TABLE OF CONTENTS

FIGURES & TABLES .................................................................................................................. 4

TABLE OF ACRONYMS ........................................................................................................... 5

1. EXECUTIVE SUMMARY .................................................................................................... 8
   1.1 Significant 2005/06 Accomplishments Described in SCPP Rev. 4.0 ......................... 9
   1.2 Significant Site Closure Activities Remaining ............................................................ 10
   1.3 Stakeholder Involvement and Information Sources ................................................... 11
   1.4 SCPP Overview ......................................................................................................... 12

2. INTRODUCTION .............................................................................................................. 14
   2.1 Site Description ......................................................................................................... 14
      2.1.1 Physical and Environmental Setting .................................................................. 14
      2.1.2 History of Plant Operations .............................................................................. 14
   2.2 Site Closure Activities To Date ................................................................................ 15
      2.2.1 Decommissioning Activities To Date .................................................................. 15
      2.2.2 Spent Fuel Storage Activities To Date ............................................................... 16
      2.2.3 Environmental Closure Activities To Date ......................................................... 16
   2.3 Planned Site Closure Activities ............................................................................... 19
   2.4 Future Property Use .................................................................................................. 20

3. STAKEHOLDER COMMUNICATION AND OUTREACH ............................................... 21
   3.1 Role of Site Closure Project Plan in Stakeholder Communication ............................... 21
   3.2 World Wide Web (WWW) ......................................................................................... 23
   3.3 Public Information Repository .................................................................................. 23
   3.4 Stakeholder Input Mechanisms ................................................................................ 23
      3.4.1 Community Advisory Boards .......................................................................... 23
      3.4.2 Public Meeting for License Termination Plan Review ......................................... 24
   3.5 Property Disposition and Future Use Outreach ......................................................... 24
4. SITE DEFINITION ........................................................................................................... 26
  4.1 American Land Title Association (ALTA) Survey ....................................................... 26
  4.2 Natural Resource Inventory ......................................................................................... 26
  4.3 Archeological and Cultural Resource Survey ............................................................... 27
  4.4 ASTM Phase I Assessments ....................................................................................... 27

5. REGULATORY AND PERMITTING CONTEXT AND CLOSURE PLAN ....................... 28
  5.1 Assessment of Potentially Relevant Regulatory Programs ........................................... 28
  5.2 Radiological Regulatory Compliance Plan ..................................................................... 29
    5.2.1 Nuclear Regulatory Commission Regulations ......................................................... 29
    5.2.2 Massachusetts Department of Public Health Regulations ....................................... 30
    5.2.3 National Environmental Policy Act (NEPA) Regulations ....................................... 30
  5.3 Non-Radiological Regulatory Compliance Plan .......................................................... 31
    5.3.1 Regulatory Compliance Plan – Local and State Regulatory Programs ................ 32
    5.3.2 Regulatory Compliance Plan – Potentially Applicable Federal Regulatory Programs . 39
    5.3.3 Regulatory Compliance Plan – Regulatory Programs Not Expected to be Applicable 42
  5.4 Conclusion .................................................................................................................. 43

6. SITE CHARACTERIZATION ............................................................................................. 44
  6.1 Radiological Site Characterization ................................................................................ 44
    6.1.1 Data Quality Objectives and Quality Assurance Project Plans .............................. 45
    6.1.2 Groundwater Sampling for Radiological Constituents ........................................... 45
  6.2 Non-Radiological Site Characterization ....................................................................... 46
    6.2.1 Quality Assurance Project Plan and Field Sampling Plans .................................. 46
    6.2.2 Data Usability Reports .......................................................................................... 46
  6.3 Site Characterization Reports ...................................................................................... 47
  6.4 Remaining Site Characterization Activities ................................................................. 48
    6.4.1 Amended Phase III and Amended Phase IV Activities ....................................... 48
    6.4.2 Phase II Equivalent Site Assessment ................................................................ 48
    6.4.3 Final Status Survey ............................................................................................. 48

7. RISK ASSESSMENTS ....................................................................................................... 49
  7.1 Radiological Dose-Based Assessment (NRC/DPH) ....................................................... 49
  7.2 Combined Radiological Non-Radiological Assessment (DEP/EPA) ............................ 50
    7.2.1 Human Health Risk Assessment Plans .................................................................. 51
    7.2.2 Environmental Risk Assessment Plans ............................................................... 52
    7.2.3 Risk Assessment to Support PCB Cleanup Under TSCA ...................................... 53
  7.3 Conclusion ................................................................................................................... 53
8. REMEDIATION COMPLETENESS STATUS

8.1 Overview of Remediation Activities

8.2 Site Restoration Activities

8.3 Post-Remediation, Post-Decommissioning Monitoring Activities

8.4 PCB Remediation Completeness Status

8.5 Other Remediation Activities

REFERENCES

REFERENCE GUIDE
FIGURES & TABLES

FIGURES

Figure 2-1: Site Location ........................................................................................................ 67
Figure 2-2: NRC Part 50 Licensed Area Based on Partial Site Release ................................. 68
Figure 2-3: Areas Likely To Be Subject to Activity and Use Limitations ................................. 69
Figure 2-4: Yankee Controlled Area Boundary ........................................................................ 70
Figure 3-1: Yankee Site Closure Project Home Page ............................................................. 71
Figure 5-1: Environmental Closure Regulatory Summary ..................................................... 72

TABLES

Table 2-1: Site Closure Activities Accomplished to Date ..................................................... 75
Table 2-2: Planned Site Closure Activities ............................................................................. 77
Table 5-1: State and Local Non-Radiological Regulatory Compliance Plan ......................... 78
Table 5-2: Federal Non-Radiological Regulatory Compliance Plan ...................................... 82
# TABLE OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACOE</td>
<td>U.S. Army Corps of Engineers</td>
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<tr>
<td>ALARA</td>
<td>As Low As Reasonably Achievable</td>
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<td>ALTA</td>
<td>American Land Title Association</td>
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<tr>
<td>ANRAD</td>
<td>Abbreviated Notice of Resource Area Delineation</td>
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<td>ASTM</td>
<td>American Society of Testing and Materials</td>
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<tr>
<td>BER</td>
<td>Baseline Environmental Report</td>
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<tr>
<td>BUD</td>
<td>Beneficial Use Determination</td>
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<td>CAAA</td>
<td>Corrective Action Alternatives Analysis</td>
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<tr>
<td>CAB</td>
<td>Community Advisory Board</td>
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<tr>
<td>CAD</td>
<td>Corrective Action Design</td>
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<td>CFR</td>
<td>Code of Federal Regulations</td>
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<tr>
<td>CMR</td>
<td>Code of Massachusetts Regulations</td>
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<tr>
<td>CWA</td>
<td>Federal Clean Water Act</td>
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<tr>
<td>DCGL</td>
<td>Derived Concentration Guideline Level</td>
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<tr>
<td>DEP</td>
<td>Massachusetts Department of Environmental Protection</td>
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<tr>
<td>DPH</td>
<td>Massachusetts Department of Public Health</td>
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<tr>
<td>DQO</td>
<td>Data Quality Objectives</td>
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<tr>
<td>DU</td>
<td>Data Usability</td>
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<tr>
<td>EENF</td>
<td>Expanded Environmental Notification Form</td>
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<td>EIR</td>
<td>Environmental Impact Report</td>
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<tr>
<td>ENF</td>
<td>Environmental Notification Form</td>
</tr>
<tr>
<td>EEOA</td>
<td>Massachusetts Executive Office of Environmental Affairs</td>
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<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
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<td>Endangered Species Act</td>
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<tr>
<td>FERC</td>
<td>Federal Energy Regulatory Commission</td>
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<tr>
<td>FGEIS</td>
<td>Final Generic Environmental Impact Statement</td>
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<td>FSP</td>
<td>Field Sampling Plans</td>
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<td>FSS</td>
<td>Final Status Survey</td>
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<tr>
<td>GTCC</td>
<td>Greater Than Class C</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>HHRA</td>
<td>Human Health Risk Assessment</td>
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<tr>
<td>HSA</td>
<td>Historical Site Assessment</td>
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<tr>
<td>ICM</td>
<td>Interim Corrective Measure</td>
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<tr>
<td>ISA</td>
<td>Initial Site Assessment</td>
</tr>
<tr>
<td>ISFSI</td>
<td>Independent Spent Fuel Storage Installation</td>
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<tr>
<td>LTP</td>
<td>License Termination Plan</td>
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<tr>
<td>MARSSIM</td>
<td>Multi-Agency Radiation Survey and Site Investigation Manual</td>
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<tr>
<td>MCP</td>
<td>Massachusetts Contingency Plan (under M.G.L. Ch. 21E)</td>
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<td>Massachusetts Clean Waters Act</td>
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<tr>
<td>MEPA</td>
<td>Massachusetts Environmental Policy Act</td>
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<tr>
<td>MHC</td>
<td>Massachusetts Historical Commission</td>
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<tr>
<td>mrem/yr</td>
<td>Millirem Per Year</td>
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<tr>
<td>NHESP</td>
<td>Massachusetts Natural Heritage &amp; Endangered Species Program</td>
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<tr>
<td>NOI</td>
<td>Notice Of Intent</td>
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<tr>
<td>NPDES</td>
<td>National Pollutant Discharge Elimination System</td>
</tr>
<tr>
<td>NRC</td>
<td>U.S. Nuclear Regulatory Commission</td>
</tr>
<tr>
<td>OHM</td>
<td>Oil or Hazardous Materials</td>
</tr>
<tr>
<td>PCBs</td>
<td>Polychlorinated Biphenyls</td>
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<tr>
<td>PGP</td>
<td>Programmatic General Permit</td>
</tr>
<tr>
<td>ppm</td>
<td>Parts Per Million</td>
</tr>
<tr>
<td>QAPP</td>
<td>Quality Assurance Project Plan</td>
</tr>
<tr>
<td>RAI</td>
<td>Request for Additional Information</td>
</tr>
<tr>
<td>RBDAA</td>
<td>Risk-Based Disposal Approval Application</td>
</tr>
<tr>
<td>RCA</td>
<td>Radiologically Controlled Area</td>
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<tr>
<td>RCRA</td>
<td>Resource Conservation and Recovery Act</td>
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<tr>
<td>SCFA</td>
<td>Southeast Construction Fill Area</td>
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<td>SCPP</td>
<td>Site Closure Project Plan</td>
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<tr>
<td>TSCA</td>
<td>Toxic Substances Control Act</td>
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<tr>
<td>WPA</td>
<td>Massachusetts Wetlands Protection Act</td>
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<tr>
<td>YAEC</td>
<td>Yankee Atomic Electric Company</td>
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<tr>
<td>YNPS</td>
<td>Yankee Nuclear Power Station</td>
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REFERENCE GUIDE

Throughout this document all references to regulatory permits or informational documents have been marked with a reference number (SCY or SCR year-XX). A list of numbers and the documents they refer to can be found at the end of the SCPP on page 60. The numbers indicate whether the document came from YAEC (SCY) or came to YAEC from a regulatory agent (SCR), the year the document was circulated, and a number. Documents can be found on the YAEC site closure website at www.yankeerowe.com/siteclosure and at the Information Repository at the Greenfield Community College by title and reference number.
SECTION 1

EXECUTIVE SUMMARY

The Yankee Nuclear Power Station (YNPS) encompasses approximately 12 acres developed for industrial use out of approximately 1,800 acres owned by Yankee Atomic Electric Company (YAEC) as shown in Figure 2-1. The YNPS power generating plant began operations in 1960 and operated safely and successfully for 31 years. In February 1992, the YAEC Board of Directors decided it was in the best economic interest of electric customers to cease operations permanently at YNPS and decommission the plant.

The several versions of the Site Closure Project Plan (SCPP) leading up to this Revision 4.0 have described the process by which YAEC will complete the decommissioning, environmental investigation, environmental remediation, site closure and post-closure property transfer of YNPS. YAEC’s goals for the Site Closure Project are to:

• Substantially complete the majority of decommissioning and physical site closure activities at the site by the end of 2006;

• Achieve radiological and non-radiological site closure in a safe, responsible, reliable and beneficial manner;

• Integrate stakeholder requirements and interests into the project planning and implementation process to optimize efficiency, avoid duplication of efforts and facilitate acceptance by both regulatory and non-regulatory stakeholders;

• Restore the site to environmental quality standards that will enable future unrestricted use of the majority of the site, where feasible; and

• Safely manage the spent nuclear fuel on site until such time that the Department of Energy satisfies its legal obligation to remove the fuel.

SCPP Revision 4.0 describes the project at a key juncture, the point at which all significant regulatory approvals and permits necessary to carry the decommissioning, environmental remediation and site closure activities to completion have been obtained. This reflects achievement of the first goal articulated above. At this juncture, what remains is for YAEC to complete implementation of the permitted activities consistent with the collective terms of the relevant permits and consistent with these goals. A considerable amount of progress has been made toward these ends and is reported in this version of the SCPP.
The several versions of the SCPP have been developed by YAEC, with the assistance and expertise of three environmental firms, CLF Ventures, Inc. (CLFV, a non-profit affiliate of the Conservation Law Foundation), Environmental Resources Management (ERM), and Gradient Corporation (Gradient). The SCPP was developed to communicate the activities by which YAEC will complete the site closure process consistent with these goals.

1.1 Significant 2005/06 Accomplishments Described in SCPP Revision 4.0

This current version, SCPP Revision 4.0, is the fourth version of the SCPP to be published. Since the December 2, 2004 issuance of SCPP Revision 3.0, Yankee has achieved numerous significant regulatory milestones and advanced its structural decommissioning, environmental remediation and site closure activities. The major 2005/06 accomplishments are:

- YAEC submitted its License Termination Plan (LTP) to the NRC in November 2003 (SCY 2003-07) and submitted an amendment in April 2004 (SCY 2004-20). The LTP received final NRC approval on September 28, 2005 (SCR 2005-05).

- Demolition of above-ground site buildings and structures was completed in 2005; the demolition material was characterized and sorted for beneficial reuse as fill or grading material or for off-site disposal consistent with the conditions imposed by the several permits that have been required for management of demolition material.

- YAEC prepared and filed a series of permit applications and submittals related to removal of PCBs in soils, sediments and storm drains, substructure demolition or disposition in and adjacent to the shoreline, beneficial reuse of certain super- and sub-structure concrete for fill and grading material, and closure of the Southeast Construction Fill Area (SCFA). During 2005, YAEC completed the process of obtaining the regulatory permits and approvals necessary to complete all of the anticipated decommissioning, environmental remediation and remaining site closure activities. Significant permit approvals achieved during 2005 include:
  - Application for Beneficial Use Determination (BUD) for reuse of soils and certain demolition materials from the Industrial Site (SCY 2005-05) as fill for site grading and to allow subsurface structures or utilities to remain in place was approved on September 8, 2005 (SCR 2005-07);
  - Southeast Construction Fill Area (SCFA) BUD Application (SCY 2004-19) was conditionally approved on December 23, 2004 (SCR 2005-01);
  - Two Notifications and Certifications of Self-Implementing Cleanup & Disposal of PCB Remediation Waste were submitted and approved during 2005 to allow the on-site thermal treatment and reuse of clean soil on-site or off-site disposal of PCB contaminated soil. (SCY 2005-06, SCY 2005-09, SCR 2005-02, SCR 2005-03).
• YAEC has completed the on-site remediation activities addressing the presence of PCB contaminated sediments in Sherman Reservoir and in the East and West Storm Drains and has accomplished the decommissioning of the circulating water intake and discharge structures in the same areas. These activities were conducted under the terms of five major permits issued by the Rowe Conservation Commission (Con Comm) (SCR 2004-05), the Massachusetts Department of Environmental Protection (DEP) (SCR 2004-03), the Army Corps of Engineers (ACOE) (SCR 2004-08), and the United States Environmental Protection Agency (EPA) (SCR 2005-02 and SCR 2005-03) obtained during 2004 for these purposes:
  • Restoration of wetlands associated with remediation of the West Stormwater Drainage Ditch;
  • Demolition of all below-grade structures consistent with regulatory approvals; and
  • Remediation of site soils requiring cleanup for PCBs on the industrial portion of the site and in the SCFA.
  • Completion of excavation and demolition of subsurface utilities and structures as necessary to meet the standards of the BUD for reuse of Industrial Site materials;
  • Characterization of remaining Industrial Site demolition material to remain in place or remove for off-site disposal in accordance with the standards of the BUD issued by DEP;
  • Completion of SCFA excavation and removal of solid waste and/or soil impacted by oil and/or hazardous materials (OHM).

