal of Proposed License Amendment to Approve Yankee Nuclear Power Station’s License Termination Plan,” May 25, 1999.
12. Yankee Nuclear Power Station Final Safety Analysis Report.
13. Regulatory Guide 1.185, Standard Format and Content for Post-Shutdown Decommissioning Activities Report, July 2000.
14. Letter J.B. Hickman (USNRC) to J.A. Kay (YAEC), Issuance of Amendment #157 Re: Deletion of Operational and Administrative Requirements Following Fuel Transfer to ISFSI, NYR 03-027, April 18, 2003.
15. Letter Jack Rollins (YAEC) to DCD, Decommissioning Funding Assurance-(10CFS50.75(f), March 31, 2005.
16. Letter John B. Hickman (USNRC) to Jack D. Rollins (YAEC), Issuance of Amendment #158 Re: License Termination Plan, NYR 2005-030, July 28, 2005.

17. Letter from Wayne Norton to U.S. Nuclear Regulatory Commission, Letter of Intent Concerning the Phased Release of Land from the Part 50 License.
18. Letter from U.S. Nuclear Regulatory Commission to Wayne Norton, NYR 2007-046, "Approval of Partial Site Release".
19. Letter from C. Pizzella (YAEC) to U.S. Nuclear Regulatory Commission, BYR 2015-036, "Three-Year Update to the Independent Spent Fuel Storage Installation Decommissioning Funding Plan," dated December 14, 2015.
20. Letter from Alston & Bird LLP to Federal Energy Regulatory Commission, "Yankee Atomic Electric Company Docket No. ER13-___-000," dated May 1, 2013.