YAEC expects to complete physical on-site demolition, remediation activities, and final status survey and site grading/planting within the next several months.

1.2 Significant Site Closure Activities Remaining
YAEC anticipates that the following activities remain to be completed as part of the YNPS Site Closure Project.
• De-classify the SCFA as a landfill and grade remaining SCFA soil to support restoration and closure;
• Characterize post-remediation and post-completion site environmental conditions through Phase II Equivalent Site Assessment Report to confirm compliance with all applicable regulatory requirements and to confirm appropriate risk reduction through combined radiological and non-radiological site-wide risk assessment;
• Confirm remediation of radiological releases as sufficient to satisfy NRC and DPH requirements through completion of the Final Status Survey and implementation of the Radiological Site Closure Compliance Plan;
• Complete site restoration, final site grading and planting;
• Monitor restoration of wetlands, habitat and riverfront and monitor SCFA and site groundwater post-closure;
• Complete the facility decommissioning process and terminate the NRC license; and
• Establish and document appropriate environmental end-state conditions, based on applicable cleanup standards, to allow the property to be made available for and amenable to appropriate post-closure transfer.

YAEC anticipates that the majority of the NRC license termination activities will be accomplished in 2006. The remaining activities are scheduled to occur in 2007. One outstanding action will be Yankee's reduction of the portion of the site under the NRC license to the footprint occupied by the ISFSI. This requires groundwater monitoring of the site into 2007, because a portion of the site is currently affected by high tritium concentrations. In addition, Yankee will continue to perform routine state-regulated groundwater monitoring beyond 2007 to satisfy the requirements necessary to obtain a permanent RAO.

As discussed in Section 2.2.1, the license termination awaits action by the U.S. Department of Energy (DOE) to take custody of the spent nuclear material currently stored on-site in a special installation. The major decommissioning and environmental remediation activities accomplished to date and the significant activities remaining are summarized in Section 2 and in Table 2-1. The major remaining site closure activities are summarized in Table 2-2.

1.3 Stakeholder Involvement and Information Sources
Integral to the realization of YAEC's project goals is the development and maintenance of an effective working relationship with the project's many stakeholders. To this end, YAEC's publication of the successive versions of the SCPP has served as an important means to communicate to stakeholders the many interrelated aspects of the closure project. The most current version of the SCPP is available on the YAEC site closure website at www.yankeerowe.com/siteclosure and at the Information Repository.

YAEC's site closure website (www.yankeerowe.com/siteclosure) presents up-to-date information about the status of site activities, together with copies of submitted documentation available and the associated agency permits and approvals for stakeholder review. The site closure website also maintains an up-to-date calendar of near-term closure activities. In addition, with the cooperation of Greenfield Community College, Yankee has established a physical Information Repository located in the college's main library.

YAEC welcomes your review and comments concerning the SCPP or any aspect of the site closure process, and invites your participation in the successful completion of the YNPS closure project. Please address comments regarding the SCPP or other aspects of the Site Closure Project to:
1.4 SCPP Overview
Accomplishing the foregoing site closure goals and activities has required the coordination of radiological and non-radiological closure efforts, demolition activities, and spent fuel storage management activities with numerous local, state and federal regulatory and permitting authorities, together with the interests and concerns of existing and adjacent land owners and residents. In addition, the site closure activities have been based upon consideration of the interests and concerns of the general public and a variety of other public and environmental stakeholders. Successful coordination of the necessary activities and integration of stakeholder interests to date has allowed for safe, reliable and timely implementation of the site closure process and timely release of the site property for future unrestricted use. The interactions among these components of site closure and the remaining site closure activities are described in detail in the remainder of the SCPP, which consists of the following sections:

• Section 2 of the SCPP describes the major decommissioning and environmental remediation activities accomplished to date and the significant activities remaining.

• Section 3 describes how the project has conducted stakeholder information and outreach efforts, and identifies the remaining areas for significant stakeholder participation in the project.

• Section 4 outlines the tasks YAEC has conducted to delineate the site’s physical, ecological, and cultural resources.

• Section 5 identifies the regulatory context in which site closure is being conducted and the status of YAEC’s efforts to meet the applicable and relevant regulatory and permitting requirements.

• Section 6 describes the current state of site environmental data and the approach to remaining site characterization activities.

• Section 7 describes YAEC’s approaches to evaluating radiological and non-radiological regulatory environmental, public health and ecological risks that may be posed by site conditions, and presents YAEC’s approach for evaluating and demonstrating
satisfaction of the relevant MCP cumulative risk standards. Risk-based methods to achieve NRC and DPH dose-based radiological standards are also described.

- Section 8 presents a summary of remediation activities completed to date and the remediation activities remaining to meet site closure goals.

The SCPP does not address routine building demolition issues, such as management of asbestos-containing materials, paint containing lead, PCB-containing light ballasts, or mercury-containing light bulbs. These routine disposal and recycling activities have been performed in accordance with YNPS operating procedures and in accordance with applicable local, state, and federal regulatory requirements. These actions will be documented in separate reports.
SECTION 2
INTRODUCTION

Section 2 describes the history and setting of the site, the major decommissioning, site closure and environmental remediation activities accomplished to date and the significant activities remaining to be completed.

2.1 Site Description
2.1.1—PHYSICAL AND ENVIRONMENTAL SETTING
The Yankee Nuclear Power Station (YNPS) plant site encompasses approximately 12 acres developed for industrial use out of approximately 1,800 acres of undeveloped woodland owned by Yankee Atomic Electric Company (YAEC). The site is located in the northwestern Massachusetts Town of Rowe, on the southern Vermont border. The YNPS site abuts the eastern shore of the Deerfield River, adjacent to Sherman Dam, one of several dams along the Deerfield River used for hydroelectric power generation. Sherman Reservoir, the impoundment behind the dam, was used as the source of cooling water during plant operation. Sherman Reservoir is approximately two miles long, one-quarter of a mile wide and up to 75 feet deep along the former river channel. The YNPS plant is situated on a portion of a river terrace, which is recessed into and largely surrounded by steep-sided slopes of the Deerfield River Valley. In the vicinity of the plant, the sides of the river valley rise to over 1,000 feet above the river elevation, creating a deep, narrow valley approximately one mile wide. The northern portion of the Deerfield River Valley is unique in Massachusetts for this topography, a product of alpine-type glacial erosion. See Figure 2-1, Site Location Map.

2.1.2—HISTORY OF PLANT OPERATIONS
The YNPS power generating plant began commercial operations in 1961. The YNPS operated safely and successfully for 31 years. In February 1992, the YAEC Board of Directors decided to cease power operations permanently at YNPS and decommission the facility, based upon economic analysis indicating that shutdown of the plant was in the best economic interest of electric customers. In December 1993, YAEC submitted the YNPS Decommissioning Plan to the Nuclear Regulatory Commission (NRC) (SCY 1993-01) in accordance with the requirements of 10 CFR 50.82(a) in place at the time. The Decommissioning Plan was approved by the NRC on February 14, 1995 (SCR

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1 A non-contiguous parcel of land in the Town of Monroe on the opposite side of the Deerfield River from YNPS is also owned by YAEC and considered to be a part of the site. However, no facility-related activities were ever conducted on the Monroe parcel.
1995-01) and, due to subsequent litigation, re-approved on October 28, 1995 (SCR 1995-02).

2.2 Site Closure Activities To Date

2.2.1—DECOMMISSIONING ACTIVITIES TO DATE

YAEC embarked upon the process of preparing for the safe and effective decommissioning of the YNPS beginning in 1992. Through 2003, YAEC’s decommissioning efforts were largely focused on satisfying its regulatory obligations to the NRC. These pertained to safe possession of the facility and storage of spent nuclear fuel, decommissioning and decontamination of the plant, and eventual termination of the NRC operating license. These efforts will continue until YAEC has satisfied its NRC obligations and has ceased licensed activities on-site. After it demonstrated that NRC’s radiological release criteria have been met for most areas of the site, YAEC received NRC approval to release the majority of the site for other uses by appropriate stakeholders in a Partial Site Release approved on November 21, 2005 (SCR 2005-08). See “Release Area” in Figure 2-2.

A portion of the site will remain an active NRC-licensed facility, however, because the Department of Energy (DOE) did not meet its statutory and contractual obligation to begin removing the spent nuclear fuel and Greater Than Class C (GTCC) waste generated from the operation of YNPS as scheduled for January 1998. As a result, YAEC has designed and constructed an Independent Spent Fuel Storage Installation (ISFSI) pad on a small portion of the site to store and manage this spent fuel and GTCC waste. This ISFSI will remain on-site until DOE removes the material stored in it. It is not currently known when the United States Department of Energy (DOE) will be prepared to remove the spent fuel and GTCC waste from the site and release the ISFSI portion of the site for other use.

In May 1997, YAEC submitted a License Termination Plan (LTP) to the NRC, identifying the remaining decommissioning work and the actions necessary to comply with NRC license termination requirements. Changes in NRC guidance prompted YAEC to withdraw the 1997 LTP and prepare a new LTP to conform to the new (and current) guidance, the “Multi-Agency Radiation Survey and Site Investigation Manual,” NUREG-1575 (MARSSIM). YAEC’s revised LTP was resubmitted in November of 2003 (SCY 2003-07), was subsequently revised in April 2004 (SCY 2004-20) to address NRC comments and received final approval by the NRC on September 28, 2005 (SCR 2005-05). YAEC will complete the remainder of its radiological decommissioning activities consistent with the provisions of the approved LTP.

YAEC has accomplished the first of its Site Closure Project goals: the majority of decommissioning and physical site closure activities have been completed at the site. As of Fall 2005, all above ground structures, with the exception of the ISFSI and related support structures, were demolished and the demolition material staged for disposal or re-use. All planned below-grade structures have also been demolished.
Nearly all of the demolition material has been characterized and removed for off-site disposal at appropriate facilities. This has resulted, to date, in removal of approximately 85,000 tons of demolition material to off-site disposal facilities since 2003.

All soil requiring clean-up for PCBs in the SCFA and Industrial Site areas has been successfully remediated. The cleanup of PCB-contaminated sediments in the West Storm Drain and the Sherman Reservoir has been completed and the wetlands portions of the site associated with this remediation have been restored.

At the time of publication of SCPP Revision 4, the industrial portion of the site consists of excavation material, clean fill and topsoil being graded to meet the final site configuration consistent with approved plans.

2.2.2—SPENT FUEL STORAGE ACTIVITIES TO DATE
YAEC constructed an ISFSI on a small portion of the site that utilizes an NRC-licensed dual-purpose (storage and transport) canister system to store spent nuclear fuel and Greater Than Class C (GTCC) waste generated from the operation of the YNPS. In June 2003, YAEC’s contractor, NAC International, completed the removal and transfer of spent fuel and GTCC waste from the spent fuel pool to the specially designed dry storage casks. The ISFSI portion of the site will be reserved for this purpose and remain subject to NRC permit until the DOE meets its statutory and contractual obligation to take possession of the spent fuel and GTCC waste and transport it off site for storage and/or disposal.

2.2.3—ENVIRONMENTAL CLOSURE ACTIVITIES TO DATE
Environmental studies, surveys and reports have documented radiological and non-radiological constituents in environmental media (soil, sediment, water, fish, groundwater, etc.) and on building surfaces and concrete at YNPS. Initially these studies were used to characterize baseline environmental conditions in support of overall decommissioning efforts. These studies also revealed several environmental conditions that warranted specific further study and remediation.

In 2000, YAEC began investigation and remediation to address the presence of PCB-containing paint chips in soil and sediment under the procedures of the Massachusetts Contingency Plan (MCP) requirements. The MCP process to address this release required preparation of a Phase I Initial Site Investigation and Tier Classification (submitted to the Massachusetts Department of Environmental Protection (DEP) in April 2001) (SCY 2001-01), a Phase II Comprehensive Site Assessment (SCY 2003-01) and Phase III Remedial Action Plan (April 2003) (SCY 2003-02) and a Phase IV Remedy Implementation Plan (April 2004) (SCY 2004-03).

The Phase IV Remedy Implementation Plan described the specific remedial actions proposed to abate PCBs in soil and sediment at YNPS to satisfy the requirements of the MCP. These activities consisted of remediation of sediments and soils associated with
storm drain outfalls which had discharged into the Sherman Reservoir and the Deerfield River. These activities were coordinated with the decommissioning of circulating water intake structures and discharge structures, also within the wetland buffer zones of these bodies of water. Final permitting to authorize YAEC to conduct this Phase IV activity was received in October 2004 (Order of Conditions (SCR 2004-05), Water Quality Certification (SCR 2004-03), Waterways Permit (SCR 2004-04) and Category 2 Programmatic General Permit (SCR 2004-080 and Risk-Based Disposal Approval Application (SCY 2004-11 and SCR 2004-06).

The soil and sediment remediation in Sherman Reservoir and the West Storm Drain, and the intake/discharge structure decommissioning, were conducted and completed during 2005. Sediments were removed leaving a maximum concentration of 1 ppm PCBs. Soils were removed to leave an average concentration of 1 ppm PCBs and a maximum concentration not to exceed 25 ppm (and generally less than 5 ppm in all currently accessible portions of the site. These target cleanup levels were authorized through the permitting proceedings as appropriate to enable YAEC to achieve a level of no significant risk to human health, welfare, public safety and the environment under current and reasonably foreseeable future land uses.

During the course of these over-arching MCP activities, several smaller scale MCP cleanups were performed to address limited releases discovered during the course of other activities. The Limited Removal Action, Immediate Response Action and Release Abatement Measure are itemized in Table 2-1.

Characterization of potential impacts to the environment associated with the Southeast Construction Fill Area (SCFA), a former construction debris fill area, was initiated in 1999. Based on this characterization, as documented in an Initial Site Assessment (March 10, 2000) (SCY 2000-01), a Comprehensive Site Assessment (September 14, 2001) (SCY 2001-02) and a Corrective Action Alternatives Analysis (CAAA) (approved by the DEP on April 13, 2004) (SCR 2004-01), YAEC submitted a Corrective Action Design (CAD) to DEP on July 26, 2004 (SCY 2004-12). The Corrective Action for the SCFA proposed to excavate, characterize and remove soils from the SCFA, reuse appropriate excavated landfill materials for fill and grading in other portions of the site, and dispose of unacceptable soils and solid waste excavated from the SCFA at off-site disposal locations.

Permitting to authorize the SCFA removal (Order of Conditions) was completed on September 9, 2004 (SCR 2004-05). YAEC submitted an application for a Beneficial Use Determination to authorize reuse of the landfill material (SCY 2004-19); the SCFA BUD was provisionally approved by DEP on December 23, 2004 (SCR 2005-01). In the course of performing the landfill removal, PCB-contaminated and asbestos-containing landfill material was discovered, excavated, stockpiled and either thermally treated (PCB-laden material only) and reused on site or transported to an off-site disposal facility pursuant to a Notification and Certification of Self-Implementing Cleanup
& Disposal of PCB Remediation Waste (SCY 2005-06) approved by EPA on April 4, 2005 (SCR 2005-02). Excavation of the landfill and non-native material from the SCFA is complete and final grading/planting is nearly complete.

As part of site closure, a comprehensive site characterization program was initiated in July 2003. The characterization program includes soil, groundwater, sediment, and surface water sampling. This site characterization program has resulted in four significant reports to date, Hydrogeologic Report of 2003 Supplemental Investigation (March 2004) (SCY 2004-01), Baseline Environmental Report (BER) (April 30, 2004) (BYR 2004-044) which provides an overview of the site’s physical characteristics and of site environmental conditions based on past and ongoing investigation efforts, Site Characterization Status Report (June 4, 2004) (SCY 2004-10) which summarized the site characterization results obtained through March 2004 and Report of Continuing Hydrogeologic Investigations (May 2005) (SCY 2005-08).

At the request of the DEP, the ongoing site characterization activities were combined during 2005 into an integrated Phase II Equivalent Site Assessment (SCY 2005-02), to be conducted consistent with MCP practices. DEP has approved the initial Phase II Equivalent Report (SCR 2005-06) as partially fulfilling DEP requirements for site characterization and directed YAEC to conduct additional specific assessment activities to satisfy data gaps necessary to verify that the level of cleanup is acceptably protective by completing a quantitative risk assessment. Results will be documented in a final Phase II Equivalent Report upon completion of site remediation, decommissioning and additional characterization activities. According to a timetable set forth by DEP, the final Phase II Equivalent report is due to be submitted September 2006.

The final major permitting activity for environmental site closure activities was completed with the issuance of a BUD approved by DEP on July 29, 2005 (SCR 2005-04), and amended on September 8, 2005 (SCR 2005-07). This BUD specifies the procedures for determining what materials from demolition of the site’s industrial structures and equipment may be eligible for reuse as fill for site grading, which subsurface structures may remain in place, the characterization procedures for determining which demolition materials must be disposed of off-site, and the conditions by which eligible material may be reused as fill. Under the terms of this BUD, only materials that have no plant-related radioactivity above background levels may be reused as fill. Any materials that exhibit radioactivity above background levels will be removed and disposed of at appropriate off-site facilities.

The BUD requires that any locations at which subsurface structures are to remain in place or at which soil or demolition materials from the Industrial Area or the SCFA are reused must be subject to a Deed Restriction under the MCP. The deed restriction will include deed notifications identifying the specific affected locations and the reused materials. It will also restrict future uses of those locations. The locations which are expected to be subject to deed restrictions are indicated on Figure 2-3.
During the course of demolition and decommissioning activities in the formerly active industrial portion of the site, some demolition materials and soils were discovered to be contaminated by PCBs. YAEC submitted a Notification and Certification of Self-Implementing Cleanup & Disposal of PCB Remediation Waste (SCY 2005-06) to obtain EPA approval for the disposal of PCB-contaminated remediation waste and impacted soil emanating from the site industrial area. EPA approved the Cleanup Notification on June 23, 2005 (SCR 2005-03). YAEC has since been managing this material in accordance with the approval, which requires removal of PCB-contaminated material to leave a maximum of 1 ppm PCB in areas subject to unrestricted future use or 25 ppm in areas in which future use is to be restricted. Removed PCB-contaminated soils have been thermally treated on site with treated soils reused as fill if they meet the applicable contamination maximum or otherwise the treated soils are disposed of off-site.

Key site closure activities accomplished to date are itemized in Table 2-1.

2.3 Planned Site Closure Activities
YAEC anticipates that the following activities remain to be completed as part of the YNPS Site Closure Project.

- Re-grade, and replant SCFA using remaining SCFA excavation material and monitor the former landfill area;

- Characterize post-remediation and post-completion site environmental conditions through Phase II Equivalent Site Assessment Report to confirm compliance with all applicable regulatory requirements and to confirm appropriate risk reduction through combined radiological and non-radiological site-wide risk assessments;

- Confirm remediation of radiological releases as sufficient to satisfy NRC and DPH requirements through completion of the Final Status Survey and implementation of the Radiological Site Closure Compliance Plan;

- Complete site restoration, final site grading and planting;

- Monitor restoration of wetlands, habitat and riverfront and monitor landfill and groundwater post-closure conditions;

- Complete the facility decommissioning process and terminate the NRC license; and

- Establish and document appropriate environmental end-state conditions, based on applicable cleanup standards, to allow the property to be made available for and amenable to appropriate post-closure transfer.

YAEC intends to accomplish the final site restoration and grading by the Fall of 2006. Site conditions resulting from completion of the remediation and restoration activities will be documented and characterized to demonstrate achievement of applicable NRC, DPH, DEP, and EPA remediation and risk reduction standards.
The major remaining site closure activities are summarized in Table 2-2.

### 2.4 Future Property Use

YAEC has identified the portion of the site property it expects will be retained by YAEC to maintain the ISFSI until it is no longer needed (the “Yankee Controlled Area”). See Figure 2-4. Outside the Yankee Controlled Area are 1,735 acres of forested land that have not been utilized for industrial purposes. This includes 87 acres within the Town of Monroe that are across the Deerfield River from and not contiguous with the remainder of the site property. The areas outside the Yankee Controlled Area have been characterized to document environmental conditions and to confirm that there have been no adverse impacts from industrial operations. YAEC conducted an ASTM Phase I Site Assessment (SCY 2006-01) and a subsequent follow-up report (SCY 2006-05) for both the Rowe and Monroe areas outside the Yankee Controlled Area that revealed negligible impacts from YAEC operations.

YAEC is developing a plan for the ultimate release of all YNPS property. It is envisioned that the property may be released for conservation or open space to a local, state, or federal governmental or non-profit entity. To support property disposition, YAEC filed an application for Partial Site Release with the NRC on January 3, 2005 (SCY 2005-01 and SCY 2005-14) that was approved by the NRC on November 21, 2005 (SCR 2005-08).

YAEC has been engaging stakeholders in a comprehensive outreach effort to consider optimal end uses and transfer mechanisms for the site. These activities are described in Section 3.5.

Resolution of site transfer issues is one of the major pieces of the site closure process remaining to be accomplished. At present, the transfer of the larger land parcel in the Town of Rowe that will not be retained by YAEC for fuel storage will likely take the form of a lease to a municipal, non-profit, state or federal government entity who will manage the property for public conservation and recreational uses. The parcel in the Town of Monroe will likely be transferred in its entirety to a similar future owner most likely in 2006 or 2007.
SECTION 3

STAKEHOLDER COMMUNICATION AND OUTREACH

3.1 Role of Site Closure Project Plan in Stakeholder Communication

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AEC is committed to open and constructive dialogue with all stakeholders throughout the Site Closure Project. At the center of this commitment is the SCPP. Through its several versions, the SCPP has provided a current description of the project scope and objectives and provides a vehicle to communicate project progress. It has functioned as a comprehensible blueprint of the site closure process so that all stakeholders, including regulators, interested members of the public, and potential transferees of the site, may review and provide input to YAEC's plans for site closure and reuse.

The SCPP was developed as a management and communication tool. Each version of the SCPP has presented the current status of YAEC closure activities and the planned activities by which YAEC intends to complete the site closure process consistent with the project goals. The SCPP has been compiled and updated by YAEC with the assistance of three environmental firms, CLF Ventures, ERM and Gradient.

This Revision 4.0 of the SCPP describes how YAEC site closure activities will be completed in accordance with the suite of regulatory approvals and permits which YAEC has recently completed. Revision 4.0 also summarizes the extensive site closure activities that have been completed to date.

In support of site closure and disposition at Yankee Rowe, stakeholder outreach has aimed to create greater understanding of the site closure and disposition process, provide updates and obtain feedback on ongoing site closure efforts, and seek input on site reuse preferences to inform disposition planning.

To date, outreach discussions have been held with the following stakeholders (listed in alphabetical order):

- Catamount Trail Association
- Connecticut River Watershed Association
- Elected Officials
- Federal Energy Regulatory Commission (FERC)
The outreach activities described above have provided a substantial contribution to YAEC’s understanding of the interests of regulatory and other stakeholders, and have assisted YAEC in meeting their expectations. Community and regulatory stakeholders continue to report favorable impressions of the progress made. Outreach efforts around closure and disposition have yielded valuable information that will be important for
creating plans that are mutually beneficial for Yankee and stakeholders, are transparent, and also enjoy broad support from regulatory and other stakeholders.

3.2 World Wide Web (WWW)
YAEc’s site closure website has afforded an excellent opportunity for both providing and receiving timely project information, and the Site Closure Project has worked to maximize this opportunity. YAEc has established a new location for their website at www.yankeerowe.com. Up-to-date closure-related information is available in the Site Closure portion of the website at www.yankeerowe.com/siteclosure. The site closure website has been developed as an interactive communication vehicle to assist in stakeholder outreach and to receive stakeholder comments and feedback regarding the Site Closure Project. All public documents and project reports filed with regulatory agencies, all permits and approvals issued by regulatory agencies and other relevant documents are also available for viewing on the site closure website. In addition, each of the reports identified in the SCPP are available at the site closure website.

Stakeholders have indicated satisfaction with the overall usability of the Site Closure Website. For a picture of the Site Closure Project website home page, see Figure 3-1.

3.3 Public Information Repository
To supplement the site closure website, YAEc and CLFV have worked with the Greenfield Community College to create a public Information Repository. The repository is situated in the main college library and contains all relevant project information. This publicly accessible venue will assist in stakeholder information and outreach. More detailed information on library hours and directions is available on the site closure website at www.yankeerowe.com/siteclosure/res_greenfield.htm.

3.4 Stakeholder Input Mechanisms
3.4.1—Community Advisory Board
One of the most important and beneficial aspects of stakeholder information and outreach are public meetings during which YAEc and its stakeholders may engage in dialogue regarding the various aspects of the Site Closure Project. As the Site Closure Project has progressed, YAEc has provided ongoing presentations and dialogue with the Yankee Rowe Community Advisory Board (CAB). The CAB served an integral role in addressing community issues and monitoring the decommissioning from 1998 until 2005. The CAB has been the primary vehicle for public interaction for the past five years regarding YNPS activities. All CAB meetings were publicly noticed and are open to the public. Meeting minutes are published on YAEc’s website.

The CAB held its final meeting as a decommissioning advisory board in June, 2005 and its first meeting as a fuel storage and removal advisory board in October. Officially known as the Yankee Rowe Spent Fuel Storage & Removal Community Advisory Board (SFSR-CAB), the new group is established as a non-regulatory body to promote and enhance open communication, public involvement and education on the interim
storage of spent fuel and high-level waste at the former Yankee Rowe plant site, and to advocate for its prompt removal as required by federal statute and contract with the U.S. Department of Energy.

The same 16 organizations are represented on the SFSR-CAB as were on the Decommissioning Community Advisory Board, but the SFSR-CAB will meet twice a year rather than quarterly. The SFSR-CAB will function as an advisory board to monitor interim spent fuel and high-level waste storage at Yankee Rowe and to monitor and advocate for government actions and progress related to the removal of nuclear waste from the Yankee Rowe site. In addition, the SFSR-CAB may elect to establish and maintain communication with other spent fuel storage advisory boards regarding spent fuel storage, removal and transportation issues.

3.4.2—PUBLIC MEETING FOR LICENSE TERMINATION PLAN REVIEW
On June 24, 2004, a Public Meeting was held in Shelburne Falls to discuss the License Termination Plan and the NRC review process for the LTP. The purpose of the meeting was for the public to comment and ask questions of the NRC staff and YAEC regarding the LTP and ongoing fuel storage.

3.5 Property Disposition and Future Use Outreach
The property disposition education and outreach program mentioned previously in Section 2.4 strengthened existing relationships and engaged new key stakeholders at all levels. A comprehensive communications strategy was developed and implemented in support of the disposition planning.

YAEC (working with CLF Ventures) has collected input from government agencies, non-profit organizations, and community members on their vision for future uses of the property. During the period from April 2004 through February 2005, CLF Ventures conducted substantial stakeholder outreach on behalf of YAEC that sought to identify positions of regulatory and non-regulatory stakeholders on the potential reuse of the former YNPS property.

In support of disposition and reuse planning, a series of meetings were held with representatives of the following organizations:

- Massachusetts Executive Office of Environmental Affairs (EOEA): December 22, 2004
- Massachusetts Historical Commission (MHC): December 7, 2004
- Town of Monroe Select Board: January 31, 2005
- Community Advisory Board (CAB): January 19, 2005
- Franklin Regional Council of Governments (FRCOG)
- University of Massachusetts Department of Natural Resources Conservation: January 5, 2005
• Green Mountain National Forest/National Forest Service: January 11, 2005
• Massachusetts Audubon Society: December 14, 2004
• The Trust for Public Land: December 15, 2004
• New England Forestry Foundation: December 15, 2004
• The Trustees of Reservations: January 5, 2005
• The Franklin Land Trust: January 6, 2005
• Catamount Trail Association: December 5, 2004
• Connecticut River Watershed Association: February 10, 2005

The purpose of these meetings was to solicit concerns or interests that the stakeholders may have concerning disposition of the YNPS property. The majority of stakeholders expressed a desire to see the land preserved as open space for public enjoyment and conservation purposes.

At a Stakeholder Informational Meeting held on December 2, 2004, disposition plans for the site were explored and stakeholder input was collected on current property use and desired property reuse. The meeting was attended by 40-50 people including: residents of the Town of Rowe and nearby towns; representatives from the Department of Conservation and Recreation, Massachusetts Audubon Society, the Trustees of the Reservations, the Franklin Land Trust, the Deerfield River Watershed Association and the North East Association of 4-Wheel Drive Clubs. Additionally, on January 19, 2005 a presentation was made to the Yankee Community Advisory Board addressing property disposition and reporting on stakeholder feedback.

YAEC has worked to utilize a transparent process for future use planning that is reflective of stakeholder interests including regulators, community members, elected officials and ratepayers. It will continue to meet its regulatory, business, and insurance obligations in a manner that is informed by YAEC planning priorities.
SECTION 4
SITE DEFINITION

With a single exception, described below, YAEC has completed all of the site definition tasks focused on delineating the physical, ecological and cultural resources at the site. The data generated from these specific tasks has been incorporated into a Geographic Information System (GIS) to further assist YAEC and stakeholders with statistical and graphical data management.

Since publication of Revision 3.0 of the SCPP, YAEC has discovered the presence of a small population of pale green orchid (Platanthera flava var herbiola) on TransCanada property on the peninsula and on the banks adjacent to Sherman Reservoir. The pale green orchid is considered to be a threatened plant by the Commonwealth of Massachusetts. The area of the plant population was flagged to prevent any decommission-related work in the area. In addition, meetings were held with TransCanada staff members who reported that no work is anticipated in the vicinity of the plants. Field forms documenting the presence of the plant have been forwarded to the Natural Heritage Program. No further action is anticipated concerning the presence of this species at the site.

The site definition tasks completed by YAEC are described below.

4.1 American Land Title Association Survey
YAEC conducted an American Land Title Association (ALTA) survey to document the legal boundaries, as well as developing corresponding resource management plans for the site. The ALTA survey was conducted by a surveying firm licensed in the Commonwealth of Massachusetts. In addition, topographic maps of the property were developed to support this effort.

4.2 Natural Resource Inventory
YAEC prepared a Natural Resource Inventory and Management Plan (SCY 2004-04) that delineates the ecological resources associated with the YNPS. This survey took place over multiple seasons. The survey mapped and characterized the presence of natural communities on the site using a variety of remote sensing and field survey techniques. The natural communities were found, in general, not to have a high potential to harbor a large number of rare species. Nevertheless, several rare species were observed in various locations on the site, including bald eagles, bristly black currant, the spring salamander, and longnose suckers are reported to occur in Sherman Reservoir. A final
report was submitted in April 2004 and copies of this document are available on Yankee’s site closure website as well as in the Information Repository.

Prior to removing contaminated sediments from Sherman Reservoir, YAEC conducted an electro-shocking survey to ensure that no longnose suckers were in the proposed dredge area. This survey was completed prior to dredging, and no longnose suckers were observed. All captured fish, however, were relocated out of the work area to another part of the reservoir.

The Natural Resource Inventory and Management Plan concluded that compliance with the Endangered Species Act during site closure activities will require no further action on the part of YAEC. As noted above, field documentation of the presence of Platanthera flava var herbiola will be compiled to address the subsequent discovery of this species at the site.

4.3 Archeological And Cultural Resource Survey
In concert with developing a thorough understanding of the site’s natural resources, YAEC prepared an Archeological Reconnaissance Survey Plan (SCY 2003-08) to delineate the site’s archeological and cultural resources. The survey was completed in accordance with guidelines developed by the Massachusetts Historical Commission. No formal Historical and Archeological Preservation compliance measures are required based on the results of the Survey. This report was submitted to the Massachusetts Historical Commission in April 2004 and copies of the report are available on Yankee’s site closure website as well as in the Information Repository.

4.4 Astm Phase I Assessments
YAEC conducted an ASTM Phase I Site Assessment (SCY 2006-01) and a subsequent follow-up report (SCY 2006-05) for both the Rowe and Monroe properties that are outside the Yankee Controlled Area. These assessments were not required by any regulatory agency, but were conducted to evaluate and document potential sources of release to the environment and to determine if any “recognized environmental conditions,” as defined in the Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process for Forestland or Rural Property (ASTM E 2247-02), exist on the Rowe and Monroe Parcels outside of the Yankee Controlled Area.

The scope of work completed for these assessments included an on-site evaluation of existing conditions, a review of readily available site records, environmental databases, historical aerial photographs, interviews with people familiar with the site as well as a complete site walk-over.

Both the initial ASTM Phase I assessment and the follow up report revealed negligible impacts from YAEC operations. Copies of both reports are available on Yankee’s site closure website as well as in the Information Repository.
SECTION 5
REGULATORY AND PERMITTING CONTEXT AND CLOSURE PLAN

5.1 Assessment Of Potentially Relevant Regulatory Programs

To determine the regulatory context for site closure, YAEC, CLFV and ERM performed an assessment of the potentially relevant environmental regulatory requirements that could apply to the site closure for both the radiological and non-radiological environmental profile. This assessment identified a number of local, state and federal regulatory programs that would need to be addressed. A primary objective of the site closure project has been to meet these regulatory objectives while working to satisfy stakeholder issues.

Since publication of Revision 1.0, YAEC has continually refined its understanding of the relevant requirements based on extensive outreach and interactions with stakeholders and regulators. Figure 5-1 identifies the major site closure activities and the significant regulatory programs, approvals and permits which YAEC determined were necessary to conduct these site closure activities. Figure 5-1 is a matrix listing the major site closure activities across the top and the potentially applicable regulatory programs down the side. Cells in Figure 5-1 are color-coded to indicate YAEC’s current expectation of the applicability of a regulation to each site closure activity currently.

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Permit or approval required and yet to be obtained.</td>
</tr>
<tr>
<td>Blue</td>
<td>Permit or approval required and obtained.</td>
</tr>
<tr>
<td>Yellow</td>
<td>More information required to determine whether a permit or submittal will be required.</td>
</tr>
<tr>
<td>Green</td>
<td>Regulatory program not expected to be applicable to the activity.</td>
</tr>
</tbody>
</table>

YAEC structured the environmental site closure activities to comply in a coordinated way with the requirements of the applicable regulatory programs. In this way, YAEC attempted to anticipate the needs and requirements of regulatory stakeholders with significant interests in its site closure activities. This approach is also to provide to stakeholders, including potential post-closure transferees of the property, a high level of confidence that regulatory health, safety and environmental standards will be satisfied by closure activities. To date, this approach has successfully minimized having to “go back to square one” to address unanticipated compliance needs when the applicability of a regulatory program is clarified during the site closure process.
The remainder of this chapter describes the regulatory programs which YAEC determined were applicable to its site closure activities. The provisions relevant to the activities are described briefly, together with YAEC’s plan for addressing the regulatory concerns of each relevant regulatory program and the completeness status of the activities required to meet the regulatory concerns or requirements.

5.2 Radiological Regulatory Compliance Plan

The compliance pathway for regulatory programs specifically addressing radiological substances or impacts is well defined. The focal point of regulation of radiological aspects of site closure is the NRC license held by YAEC pursuant to Title 10 of the Code of Federal Regulations. Since 1992, YAEC has followed the process prescribed by the NRC to decommission the facility, release the site and terminate the NRC license and has involved stakeholders in this process. In addition, DPH has established performance standards when vacating or relinquishing control over a formerly licensed property for which YAEC has developed a compliance approach which is compatible with the NRC process despite certain differences between the DPH and NRC requirements.

**YAEC Plan:** Consistent with its overall regulatory approach, YAEC intends to demonstrate compliance with both the NRC criteria and with the DPH standards.

5.2.1—NUCLEAR REGULATORY COMMISSION REGULATIONS

One of the objectives for decommissioning the YNPS site is to reduce residual radioactivity to levels that permit release of the site for unrestricted use and for termination of the NRC license, in accordance with the Commission’s site release criteria set forth in 10 CFR 20, Subpart E. To accomplish this objective, YAEC developed and submitted a License Termination Plan (LTP) to satisfy the requirements of 10 CFR 50.82, “Termination of License,” using the guidance provided in Regulatory Guide 1.179, “Standard Format and Content of License Termination Plans for Nuclear Power Reactors.” The LTP describes the site characterization, the remaining decommissioning activities that will be performed, any remediation that may be necessary to meet unrestricted use cleanup criteria and the process for performing the Final Status Survey.

Some areas of the plant site are likely to have some residual radioactivity after YAEC completes the activities specified in its LTP. NRC regulations require that a site may not be released for unrestricted use unless the residual radioactivity distinguishable from background radiation is less than 25 mrem/yr total effective dose equivalent. NRC regulations also require that residual radioactivity be reduced to levels that are as low as reasonably achievable (ALARA), a standard that evaluates the costs and benefits of implementing technologically feasible alternatives to obtain further reduction in residual radioactivity.

In November 2003, YAEC submitted to the NRC for approval and for public review and comment an LTP based upon current regulatory guidance related to license
termination and radiological decommissioning (SCY 2003-07). An amended LTP was submitted in April 2004 (SCY 2004-20). The LTP uses the NRC’s hypothetical resident farmer scenario to develop risk-based cleanup levels, termed Derived Concentration Guideline Levels (DCGLs), based on hypothetical exposure to residual radionuclides in environmental media such as soils, sediment, water concrete, etc. The LTP also uses a building occupancy scenario to assess the residual risks from exposure to surficial contamination in structures and to establish the target concentration and surface radioactivity limits that will be the basis for demonstrating achievement of the NRC residual radioactivity criteria for unrestricted use for the YNPS site.

Completeness Status: The Citizens Awareness Network (CAN) filed contentions before the NRC questioning certain technical aspects of the LTP which were resolved after exchanges of technical information in a settlement agreement between CAN and YAEC on July 21, 2005. NRC approved the LTP on September 28, 2005 (SCR 2005-05). YAEC has completed the site characterization activities and has accomplished the structural site decommissioning phase, including demolition all above-ground structures on site. Characterization and removal or reuse of the demolition material is nearly complete as is performance of necessary remedial actions. Pursuant to the LTP, YAEC is in the final stages of conducting the necessary remedial actions to ensure that residual radioactivity levels are reduced below 25 mrem/yr and will also meet the ALARA requirements.

Final site grading/planting remains to be performed, following the completion of the Final Status Survey to confirm achievement of the NRC regulatory standards.

5.2.2—MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH REGULATIONS

The DPH’s radiological site release criteria require achieving a level of residual radioactivity less than 10 mrem/yr.

Completeness Status: YAEC has consulted extensively with the DPH and with DEP to coordinate its approach to reuse of demolition materials in order to assure consistency between the testing methods used to determine the materials that may be reused and the methods used to determine compliance with the DPH standard and the NRC 25 mrem/year residual radioactivity standard. YAEC submitted to DPH on November 23, 2005 a compliance work plan (SCY 2005-16) describing its proposed methods for complying with DPH criteria and confirming achievement of DPH standards after any necessary remediation is complete. This work plan was approved by DPH in December 2005 (SCR 2005-09) and has been adopted and implemented as part of the Final Status Survey.

5.2.3—NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) REGULATIONS

Because decommissioning and license termination of YNPS is a federal agency action, the NRC is required to assess the potential environmental impacts of this action under

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2 YAEC previously submitted a draft LTP and subsequently withdrew the submittal in order to incorporate a new federally developed and approved program for conducting final status surveys.
the National Environmental Policy Act (NEPA). NRC has previously prepared a Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities to assess the environmental impacts of decommissioning common to all nuclear facilities. See Supplement 1 to NUREG-0586, “Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (FGEIS)”. Section 8 of the LTP submitted by YAEQ evaluates the site-specific aspects of license termination activities and end-use of the site to assess whether there are any new and significant site-specific impacts from those impacts previously considered with respect to decommissioning.

Completeness Status: As part of its review and approval of the LTP, the NRC issued its Environmental Assessment and Finding Of No Significant Impact in the Federal Register on June 3, 2005 (SCR 2005-10). Based on these findings, the NRC determined that approval of the LTP will not have a significant effect on the quality of the human environment. This action completed the necessary compliance activities under NEPA.

5.3 Non-radiological Regulatory Compliance Plan

The compliance pathway for site closure activities in relation to non-radiological environmental regulatory programs is less prescriptive and potentially more complex than the compliance pathway for radiological regulatory site closure activities. The following site closure activities have required or will require YAEQ to obtain local, state or federal permits and/or regulatory approvals beyond those required for radiological regulatory compliance:

- Remediation of PCB-impacted sediment in Sherman Reservoir and the West Storm Drainage Ditch;
- Removal of shoreline structures bordering Sherman Reservoir near Sherman Dam;
- Building demolition within or bordering wetland resource areas;
- Closure of the Southeast Construction Fill Area by selective removal and off-site disposal of unused material;
- Leaving selective subsurface foundations in place;
- Reuse of concrete from above-ground structure demolition for site fill;
- Removal of subsurface utilities and restoration of site following completion of structure demolition and removal;
- Remediation of PCB-impacted soil identified in the industrial area of the site during structural decommissioning;
- Possible additional remediation of soil, sediment or groundwater based on conditions remaining after completion of structural decommissioning and initial remediation of the industrial portion of the site; and
- Property transfer.
Section 5.3 presents the regulatory compliance plan and completeness status of the non-radiological regulatory programs relevant to YAEC's site closure activities.

5.3.1—REGULATORY COMPLIANCE PLAN – LOCAL AND STATE REGULATORY PROGRAMS

Based on the activities identified above, YAEC determined that the local and state regulatory programs discussed in the following subsections are applicable to the presently contemplated site closure activities. YAEC’s compliance plan for these programs and the completeness status of its compliance activities are summarized in Table 5-1.

5.3.1.1—Massachusetts Environmental Policy Act (MEPA)

The Executive Office of Environmental Affairs (EOEA) implements the Massachusetts Environmental Policy Act (MEPA), which requires a review of projects that have the potential to damage the environment. An Environmental Notification Form (ENF) and/or Environmental Impact Report (EIR) is required if one or more of the MEPA review thresholds is exceeded and one or more regulatory permits related to the threshold are required from a state agency.

YAEC has determined that site closure activities affecting wetlands resources would exceed the Wetlands, Waterways, and Tidelands thresholds for an ENF but that no other MEPA thresholds will be exceeded. YAEC submitted an Expanded ENF (EENF) on March 31, 2004 (SCY 2004-02) identifying three sets of activities as potentially triggering these thresholds: removal of sediments from Sherman Reservoir and from the West Storm Drain; decommissioning of the circulating water intake and discharge system components located on the bank of Sherman Reservoir; and removal of the SCFA adjacent to two streams. On May 7, 2004, EOEA issued its certificate that the environmental impacts of the project do not warrant further review (SCR 2004-02). Issuance of this Certificate was a prerequisite to several of the permit proceedings that were necessary to authorize these three sets of site closure activities. The EENF and the Certificate are both available on the Yankee site closure website and at the Information Repository.

Completeness Status: A Certificate of the Secretary of Environmental Affairs was issued (SCR 2004-02) containing the determination that this project does not require the preparation of an Environmental Impact Report. All activities necessary for compliance with MEPA have been accomplished.

5.3.1.2—Wetlands Protection Act

The Wetlands Protection Act (WPA) regulates activities in wetland resource areas and associated buffer zones, which are defined as areas within 100 feet of a wetland resource area, and in the riverfront area, which includes areas within 200 feet of a river. YAEC submitted a Request for Determination of Applicability (SCY 2003-03) to the Town of Rowe Conservation Commission in May 2003 to confirm that the phase of structure demolition activities scheduled to begin in July 2003 (Phase I) would be conducted outside of the wetland resource areas and were not subject to the requirements of Wetlands Protection Act. The Town of Rowe Conservation Commission issued a negative Deter-
mination of Applicability on July 16, 2003 (SCR 2003-01), confirming that the Phase I demolition activities will not require a Notice of Intent under the WPA.

Some of the Phase II structure demolition activities—which included removal of sediments from Sherman Reservoir and from the West Storm Drain, decommissioning of the circulating water intake and discharge system components located on the bank of Sherman Reservoir, and removal of the SCFA adjacent to two streams—were to be conducted within wetland resource areas. On March 18, 2004, YAEC submitted an Abbreviated Notice of Resource Area Delineation (ANRAD) (SCY 2004-06) to the Town of Rowe Conservation Commission and the Department of Environmental Protection to confirm the classification and delineation of wetland resources in the vicinity of YNPS. Based on the ANRAD, YAEC determined that these activities required further approval under the WPA and submitted a Notice of Intent (NOI) to the Town of Rowe Conservation Commission as part of the Integrated Permit Package submitted on May 7, 2004 (SCY 2004-09) concerning these activities. The Conservation Commission issued an Order of Conditions (SCR 2004-05) for these activities. This Order of Conditions was confirmed by DEP on October 10, 2004 (SCR 2004-03). The ANRAD, the NOI and the IPP are available on the site closure website and at the Information Repository.

Completeness Status: Upon receipt of the Order of Conditions, YAEC completed its required permitting under the Wetlands Protection Act for site closure. YAEC completed two of the WPA permitted activities—removal of sediments from Sherman Reservoir and from the West Storm Drain and the decommissioning of the circulating water intake and discharge system components located on the bank of Sherman Reservoir—consistent with the Order of Conditions which set forth, in addition to the permitted activities, certain site restoration, monitoring and reporting obligations that are currently ongoing. Removal of the SCFA and off-site disposal of removed material is currently in progress.

5.3.1.3—Massachusetts Clean Waters Act
The Massachusetts Clean Waters Act requires that a Section 401 Water Quality Certificate be issued for projects that have the potential to adversely impact surface water quality. The applicant is required to provide reasonable assurance that the work will be conducted in a manner that will not violate applicable surface water quality standards (314 CMR 4). MEPA approval is required prior to the issuance of a Section 401 Water Quality Certificate. YAEC determined that two sets of site closure activities required a Section 401 Water Quality Certification: removal of sediments from Sherman Reservoir and from the West Storm Drain and decommissioning of the circulating water intake and discharge system components located on the bank of Sherman Reservoir. Upon receipt of the EOEA Certificate indicating MEPA approval, YAEC submitted the Integrated Permit Package as its application for the 401 Water Quality Certificate (SCY

Completeness Status: YAEC has completed its required permitting to receive a Section 401 Water Quality Certificate concerning the remediation of sediment in Sherman Reservoir and removal of shoreline structures. YAEC completed the permitted activities consistent with the conditions imposed by the Water Quality Certification which set forth, in addition to the permitted activities, certain site restoration, monitoring and reporting obligations that are currently ongoing.

5.3.1.4—Public Waterfront Act—Chapter 91
The Massachusetts Public Waterfront Act (Chapter 91) requires that a license or permit be obtained for projects in tideland, Great Ponds (over 10 acres in a natural state), and certain rivers and streams. The regulations are intended to ensure that public rights to fish and navigate are not unreasonably restricted and that unsafe or hazardous structures are repaired or removed. MEPA approval and a Notice of Intent are required prior to the issuance of a Chapter 91 permit. YAEC determined that removal of sediments from Sherman Reservoir required a Chapter 91 permit. Upon receipt of the EEOA Certificate indicating MEPA approval, on May 7, 2004 (SCR 2004-02) YAEC submitted the Integrated Permit Package (SCY 2004-09) as its application under Chapter 91 to satisfy the requirements of the Public Waterfront Act.

Completeness Status: YAEC has completed its permitting activities concerning Chapter 91 of the Public Waterfront Act and received the requisite approvals (SCR 2004-04). YAEC performed the permitted activities consistent with the conditions imposed by Chapter 91. There are no remaining requirements for compliance with Chapter 91.

5.3.1.5—Solid Waste Regulations (SCFA BUD)
The Massachusetts Solid Waste Regulations regulate the handling and disposal of solid waste. The SCFA is a former construction debris landfill that occupies an approximately 1.2-acre portion of the site that contains primarily native site soil (boulders and soil) removed from the footprint of the power plant during its construction. However, the presence of some non-native construction debris in the SCFA triggered the need for closure of the SCFA consistent with the Massachusetts Solid Waste Regulations. YAEC prepared an Initial Site Assessment (ISA), dated March 10, 2000 (SCY 2000-01), a Comprehensive Site Assessment (CSA), dated September 14, 2001 (SCY 2001-02), a Corrective Action Alternatives Analysis (CAAA), dated December 18, 2003 (SCY 2003-10), and has performed annual monitoring of groundwater, surface water and soil gas in the SCFA area. The CAAA was approved by the DEP on April 13, 2004 (SCR 2004-01). YAEC submitted a Corrective Action Design (CAD) to DEP on July 26, 2004 (SCY 2004-12) proposing to excavate, characterize and remove soils from the SCFA, and grading in other portions of the site and dispose of unacceptable soils and
solid waste excavated from the SCFA at off-site disposal locations. Permitting for the SCFA removal (Order of Conditions) was completed on September 9, 2004 (SCR 2004-05).

YAEC submitted an application for a Beneficial Use Determination (BUD) (SCY 2004-12 and SCY 2004-19) to authorize reuse of the landfill material which was provisionally approved by DEP on December 23, 2004 (SCR 2005-01). In the course of performing the landfill removal, PCB-contaminated and asbestos-containing landfill material was discovered, excavated, stockpiled and thermally treated (PCB laden material only) for on site reuse or transported to an off-site disposal facility pursuant to a Notification and Certification of Self-Implementing Cleanup & Disposal of PCB Remediation Waste (SCY 2005-06) approved by EPA on April 4, 2005 (SCR 2005-02). Excavation of the solid and remedial waste from the SCFA is near complete at time of publication.

_Completeness Status:_ Approval by DEP of the Corrective Action Design and the Beneficial Use Determination fulfilled the final permitting prerequisites to the removal of the SCFA and the reuse or off-site disposal of the removed material. YAEC is currently completing the permitted activities—excavation, segregation and removal of the SCFA, beneficial reuse of excavated soils as fill in the industrial area, and disposal off-site of solid wastes and unacceptable soils. This is being performed consistent with the requirements of the BUD, which prohibits reuse of soils with site-related radioactivity exceeding background levels, specifies the configuration for reuse and requires deed notification and activity and use limitations (AULs) limiting future use of fill areas. In addition, the post-completion conditions must be addressed in a site-wide risk assessment conducted in accordance with the Massachusetts Contingency Plan.

5.3.1.6—Solid Waste Regulations (Industrial Site BUD)
In September 2004, YAEC submitted an application for a BUD (SCY 2004-17) to obtain a permit to leave subsurface structures (foundations and buried utilities) in place, along with concrete and asphalt rubble generated from the demolition of site structures within the industrial footprint of the former operating plant. In July 2005, DEP issued a partial approval of the application (SCR 2005-01), subject to a series of requirements and conditions on the nature of the materials approved for reuse. Technical issues, including the specific protocols necessary to comply with DEP’s condition that materials to be reused exhibit “no distinguishable plant-related radioactivity above background,” were addressed in a further YAEC submission to DEP and DEP issued a final BUD approval in September 2005 (SCR 2005-07), incorporating modifications for approved protocols. Reuse of materials under the BUD is prohibited for all site-related radioactivity exceeding background levels. The BUD also specifies the configuration for reuse and requires a deed notification and activity and use limitations (AULs) limiting future land uses within filled areas. In addition, the BUD requires that post-completion conditions
must be addressed in a site-wide risk assessment conducted in accordance with the Massachusetts Contingency Plan.

Completeness Status: Approval by DEP of the final BUD permit for structures fulfilled the final permitting prerequisites. YAEC has completed the majority of decommissioning, testing, segregation of and reuse of materials in accordance with requirements stipulated in the BUD permit approval.

5.3.1.7—Massachusetts Contingency Plan (MCP)
The MCP regulates the notification, investigation and cleanup of releases of oil or hazardous materials (OHM) to the environment (e.g., soil, groundwater, surface water and sediment). The MCP is the primary regulatory program under which non-radiological site characterization and remediation is currently being performed at the site.

The MCP is applicable to releases of OHM discovered during the course of site investigations and decommissioning that trigger specific MCP release notification thresholds. Once a release is reported to DEP, the MCP dictates a five-phase, generally five-year process for site assessment and remediation defined as Comprehensive Response Actions.

In Spring 2000, YAEC notified DEP of the release of polychlorinated biphenyls (PCBs) contained in paint flaking from site structures, triggering response actions under the MCP. These included a Phase I-Initial Site Investigation in 2000 (SCY 2000-01) through a Phase IV-Remedy Implementation Plan (RIP) filed in April 2004 (SCY 2004-03).

As site investigations supporting plant decommissioning were completed, additional release notification thresholds were triggered for OHM discovered in soil, groundwater and sediment. In each case, YAEC completed either short-term remedial response actions (i.e., Immediate Response Actions (IRAs) or Release Abatement Measures (RAMs)), where feasible, or continued with assessment necessary to support final remedial actions under an updated Phase IV, filed in June 2005 (SCY 2005-12). Primary OHM and media addressed under the MCP included:

- **PCBs in Soil & Sediment:** Impacts to site soil and sediment from PCB-containing paint abated via excavation or dredging of soil or sediment, off-site disposal and/or on-site treatment and reuse.
- **Lead in Soil:** Impacts to site soil associated with lead from former shooting ranges and disposal of sand-blast grit abated through excavation and off-site disposal.
- **Dioxin in Soil:** Dioxin in shallow soil in portion of the former plant yard adjacent to a former incinerator was abated through excavation and off-site disposal.
- **Petroleum in Soil:** Isolated areas of petroleum impact to soil associated with former above-ground storage tanks, transmission lines, dry wells and railroad tracks.
Remedial actions included soil excavation and off-site recycling, disposal or on-site treatment and reuse.

Comprehensive Response Actions to address the release of PCB-containing paint chips from site structures to soil and sediment in the East and West Storm Drains and in Sherman Reservoir sediments have been largely completed. Initial removal efforts resulted in off-site disposal of impacted soils at licensed disposal facilities. As decommissioning progressed, the targeted volume of soil associated with the release of PCB-containing paint chips increased due to: 1) the discovery of a larger area of impact than previously anticipated; 2) practical limitations requiring removal of more than the minimal volume of soil targeted; and 3) intended over-excavation in an attempt that one round of removal would achieve target cleanup goals and expedite cleanup in advance of other decommissioning activities. As the volume of impacted soil increased, YAEC evaluated alternatives to off-site disposal that would be both more cost-effective and minimize the volume of waste requiring off-site disposal. YAEC elected to supplement off-site disposal with on-site thermal treatment by desorption. The addition of OHM other than PCBs and on-site thermal treatment via desorption required that the original Phase III- Remedial Action Plan and Phase IV-Remedy Implementation Plan be updated to reflect modifications in response actions. Therefore, in June 2005 YAEC filed an amended Phase III/IV Report (SCY 2005-12) presenting the rationale for proposed modifications in remedial objectives, alternatives and technologies.

Completeness Status: The amended Phase III/Phase IV was filed with DEP in June 2005 (SCY 2005-12). Remediation of OHM impacted soil and sediment via thermal desorption was initiated in June 2005 and completed in November 2005. An estimated 12,000 cubic yards (31.5 million pounds) of soil were treated to achieve target cleanup goals and reused in backfilling excavation areas on site Remediation waste that was not qualified for treatment was disposed off-site at a licensed facility.

5.3.1.8—MCP (Combined Voluntary Site Closure Program)
In addition to the assessment and remedial activities conducted to comply with applicable state and federal regulatory programs, YAEC and DEP entered into a voluntary agreement designed to address the combined effect of plant-related radiological and non-radiological constituents remaining at the site following decommissioning and site closure. The goal of this effort is to ensure that site closure is protective of human health, safety, public welfare and the environment for both radiological and non-radiological contaminants, since existing regulatory programs are generally applicable to one or the other but not both.

Under this agreement, DEP acts as the lead regulatory agency, coordinating with YAEC and other local, state and federal agencies on addressing combined radiological and non-radiological issues due to the separate yet overlapping authorities of the many regulatory agencies involved. The agreement adopts the MCP framework as a means of evaluating the efficacy of assessment and remedial actions in meeting site closure goals.
The final result of this process will be a “combined risk assessment” that will quantify the residual risk to human health, safety, public welfare and the environment posed by the site upon closure, with the goal of assuring and demonstrating that site closure activities have achieved an adequate level of protection under current and foreseeable future use of the site (See Section 7, Risk Assessment).

To support DEP’s review of both radiological and non-radiological site characterization and remedial efforts, YAEC prepared a Phase II-Comprehensive Site Assessment Report (Phase II Report) in January 2005 (SCY 2005-02) that summarized the source(s), nature and extent of both radiological and non-radiological constituents in the environment and what additional investigative and remedial action were planned at the site. This report was developed at DEP’s request to compile, organize and summarize information presented in many previous documents and to provide DEP with an update of ongoing assessment and remedial efforts in order for DEP to determine if additional data may be necessary to fill data gaps and/or appropriate to support the combined risk assessment.

In October 2005, DEP issued approval of the Phase II Report as an “Interim Report” (SCR 2005-06) since it did not include a risk assessment. DEP specified collection of additional data to support the risk assessment. DEP’s interim approval of the Phase II Report included interim deadlines of 1 May 2006 for installation of additional wells to support groundwater quality monitoring, submittal of a Final Phase II Report by September 2006 (including a Final Scope of Work for the risk assessment) and submittal of the risk assessment by November 2006.

**Completeness Status:** YAEC began installation of groundwater monitoring well in February 2006. Collection of additional data stipulated in DEP’s approval of the Interim Phase II Report was conducted in the spring of 2006 consistent with DEP’s interim deadlines.

5.3.1.9—Underground Injection Control (UIC) Program

The UIC program requires that floor drains which have the potential to discharge to ground must be closed and inspected to verify there has not been a release to the environment. YAEC formally closed two floor drains in accordance with UIC requirements in 2000.

**Completeness Status:** YAEC has completed its program to identify, inspect, investigate and close any other floor drains that have the potential to discharge to ground in the structures that remain on-site. No further UIC compliance activities are required.

5.3.1.10—Title 5 On-Site Sewage Treatment and Disposal

Massachusetts Title 5 regulations for septic systems establish the design standards and inspection requirements for septic systems. The YNPS facility currently has three septic systems, one of which is located on property owned by TransCanada.
**YAEC Plan:** YAEC will inspect any septic systems that will remain in place following decommissioning and will take appropriate measures to ensure these systems are in compliance with Title V prior to transferring the title of the facility that the septic system serves.

**5.3.2—REGULATORY COMPLIANCE PLAN – POTENTIALLY APPLICABLE FEDERAL REGULATORY PROGRAMS**

Based on the site closure activities identified above, YAEC determined that several federal regulatory programs were applicable to non-radiological site closure activities or environmental conditions. Section 5.3.2 describes these regulations and presents YAEC’s regulatory compliance plan and completeness status for each regulatory program. YAEC’s compliance plan for these programs and the completeness status of its compliance activities are summarized in Table 5-2.

**5.3.2.1—Resource Conservation and Recovery Act (RCRA)**

YAEC submitted an application for an interim status hazardous waste storage permit in November 1980 as a protective filing. After YAEC determined that it had not needed or utilized a hazardous waste storage permit, DEP approved YAEC’s request to revoke its protective filing status in a letter dated November 23, 1985. YAEC never operated a treatment, storage or disposal facility on site notwithstanding its original protective filing. Therefore, RCRA corrective action requirements do not apply to the YNPS facility.

YAEC is currently a Large Quantity Generator of hazardous waste and waste oil due to the volume of wastes being generated during decommissioning, specifically the management of paint waste containing PCBs. YAEC has obtained a waiver from DEP from the 90-day limit for storage of the PCB wastes and mixed wastes (i.e., wastes that are classified as radiological wastes and hazardous waste) during the course of site closure activities due to the unique nature of the waste streams and limited number of receiving facilities. All but one of YAEC’s hazardous waste storage areas have been inspected and closed in accordance with RCRA.

**YAEC Plan:** One storage area will remain in use until decommissioning activities are completed, at which point YAEC will inspect and close the area.

**5.3.2.2—National Pollutant Discharge Elimination System (NPDES)**

The facility has had an NPDES permit from EPA and the state for the discharge of storm water, service water, and non-contact cooling water from EPA and the State since the inception of the program (Permit MA 0004367). YAEC has renewed and modified the existing permit to provide for a one-time treatment and discharge of the cooling water from the spent fuel pool, which was completed without incident on October 30, 2004, for discharge of water collected from construction dewatering activities during decommissioning and remedial activities, and for the management of storm water. To facilitate the processing of water from dredged sediment containing PCBs, an NPDES
Exclusion Permit was obtained on October 7, 2004 (SCR 2004-07). Because sediment dewatering operations were completed as part of the removal of all PCB sediment, the NPDES Exclusion permit is no longer required. On December 14, 2004, YAEC requested Minor Permit Modifications (SCY 2004-21) to eliminate two of its six outfalls, as they are no longer required for the remaining site closure activities.

**YAEC Plan:** YAEC will maintain an NPDES permit at the site to manage storm water discharges in effect as long as spent nuclear fuel is stored at the ISFSI at the site.

### 5.3.2.3—Toxic Substances Control Act (TSCA)

The Toxic Substances Control Act (TSCA) regulates the remediation of releases of PCB-containing materials with greater than 50 ppm total PCBs. Some of the paint chips from weathering of site structures were found to contain PCBs at concentrations greater than 50 ppm. The remedial actions completed under the MCP for soil and sediment impacted by the paint chips and their dispersal through storm water has required compliance with TSCA. Three distinct TSCA-regulated remedial actions have been undertaken—removal of PCB contaminated soils and sediments from the East and West Storm Drains and from Sherman Reservoir, treatment and disposal or reuse of PCB-contaminated soils detected during removal of the SCFA, and treatment and disposal or reuse of PCB-contaminated soils detected during decommissioning of structures in the Industrial Area of the site. TSCA compliance for each of these remedial actions is discussed in this section.

On June 30, 2004, YAEC submitted a Risk-Based Disposal Approval Application (RBDAA) (SCY 2004-11) to obtain EPA approval for its PCB cleanup actions being performed pursuant to its MCP Phase IV Remedial Action Plan. This application included a cumulative risk assessment for sediment to support selection of the remediation goal in sediments. A cumulative risk assessment was also performed for sediments that evaluated the combined risks posed by the presence of PCBs, other non-radiological constituents such as metals and semi-volatiles, as well as radiological constituents. The RBDAA proposed a remedial goal of 1 mg/kg PCB in sediment and designated environmental dredging and off-site disposal as the recommended cleanup approach that was approved by EPA on September 28, 2004 (SCR 2004-06).

On April 4, 2005, YAEC submitted a Notification and Certification of Self-Implementing Cleanup and Disposal of PCB Remediation Waste for the SCFA (the SCFA cleanup application) (SCY 2005-06). This application described the nature and extent of impact to soil from PCBs in the SCFA, plans for cleanup and management of PCB remediation waste, contingencies for management of greater volumes of impacted soil than anticipated and property owner certification required under 40 CFR 761.61(a) (3) by YAEC. The SCFA cleanup application stipulated removal of PCB impacted soil exhibiting concentrations greater than 1 ppm in order to meet TSCA criteria for unrestricted land use following cleanup. The SCFA cleanup application was approved by EPA on April 28, 2005 (SCR 2005-02).
On May 6, 2005, YAEC submitted a Notification and Certification of Self-Implementing Cleanup and Disposal of PCB Remediation Waste (SCY 2005-09) for the industrial portion of the site (the Industrial Site cleanup application). This application described the nature and extent of impact to soil from PCBs in the industrial portion of the site, plans for cleanup and management of PCB remediation waste, contingencies for management of greater volumes of impacted soil than anticipated and property owner certification required under 40 CFR 761.61(a) (3) by YAEC. The Industrial Site cleanup application stipulated removal of PCB impacted soil exhibiting concentrations greater than 1 ppm in an effort to meet TSCA criteria for unrestricted land use following cleanup, but also included cleanup criteria of a maximum residual concentration of less than 25 ppm in the event that remedial actions were not able to achieve the 1 ppm maximum for unrestricted use. The Industrial Site cleanup application was approved by EPA on June 23, 2005 (SCR 2005-03).

Completeness Status: The removal of PCB contaminated soils and sediments from the East and West Storm Drains and from Sherman Reservoir has been completed. Certain monitoring and documentation activities, including preparation of a Final Report, are ongoing. The removal of PCB contaminated soil from the SCFA was initiated in the Fall of 2005 and targeted volumes of impacted soil were removed. The extent of impact in the SCFA was greater than the original characterization indicated and required more extensive remedial actions which are now complete. The removal of PCB contaminated soil from the Industrial portion of the site was completed in the Fall of 2005. Monitoring and documentation activities, including preparation of a Final Report are ongoing.

5.3.2.4—Federal Energy Regulatory Commission (FERC)
FERC controls certain activities performed within the boundaries of the Sherman Dam hydroelectric facility. Reconfiguration of Sherman Dam in light of YAEC’s site closure activities may require FERC approval in some form.

YAEC Plan: YAEC will work with TransCanada, which holds the FERC license, to determine specifically what filings or FERC reviews may be necessary.

5.3.2.5—Clean Water Act (CWA) Section 404
The U.S. Army Corps of Engineers (ACOE) regulates impacts to wetland areas through Section 404 of the Clean Water Act (CWA). The sediment remediation and the removal of shoreline structures were subject to these regulations and required a Section 401 Water Quality Certificate from the DEP prior to the issuance of an ACOE permit. YAEC submitted an application for a Category 2 Programmatic General Permit on May 7, 2004 as part of its Integrated Permit Package to satisfy the provisions of Section 404 (SCY 2004-09). The Water Quality Certificate was issued on October 14, 2004 (SCR 2004-03). The ACOE approved the Programmatic General Permit on October 14, 2004 (SCR 2004-08).
Completeness Status: The removal of PCB contaminated soils and sediments from the East and West Storm Drains and from Sherman Reservoir has been completed, as has the decommissioning of the circulating water intake and discharge structures which was also authorized by the ACOE permit. All compliance activities required by the Category 2 Programmatic General Permit have been accomplished.

5.3.3—REGULATORY COMPLIANCE PLAN – REGULATORY PROGRAMS NOT EXPECTED TO BE APPLICABLE
YAEC has confirmed that some of the regulatory programs it examined during its regulatory assessment are not triggered by site closure activities and will not require specific compliance measures.

5.3.3.1—Historical and Archeological Preservation (36 CFR 800)
Based on a review of Massachusetts Historical Commission files, none of the YNPS structures are designated as historic, and no historic or archeological structures are identified in the proposed project area. In response to a request from YAEC, the Massachusetts Historical Commission has issued a letter stating that the decommissioning activities are unlikely to affect significant historic or archaeological resources. YAEC prepared an Archeological Reconnaissance Survey and Archeological Resources Management Plan (SCY 2003-08) to document historical and archeological aspects of the site closure process which confirmed these conclusions.

Completeness Status: All compliance activities relevant to historical and archeological preservation compliance measures have been accomplished.

5.3.3.2—Endangered Species Act (ESA, 50 CFR 402/321 CMR 10)
Portions of the site have been mapped as Priority/Estimated Habitat that has been delineated for the Bald Eagle by the Massachusetts Natural Heritage & Endangered Species Program (NHESP). Bristly Black Currant, a Species of Special Concern in Massachusetts, was previously observed in the Town of Rowe and in 2003 was found outside a fence line for the YNPS. Longnose Suckers have been documented from three sampling stations in Sherman Reservoir. The Northern Spring Salamander was documented in a headwater portion of Wheeler Brook during surveys in 2003. The U.S. Fish and Wildlife Service has issued a letter stating that it appears that no impacts to federally-listed species will occur during decommissioning. A Natural Resource Inventory and Management Plan performed by YAEC confirmed that compliance with the ESA will require no further action. However, during the course of site closure activities YAEC identified the presence of a small population of pale green orchid (Platanthera flava var herbiola) was discovered on the peninsula, on the banks adjacent to Sherman Reservoir. The pale green orchid is considered to be a threatened plant by the Commonwealth of Massachusetts. The area of the plant population was flagged to prevent any work in the area and no work is anticipated in the vicinity of the plant. Field forms documenting the presence of the plant will be forwarded to the Natural Heritage
Program. No further action is anticipated concerning the presence of this species at the site.

Completeness Status: Apart from completion of field documentation, no further action is anticipated concerning the presence of pale green orchid at the site. As a result, compliance with the ESA will require no further action.

5.4 Conclusion
YAEC has comprehensively evaluated the state and federal environmental regulations potentially applicable to site decommissioning and site closure activities. YAEC has developed plans to achieve compliance where regulations are determined to apply. These plans incorporate a variety of environmental programs, including obtaining numerous permits and regulatory approvals. During 2005, YAEC completed the process of obtaining all significant permits and approvals necessary to perform its site closure activities. Many of the activities authorized by these have since been completed or are substantially underway. YAEC is conducting the remainder of its site closure activities consistent with the terms of the remaining outstanding permit and regulatory requirements. YAEC has also entered into a combined voluntary site closure program with DEP as the lead to ensure site closure will be protective of human health, safety, public welfare and the environment into the foreseeable future.
SECTION 6
SITE CHARACTERIZATION

Y AEC’s site closure activities have included a significant site characterization effort to collect sufficient data to ensure comprehensive regulatory compliance in both the radiological and non-radiological regulatory arenas, and to demonstrate that site closure activities meet risk and performance standards that may be required by regulators and sought by other stakeholders. Two related and coordinated site characterization programs are being conducted to support final site closure. Environmental data have been (and more continue to be) collected to evaluate radiological constituents in order to support the requirements of the LTP and for the Final Status Survey. Similarly, environmental data have been (and more continue to be) collected to characterize the nature and extent of non-radiological constituents at the site and to determine the need for and extent of environmental remediation.

YAEC has completed the major site characterization activities to support structural decommissioning and environmental remediation activities. Both the structural decommissioning and environmental remediation activities are largely completed. The current decommissioning activities and remediation consist largely of characterizing the demolition material and remediation waste piles remaining on site and reusing appropriate material as fill in final site grading or disposing off-site materials that are unsuitable for reuse, as determined pursuant to the conditions of the outstanding permits. Once these decommissioning and remediation activities reach completion, a further round of site characterization will be performed to document the resultant radiological and non-radiological conditions, to assess whether the applicable cleanup standards have been achieved and to determine whether further remediation activities are necessary to achieve any standards which remain unfulfilled.

This section describes the site characterization accomplished to date and the remaining characterization activities expected upon completion of the current decommissioning and remediation activities.

6.1 Radiological Site Characterization
The site characterization for YNPS described in Section 2 of the LTP included surveys and evaluations conducted to determine the extent and nature of the contamination at the site. A Historical Site Assessment (HSA) (SCY 2004-18) was prepared in conjunction with submission of the LTP. The HSA presents the results of a review of historical
documents, as well as measurements, samples, and analyses to further define the current conditions of the site. The HSA consists of a review and compilation of the following types of information: historical records, plant and radiological incident files, operational survey records, annual environmental reports to the NRC, and personnel interviews with present and former plant employees and contractors. As a result of the HSA and site characterization to date, all but approximately 30 acres of the 1,800-acre plant site have been identified as “non-impacted,” as defined in the current NRC guidance for radiological site survey methods. It is expected that the radiological data collected to support the LTP and Final Status Survey will sufficiently characterize the site for both LTP purposes and to support the site risk assessments. The HSA is available for review on the Yankee site closure website and at the Information Repository.

6.1.1—DATA QUALITY OBJECTIVES AND QUALITY ASSURANCE PROJECT PLANS
A Quality Assurance Project Plan (QAPP) (SCY 2005-19) for radiological site assessment activities was developed to support collection of the Final Site Status Survey data. The QAPP is based on guidance and procedures specified in MARSSIM. The QAPP specifies the sampling and analysis protocols to be used in collecting the Final Site Status Survey data.

6.1.2—GROUNDWATER SAMPLING FOR RADILOGICAL CONSTITUENTS
As described in the LTP (YAEC, 2003a) (SCY 2003-07), the first groundwater monitoring wells were installed at YNPS in the 1970s in the Radiologically Controlled Area (RCA). Groundwater investigations expanded after 1993 to support decommissioning of the plant. These earlier sampling wells were installed in the shallow groundwater zones at the site. The groundwater investigation has expanded since that time, with the installation of wells into deeper aquifer zones at the site in 2003, 2004, and 2006. Since 2003, quarterly groundwater samples have been collected for radiological constituents. The results of the quarterly sampling efforts since 2003 for radiological constituents were presented in Hydrogeological Report of 2003 Supplemental Investigation (March 2004) (SCY 2004-01) and Report of Continuing Hydrogeological Investigations in 2004 (May 2005) (SCY 2005-08). Earlier groundwater investigations are summarized in the Site Groundwater Data Collection for YNPS Decommissioning, Rev. 1 (YAEC, 2003b) (SCY 2003-09). An area of groundwater contaminated by tritium was demarcated by these sampling efforts.

The Citizens Awareness Network (CAN) filed contentions before the NRC questioning certain technical aspects of the LTP mostly related to groundwater issues. These issues were resolved after exchanges of technical information as documented in a settlement agreement between CAN and YAEC on July 21, 2005. YAEC affirmed in this settlement that it will conduct down-gradient groundwater monitoring following completion of site demolition activities to demonstrate that the Environmental Protection Agency’s

3 Non-radiological constituents have also been sampled during quarterly monitoring.
Maximum Contaminants Level ("MCL") standards are met, as consistent with the terms of the LTP.

Much of the radiological site characterization data has already been collected. However, ongoing data collection efforts for groundwater are being conducted under a set of data quality objectives developed as part of the LTP process and to satisfy DEP directives to fill data gaps necessary to support a combined risk assessment under a voluntary site closure program.

6.2 Non-radiological Site Characterization

YAEC is also conducting comprehensive groundwater, sediment and soil sampling programs for non-radiological constituents. All work has been conducted according to procedures set forth in a site-specific QAPP and associated Field Sampling Plans (FSPs). The characterization work which preceded remediation and decommissioning activities is reported in the original MCP Phase II Site Assessment Report in May 2003 (SCY 2003-01), the Baseline Environmental Report (April 2004) (SCY 2004-05), the Site Characterization Status Report (June 2004) (SCY 2004-10), and the Phase II-Comprehensive Site Assessment Report (January, 2005) (SCY 2005-02), available on the site closure website and at the document repository.

6.2.1—QUALITY ASSURANCE PROJECT PLAN AND FIELD SAMPLING PLANS

Non-radiological site characterization activities have been conducted in accordance with the project Quality Assurance Project Plan (QAPP) published on September 29, 2003 (Gradient, 2003) (SCY 2003-05), with Revision 2 issued August 6, 2004 (Gradient, 2004a) (SCY 2004-14). The QAPP conforms to DEP and EPA guidelines and requirements. YAEC used DEP and EPA guidance to specify the project organization, Data Quality Objectives (DQOs), sampling protocols, analytical methods, sample custody procedures, quality assurance/quality control procedures, and documentation procedures. The QAPP is available on the YAEC site closure website and at the Information Repository. Consistent with the overall project procedures and guidelines detailed in the QAPP, specific Field Sampling Plans for groundwater, sediment and soils were prepared to define the areas to be sampled and the chemical analyses and field procedures to be applied in specific circumstances. Separate Field Sampling Plans for groundwater, soil, sediment and surface water field sampling activities have been used in all ongoing site characterization activities.

6.2.2—DATA USABILITY REPORTS

Data usability assessments have been conducted on the environmental characterization data collected historically (e.g., beginning in 1997), and are currently being conducted for ongoing data collection efforts, to assess their usability for site risk assessments and environmental site closure purposes. It is anticipated that the historical data collected

4 QAPP revisions reflect updates to analytical methods, additional laboratories, etc. The QAPP is currently undergoing its third revision, with an expected publication date before the end of the year, which will be available on the YAEC web site and document repository when issued.
prior to site investigations beginning in 2000 pursuant to the MCP will be used qualitatively. However, only data that are usable following current DEP and EPA guidelines will form the basis for the final site characterization and site closure.

YAECS environmental subcontractor, Gradient, conducted a data usability assessment of the historical data collected from 1997 through 1999 (e.g., prior to MCP-related investigations). Gradient reviewed the available laboratory quality control procedures and results in order to determine whether these historical data meet data quality objectives sufficient to satisfy DEP and EPA guidelines. In addition to these historical data, Gradient also assessed the data usability of samples collected to support MCP-related site investigation activities beginning in 2000. Using approved DEP and EPA guidelines to assess environmental data quality/usability, all usable and non-usable data from these sampling periods were identified in a series of data usability memoranda issued to YAECS from June through September 2003.

With the development of the project QAPP in September 2003 (SCY 2003-05), continuing data validation and data usability have been conducted pursuant to the QAPP. As of this writing four data usability reports have been issued that cover the following sampling time-periods:

- 2003—Summer/Fall soils and sediment sampling (Gradient, 2004b)
- 2004—Q3 groundwater sampling (Gradient, 2004c)
- 2004—Q4 groundwater sampling (Gradient, 2005a)
- 2005—Q1 groundwater and 2004 July – December Soils/Sediment sampling (Gradient, 2005b)

6.3 Site Characterization Reports
The Baseline Environmental Report (BER) (SCY 2004-05), published on April 30, 2004, provided a general description of the site’s physical characteristics, YNPS historical operations and decommissioning efforts. The BER also provided an overview of site environmental conditions based on past and ongoing site characterization efforts.

A Site Characterization Status Report (SCY 2004-10) was published on June 4, 2004 which summarized the methods employed and the results obtained from assessment of site soil, groundwater and sediment quality between June 2003 and March 2004. This Site Characterization Status Report is available on the Yankee site closure website and at the Information Repository. Additional site characterization reports published since include Hydrogeological Report of Supplemental Investigation (March 2004) (SCY 2004-01), Phase II Comprehensive Site Assessment Report (January 2005) (SCY 2005-

5 The earlier usability assessments adopted the same general procedures. Some of the historical data collected prior to the investigations beginning in 2000 under the MCP had more limited laboratory QA/QC information as compared to those data collected since 2000.
6.4 Remaining Site Characterization Activities

6.4.1—AMENDED PHASE III AND AMENDED PHASE IV ACTIVITIES
The majority of Phase III and Phase IV cleanup actions were completed at the site in 2005. Remaining areas will be addressed in the Spring-Summer of 2006. See Section 5.1.3.6 for more detail.

6.4.2—PHASE II EQUIVALENT SITE ASSESSMENT
Phase II assessment activities stipulated in DEP approval of the Interim Phase II Report are targeted to begin with installation of additional groundwater monitoring wells in January 2006 followed by additional soil, groundwater, surface water, sediment and fish tissue sampling and analysis in the Spring of 2006. See Section 5.1.3.6 for more detail.

6.4.3—FINAL STATUS SURVEY
YAEC developed and submitted a License Termination Plan (LTP) (SCY 2003-07) to satisfy the requirements of 10 CFR 50.82, “Termination of License,” using the guidance provided in Regulatory Guide 1.179, “Standard Format and Content of License Termination Plans for Nuclear Power Reactors.” The LTP describes the site characterization, the remaining decommissioning activities that will be performed, any remediation that may be necessary to meet unrestricted use cleanup criteria and the process for performing the Final Status Survey (FSS). The Final Status Survey field work is nearing completion with over 95% of the property surveyed and in the process being documented for NRC review and approval. All FSS packages are expected to be submitted to the NRC by the end of 2006.
SECTION 7
RISK ASSESSMENTS

Environmental risk represents an estimate of the probability or likelihood that exposure to a particular chemical or radionuclide in the environment may result in an adverse effect on human health, or an adverse effect on the health of an ecological system. Several of the regulatory programs with which YAEC seeks to comply require quantitative assessment of environmental risk posed by site conditions. Evaluation of environmental risk is performed to ensure that post-closure conditions will not exceed the level of risk appropriate to the expected future property use.

YAEC has incorporated comprehensive risk assessment procedures in its site closure activities, with respect to both radiological and non-radiological conditions at the site. These procedures are being used to determine any remediation or risk-management efforts that may be necessary so that resultant post-closure risk levels are acceptable according to regulatory requirements consistent with future disposition of the site. In addition to meeting the regulatory requirements for evaluation of risk, the YNPS risk assessments will support a demonstration of due diligence for potential future owners of the property. The risk assessments, like the site characterization activities, address both the industrial portion of the site and the surrounding 1,800 acres of non-industrial property.

7.1 Radiological Dose-Based Assessment (NRC/DPH)
The YNPS nuclear license termination requires cleanup of radionuclides to meet risk-based Derived Concentration Guideline Levels (DCGLs) according to NRC guidelines. Acceptable levels of radionuclides (DCGLs) that can remain in soil or groundwater were calculated in the LTP to be consistent with the NRC target of a total dose of 25 mrem/year above naturally occurring background radiation to a future hypothetical “resident farmer.” The DPH requires a lower total dose from radionuclide exposure, of 10 mrem/year, for evaluating acceptable environmental levels of radionuclides when vacating or relinquishing control over a premises containing residual radioactivity. Compliance with the NRC and DPH targets will be demonstrated after decommissioning and remediation activities are completed based on sampling of site conditions during the Final Status Survey (FSS). Sampling will be conducted both before and after

6 This is a standard NRC exposure scenario and does not imply actual future use of the site for agricultural purposes.
final site grading and restoration. Compliance with the NRC dose limits will be demonstrated using the Final Status Survey approach specified in the LTP. Compliance with DPH guidelines will be demonstrated in accordance with a Radiological Site Closure Compliance Plan submitted by YAEC in November 2005 (SCY 2005-16), approved by DPH in December 2005. (SCR 2005-09).

Completeness Status: Risk-based DCGLs necessary to achieve NRC radiological cleanup standards have been calculated for soil, sediment, groundwater, and concrete as described in the LTP, which received NRC approval in September 2005 (SCR 2005-05). Upon completion of current decommissioning and remediation activities, the FSS measurements will confirm attainment of the cleanup levels (DCGLs). A proposal for demonstrating compliance with the DPH 10 mrem/yr guideline is pending review by DPH.

7.2 Combined Radiological Non-radiological Assessment (DEP/EPA)
In contrast to the "dose-based" risk assessment approach for radionuclides described above, the risk assessment requirements of the MCP do not distinguish between cancer risks caused by radionuclides and non-radionuclides (i.e., "chemicals"). Thus, a risk assessment pursuant to the MCP involves "cumulative" cancer risk assessment for radionuclides and chemicals combined. In addition, the MCP requires an evaluation of non-carcinogenic health impacts of chemicals. The MCP specifies risk-based criteria to determine acceptable residual levels of constituents in the environment based on future site use, which require attaining acceptable environmental levels for plausible exposure scenarios. The MCP target cancer risk from all environmental contaminants combined is $1 \times 10^{-5}$ above background risk levels, which is equivalent to an incremental lifetime risk of cancer of 1 case in 100,000 exposed individuals. For non-carcinogenic impacts, the MCP defines a Hazard Index of 1.0 as acceptable, where the Hazard Index represents the estimated exposure level relative to a level of exposure considered to be safe. EPA has risk assessment guidance that is very similar to DEP’s and will be incorporated as appropriate.

As part of its Phase II Equivalent Site Assessment (SCY 2005-02), YAEC will follow DEP risk assessment practice, including EPA guidance as necessary and appropriate, that requires cancer estimates for carcinogenic constituents (e.g., both radionuclides and non-radionuclides) to be summed together.

YAEC Plan: Upon completion of current decommissioning and remediation activities and the final Phase II Comprehensive Site Assessment Report (SCR 2005-06 and SCY 2005-02), YAEC will conduct its risk assessment to identify any remediation activities necessary to achieve compliance with DEP’s $1 \times 10^{-5}$ target cancer risk level for combined radionuclide and non-radionuclide constituents, both before and after final site grading and restoration.

7 For example, DEP does not provide guidance on risk calculation for radionuclides, whereas EPA does have published guidance on this topic.
7.2.1—HUMAN HEALTH RISK ASSESSMENT PLANS

The first step in conducting a risk assessment is to develop a Risk Assessment Work Plan (SCY 2006-03), which describes the methodologies that will be employed in the risk assessment. The work plan has been distributed for review by appropriate regulatory stakeholders to ensure that all regulatory requirements are satisfied.

MCP Method 3 risk assessment procedures for Human Health Risk Assessment (HHRA) provide guidelines for site-specific risk assessment for carcinogenic compounds (e.g., radionuclides and non-radionuclides) in site soils, sediments, surface water, and groundwater. The site characterization activities described in Section 6, outlining the non-radiological and radiological site characterization activities, will provide the data for assessing cancer (radionuclides and non-radionuclides) and non-cancer (non-radionuclides) risks according to MCP Method 3 procedures.

Although the ultimate disposition (use/ownership) of the entire 1800-acre site has not been finalized, a portion of the site that encompassed the former industrial area will be subject to re-use of soil and concrete material for fill and site grading originating from the Industrial Site demolition and the SCFA removal. In addition, this area of the site (see Figure 2-3) is likely to be subject to an Activity Use Limitation, limiting future activities within this area. The BUD and AUL will thereby limit potential future exposure to any residual constituents in the area of the site subject to the BUD and AUL. In addition, the ISFSI is fenced and guarded, precluding any exposure in that area.

The remainder of the site will not have restrictions that would limit potential human exposure. These considerations will shape the exposure and risk assessment for the site under Method 3 guidelines as described in the January 2005 draft human health risk assessment work plan (Gradient, 2005b). The Method 3 risk assessment will form the basis for determining the cleanup goals and remedial action levels necessary for future site use.

Completeness Status: YAEC prepared a final work plan for evaluating human health risks to combined radionuclide and non-radionuclide constituents at the YNPS Site consistent with MCP Method 3 procedures. The final work plan was submitted to the DEP with copies to EPA in September 00 (SCY 00-0). The HHRA work plan described the protocols for developing the list of contaminants of concern that will be assessed in the risk assessment, the exposure pathways, and the methodology for combining radionuclide and non-radionuclide risks. The work plan listed the guidance documents that will be considered and/or followed in performing the risk assessment, and included a tabular summary of those areas where DEP and EPA risk assessment guidance differ (e.g., exposure factor differences). The work plan is the first step in performing the risk assessment, and will allow stakeholder review and input early in the risk assessment process. The MCP Method 3 risk assessment will be conducted upon completion of current decommissioning and remediation activities before the site grading is completed. The risk assessment will evaluate these post-remediation conditions as well as the conditions reflecting completion of the final site restoration.
7.2.2—ENVIRONMENTAL RISK ASSESSMENT PLANS

Similar to the Human Health Risk Assessment, the first step for the Environmental (i.e., Ecological) Risk Characterization involves the development of a work plan identifying methods and procedures to be adopted. An Environmental Risk Characterization Work Plan was submitted to the DEP with copies to the EPA in January 2005. Subsequent to meetings and comments from the DEP, with input from the EPA, a more detailed “Environmental Risk Characterization Problem Formulation” was submitted to the Agencies in May 2005. A final work plan was submitted to the DEP with copies to the EPA in September 2006 (SCY 2006-04). These work plans describe the guidance and methodologies that will be followed in the Ecological Risk Characterization. The work plans are available for review by interested stakeholders who may provide input prior to initiation of the risk assessment itself.

MCP Method 3 guidelines identify the procedures for assessing ecological risks at the YNPS Site. These guidelines call for a two-stage process. Stage 1 is the performance of an Environmental Screening, which may or may not be followed by performance of a Stage 2 Risk Characterization, depending on the Stage 1 results.

The MCP Stage 1 Environmental Screening for the YNPS Site will identify site-appropriate ecological receptors of potential concern, such as particular wildlife, fish and plants, together with any Areas of Critical Environmental Concern, Species of Concern, Threatened Species, or Endangered Species. If a Stage 2 Risk Characterization is found to be necessary for the YNPS Site, it will take into consideration any remediation planned or conducted as a result of the LTP and/or HHRA. In addition, the Environmental Risk Characterization will take into consideration those areas of the site described above that will be the subject of the BUD and AUL. The acceptable risk target under the MCP Method 3 guidelines is a Hazard Index of 1 for each potential ecological receptor. The Stage 2 Risk Characterization would quantify the relevant Hazard Indices and serve as the basis to determine whether any additional remediation for protection of ecological habitats would be required for receptors.

Completeness Status: YAEC submitted a draft work plan for the YNPS Site Ecological Risk Assessment in January 2005 to DEP with copies to EPA. Subsequently, YAEC submitted an expanded Problem Formulation to DEP with copies to EPA in May 2005. A final work plan was submitted in September, 2006 (SCY 2006-04). These work plans describe the methodologies to be used in the Stage 1 assessment, and Stage 2 assessment, if necessary, and list guidance documents and primary literature that will serve as the basis of the work. The work plans are the first step in performing the risk assessment, and will allow stakeholder review and input early in the risk assessment process. The MCP Method 3 risk assessment will be conducted upon completion of current decommissioning and remediation activities before the final site grading is completed. The risk assessment will evaluate these post-remediation conditions as well as the conditions reflecting completion of the final site restoration.
7.2.3—RISK ASSESSMENT TO SUPPORT PCB CLEANUP UNDER TSCA
YAEC prepared ecological and human health risk assessments to support the risk-based PCB cleanup level associated with remediation of sediment in Sherman Reservoir and the West Storm Drain to address elevated PCB levels under TSCA. These risk assessments considered contaminants in addition to PCBs that may be present in Sherman Reservoir or West Storm Drain sediments. The Risk-Based Disposal Approval Application (SCY 2004-11) evaluated the existing radionuclide data for Sherman Reservoir sediments, and combined that information with the August 2003 sampling results for non-radionuclides, in addition to prior PCB sampling results from 2000 and 2002, to use as the basis of the risk calculations.

Completeness Status: The RBDAA was approved by EPA on September 28, 2004 (SCR 2004-06), based on a residual sediment concentration of 1 mg/kg PCB, which would achieve a level of risk reduction resulting in no significant risk remaining in the remediation areas. The remediation of the Sherman Reservoir and West Storm Drain sediments has been completed and confirmatory sampling has demonstrated achievement of the approved PCB cleanup level.

7.3 Conclusion
The YNPS Site has been subject to a variety of risk assessment requirements and will be expected to meet acceptable risk criteria set forth by NRC, DPH, DEP and EPA in order to ensure the acceptability of future site use. Upon completion of the decommissioning and remediation activities, YAEC will have conducted several site risk assessments:

- Radionuclide dose-based risks have been assessed to develop radionuclide cleanup levels (DCGLs) as described in the LTP, which has been approved by the NRC. The NRC-acceptable dose limit is 25 mrem/year above naturally occurring background radiation.

- Radionuclide dose will also be assessed for comparison to the DPH 10 mrem/year limit. A work plan has been developed and submitted to DPH for approval, which describes the methodology by which this comparison will be made.

- Combined radionuclide and non-radionuclide cancer risk to human health will be assessed in the Human Health Risk Assessment under the MCP following DEP guidance, supplemented by EPA guidance as necessary and appropriate. The acceptable cancer limit from combined radionuclide and non-radionuclides is $1 \times 10^{-5}$ (assessed as an increment above background). Non-cancer hazards for non-radionuclides will also be evaluated and compared to the Agency benchmark, a Hazard Index of 1.0.

- Ecological risks will be assessed according to the MCP following DEP guidance, supplemented by EPA and other relevant guidance as necessary and appropriate.
Generally, a Hazard Index of 1.0 for each potential ecological receptor is the Agency benchmark used to evaluate the potential for adverse impacts.

- The Human Health and Ecological risk assessments will rely upon radionuclide data collected to support the LTP and FSS, together with chemical data collected to support overall site closure under the MCP.

- Human health and ecological risks associated with exposure to PCBs, radionuclides, and other non-radionuclides in Sherman Reservoir and West Storm Drain sediments were evaluated to support the 1.0 mg/kg cleanup goal and remediation action level for PCBs in sediment, approved by EPA. Remediation of the Sherman Reservoir and West Storm Drain sediments has been completed and confirmed to meet this cleanup criteria.
SECTION 8
REMEDIATION PLAN

8.1 Overview Of Remediation Activities

Remedial actions at the YNPS have been required to abate radiological and non-radiological environmental constituents in soil and sediments and from decommissioning and demolition of site structures. Where feasible, remediation has targeted excavation and off-site disposal or on-site treatment of contaminated materials that exceed regulatory standards for unrestricted future use of the site. For materials contaminated by radiological constituents, the standard has been set to require off-site removal of any material from site remediation or demolition activities which have plant-related levels of radioactivity above background levels. This standard, set by the BUD for reuse of soils and demolition materials from the Industrial Site, applies to concrete and asphalt rubble from demolition of site structures, certain sub-grade foundations and slabs listed in the BUD, buried utilities and SCFA materials. For PCB-contaminated soils and sediments, the regulatory standard, set under TSCA and the MCP, is 1 mg/kg PCB. All such materials will be subject to the S-2/GW-1 soil and groundwater standards of the MCP.

As part of the YNPS remediation and restoration, certain materials are being beneficially reused and others will remain beneath the surface as summarized below:

• Thermal treatment and reuse as grading or fill material of PCB contaminated soils with concentrations less than 1 mg/kg PCB from the SCFA or from the Industrial Area decommissioning;

• Reuse as grading or fill material of soils and other non-native materials excavated from the SCFA, so long as the PCB or background radioactivity levels have not been exceeded; and;

• Sub-grade foundations, slabs and buried utilities that have no plant-related radioactivity above background levels will remain in place.

Areas on-site which receive remediation or decommissioning materials for re-use as fill or grading material will be subject to an Activity and Use Limitation (AUL) restricting their future uses.

In addition to the above, complete characterization of groundwater contaminated by tritium and monitoring to confirm compliance with Maximum Contaminant Levels
and LTP standards is a further component of the site remediation program. This characterization will be completed in the Phase II Comprehensive Site Assessment Report and the FSS.

YAEC Plan: YAEC will conduct characterization, segregation and staging of the remediation and decommissioning material necessary to assure that materials exceeding the thresholds of radiological or non-radiological contamination specified in the applicable regulatory approvals and permits are disposed at appropriate off-site facilities and that only appropriate materials which meet these thresholds are re-used as fill or grading material.

8.2 Site Restoration Activities
Restoration of wetlands disturbed during removal of sediments from the West Storm Drainage Ditch was completed in October 2005. These activities included that placement of fill and plantings as outlined in the Wetland Restoration Plan approved by DEP, with DEP approved modifications for changes in fill areas and types and plant types due to the additional removal work required to achieve cleanup goals and the availability of plant types at the time of the restoration.

8.3 Post-remediation, Post-decommissioning Monitoring Activities
YAEC will conduct post-remediation/post-decommissioning of groundwater quality to confirm that natural attenuation of groundwater impacts on the site continues as expected. Plans for groundwater monitoring will be submitted for regulatory approval prior to completion of site decommissioning activities in 2006. Monitoring of the success of wetland restoration will continue in 2006 and beyond to ensure survival of planting or replacement as necessary.

8.4 PCB Remediation Completeness Status
The most significant environmental remediation project conducted at the site is the investigation and cleanup of soil, wetlands and sediment contamination resulting from chips of PCB-containing paint used to coat building surfaces at the facility. This remediation consisted of environmental dredging and excavation, removal and off-site disposal of paint chips with PCBs contained in the soils and sediments from Sherman Reservoir, adjacent shoreline areas and upland areas of contamination. These response actions were completed during the spring of 2005.

Both soil and sediment remediation was completed in accordance with the MCP’s Permanent Solution standard and the relevant TSCA requirements. These response actions restored the East and West Storm Drains and the Sherman Reservoir sediments to a condition of “No Significant Risk” under MCP performance standards for a Permanent Solution and comply with the remediation standards identified in the cumulative risk assessment submitted with the Risk-Based Disposal Approval Application.
8.5 Other Remediation Activities
The need for and type of any other remediation to address risks from radiological and non-radiological constituents after completion of the current remediation and decommissioning activities will be determined by the results of the site characterization activities described in Section 6 and the risk assessment results described in Section 7, to be performed both before and after site restoration and grading.
REFERENCES


U.S. Nuclear Regulatory Commission, Supplement 1 to NUREG-0586, “Final Generic Environmental Impact Statement on Decommissioning of Nuclear Facilities (FGEIS).”
REFERENCE GUIDE

Below is a list of references that document the site closure process for the Yankee Rowe Nuclear Power Station. The numbers indicate whether the document came from YAEC (SCY) or came to YAEC from a regulatory agent (SCR), the year the document was circulated, and a number. For example, SCY 2003-08 indicates that document number eight was submitted by Yankee in 2003, and SCR 2003-03 indicates that document three was received by YAEC from a regulatory agency in 2003. Documents can be found on the YAEC site closure website at www.yankeerowe.com/siteclosure and at the Information Repository at the Greenfield Community College by title and reference number.


Revision 1.” October 20, 2003.

Power Station’s License Termination Plan (LTP).” November 19, 2003.

Survey and Archaeological Resource Management Plan.” Prepared by the Public


Notification Form (EENF).” March 31, 2004.


Prepared by Environmental Resources Management. April 30, 2004

Area Delineation.” Prepared by Woodlot Alternatives, Inc. and Environmental
Resources Management. March 18, 2004


**SCR 2005-02.** United States Environmental Protection Agency, Region I. “Approval for Cleanup and Disposal of PCB Remediation Waste under 40 CFR and §§761.61(a) and (c); Southeast Construction Fill Area.” April 28, 2005.

**SCR 2005-03.** United States Environmental Protection Agency, Region I. “Approval for Cleanup and Disposal of PCB Remediation Waste under 40 CFR and §§761.61(a) and (c).” June 29, 2005.

**SCR 2005-04.** Massachusetts Department of Environmental Protection, Western Regional Office. 2005. “MADEP Solid Waste Permitting; Beneficial Use Determination (BUD); Subsurface Structures/Concrete Rubble; Permit Approval.” August, 2005.


**SCR 2005-09.** Massachusetts Department of Public Health and Human Services; Department of Public Health, Center for Environmental Health, Radiation Control Program. “Plan for Demonstrating Compliance with 10 mrem/yr Criterion of 105 CMR 120.291.” December 16, 2005.

FIGURE 2-1: Site Location
FIGURE 2-2: NRC Part 50 Licensed Area Based on Partial Site Release
FIGURE 2-3: Areas Likely to be Subject to Deed Restriction and/or Activity and Use Limitations
**FIGURE 3-1: Yankee Site Closure Project Home Page**

### What's New
March 15, 2004

**Short Term**
1. Abbreviated Notice of Resource Area Delineation
2. Site Closure Project Brochure
3. Expanded Environmental Notification Form

### Coming up soon
1. Site Closure Project Brochure
2. Comprehensive Wetland Permit Application Package
   - Wetlands Permit
   - Water Quality Permit
   - Public Waterfront Act
   - Wetlands Notice of Intent

### Site Closure at Yankee Rowe

Site closure is the final phase of the decommissioning process at the Yankee Nuclear Power Station. It includes completing physical decommissioning, conducting a thorough environmental investigation of the site, completing remediation activities, and eventually transferring the property.

The site closure project is proceeding at the Yankee Nuclear Power Station. The process is expected to be substantially complete by 2009. The latest progress benchmark is the release of the Site Closure Project Plan.

This section of the Yankee Rowe web site provides summary information about the site closure process, and provides links to more detailed information. Throughout the web site you will find information that describes our site clean up procedure, regulatory benchmarks, and the public input and communications process. This site also provides links to the Site Closure Project Plan. Look for this document as well as other detailed information in our Resource Center.

Site clean up and related procedures will be guided by four principles:

### Project Library
Instant access to important documents:
- Site Closure Project Brochure [pdf]
- Site Closure Project Plan [pdf]
- License Termination Plan [pdf]
- LTP Abbreviated Notice of Resource Area Delineation [pdf]
- Abbreviated Notice of Resource Area Delineation [pdf]

Or visit the Site Closure Information Repository
Greenfield, Mass.

### Site Overview

**Resources**
- Project Library

**Progress**
- What's New
- Site Investigation
- Site Clean Up procedures
- Regulatory Benchmarks
### FIGURE 5-1: Environmental Closure Regulatory Summary

<table>
<thead>
<tr>
<th>Regulatory Program</th>
<th>Agency</th>
<th>Building Demolition</th>
<th>PCB Paint Chip Remediation</th>
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<td>LTP</td>
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<td>Title 5—Massachusetts Environmental Code (310 CMR 15)</td>
<td>DEP</td>
<td>NA</td>
<td>NA</td>
</tr>
</tbody>
</table>

1 Activities will occur on property not owned by Yankee. Activity may require coordination with property owner (USGen NE).

See key on following page  September 2006 • Revision 4
### FIGURE 5-1: Environmental Closure Regulatory Summary cont.

**Key**

<table>
<thead>
<tr>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red</td>
<td>Regulatory agency approval or permit required</td>
</tr>
<tr>
<td>Blue</td>
<td>Regulatory agency approval or permit required</td>
</tr>
<tr>
<td>Yellow</td>
<td>More detailed information, meeting with agency required, or work scope not defined required</td>
</tr>
<tr>
<td>Green</td>
<td>No action required</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACOE</td>
<td>Army Corps of Engineers</td>
</tr>
<tr>
<td>ANRAD</td>
<td>Abbreviated Notice of Resource Area Delineation</td>
</tr>
<tr>
<td>BUD</td>
<td>Beneficial Use Determination</td>
</tr>
<tr>
<td>CAAA</td>
<td>Corrective Action Alternatives Analysis</td>
</tr>
<tr>
<td>CAD</td>
<td>Corrective Action Design</td>
</tr>
<tr>
<td>CEQ</td>
<td>Council on Environmental Quality</td>
</tr>
<tr>
<td>CMS</td>
<td>Corrective Measures Study</td>
</tr>
<tr>
<td>DEP</td>
<td>Massachusetts Department of Environmental Protection</td>
</tr>
<tr>
<td>DPH</td>
<td>Massachusetts Department of Public Health</td>
</tr>
<tr>
<td>EIR</td>
<td>Environmental Impact Report</td>
</tr>
<tr>
<td>ENF</td>
<td>Environmental Notification Form</td>
</tr>
<tr>
<td>EOEIA</td>
<td>Executive Office of Environmental Affairs</td>
</tr>
<tr>
<td>EPA</td>
<td>U.S. Environmental Protection Agency</td>
</tr>
<tr>
<td>IP</td>
<td>Individual Permit</td>
</tr>
<tr>
<td>LTP</td>
<td>License Termination Plan</td>
</tr>
<tr>
<td>RAM</td>
<td>Release Abatement Measure</td>
</tr>
<tr>
<td>NA</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>NRC</td>
<td>Nuclear Regulatory Commission</td>
</tr>
<tr>
<td>NOI</td>
<td>Notice of Intent</td>
</tr>
<tr>
<td>PGP</td>
<td>Programmatic General Permit</td>
</tr>
<tr>
<td>RFA</td>
<td>RCRA Facility Assessment</td>
</tr>
<tr>
<td>RFDA</td>
<td>Request for Determination of Applicability</td>
</tr>
<tr>
<td>RFI</td>
<td>RCRA Facility Investigation</td>
</tr>
<tr>
<td>RIP</td>
<td>Remedy Implementation Plan</td>
</tr>
<tr>
<td>WQC</td>
<td>Water Quality Certification</td>
</tr>
</tbody>
</table>
TABLES
### TABLE 2-1: Site Closure Activities Accomplished to Date

<table>
<thead>
<tr>
<th>Project</th>
<th>Activity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dry Fuel Storage (ISFSI)</strong></td>
<td>Construction of ISFSI Compound</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Fabrication of Dry Cask Storage System (Casks, Lifting Equipment)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>DOE Fuel Loading Notifications</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>NRC Part 72 Notifications</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Fuel Transferred from Wet to Dry Storage</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Spent Fuel Pool Drained and Decontaminated</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>License Termination Plan (LTP)</strong></td>
<td>Develop Schedule for LTP Development</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Draft LTP for Stakeholder Review/Comment – Fall 2003</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit LTP for NRC Review – Fall 2003</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>LTP Public Meeting</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>NRC Safety Evaluation Report Issued</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>NRC Licensing Board Hearing (if Necessary)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>LTP Approval</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Obtain Partial Site Release</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Complete Decontamination/Dismantlement</strong></td>
<td>Major Commodity Removals</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>(4) Steam Generators/Pressurizer</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Reactor Pressure Vessel</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Major Building Demolition</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Diesel Generator Building</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Safety Injection Building</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Warehouse &amp; Service Building Annex</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Demolition of All Industrial Site Structures (above grade)</td>
<td>Complete</td>
</tr>
<tr>
<td><strong>Environmental and Site Closure Activities</strong></td>
<td>Site Closure Project Plan (SCPP)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Site Assessments for Southeast Construction Fill Area (SCFA)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>SCFA Site Closure Determination (Removal)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit SCFA Corrective Action Alternatives Analysis (CAAA)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit BUD Applications for SCFA</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit Corrective Action Design for SCFA</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Obtain DEP Approval of BUD Permit (SCFA)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>PCB Phase II Site Investigations under MCP</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit PCB Phase II/III Report (MCP)</td>
<td>Complete</td>
</tr>
<tr>
<td></td>
<td>Submit Project Phase I Demo Wetlands Determination</td>
<td>Complete</td>
</tr>
</tbody>
</table>
TABLE 2-1: Site Closure Activities Accomplished to Date cont.

<table>
<thead>
<tr>
<th>Project Activity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCP Limited Removal Actions, Immediate Response Measures, Release Abatement Measures in Soil (lead, PCB and petroleum)</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Beneficial Use Determination (BUD) Application (Subsurface Structures)</td>
<td>Complete</td>
</tr>
<tr>
<td>Obtain DEP Approval of BUD Permit (Subsurface Structures)</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Expanded Environmental Notification Form for Massachusetts Environmental Policy Act (MEPA)</td>
<td>Complete</td>
</tr>
<tr>
<td>Obtain MEPA Certification that no further review is required</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Consolidated Wetlands Permitting Package – Chapter 91, Section 401, Notice of Intent</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Risk-Based Cleanup and Disposal Application (RBDA) under the Toxic Substances Control Act (TSCA)</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Phase IV Remedy Implementation Plan for Massachusetts Contingency Plan (MCP)</td>
<td>Complete</td>
</tr>
<tr>
<td>Obtain Necessary Wetland Permits and Approvals – Chapter 91, Section 401, Notice of Intent, RBDA</td>
<td>Complete</td>
</tr>
<tr>
<td>PCB Sediment Remediation</td>
<td>Complete</td>
</tr>
<tr>
<td>Complete Wetlands West Storm Drain Restoration</td>
<td>Complete</td>
</tr>
<tr>
<td>Decommissioning of circulating water intake and discharge structures</td>
<td>Complete</td>
</tr>
<tr>
<td>Submit Baseline Environmental Report (BER)</td>
<td>Complete</td>
</tr>
<tr>
<td>Draft Human Health Risk Assessment Workplans</td>
<td>Complete</td>
</tr>
<tr>
<td>Draft Ecological Risk Assessment Workplans</td>
<td>Complete</td>
</tr>
<tr>
<td>Initiate Phase II Equivalent Site Assessment</td>
<td>Complete</td>
</tr>
<tr>
<td>DPH Radiological Site Closure Compliance Plan Approved</td>
<td>Complete</td>
</tr>
</tbody>
</table>
**TABLE 2-2: Planned Site Closure Activities**

<table>
<thead>
<tr>
<th>Project Activity</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>License Termination Plan (LTP)</strong></td>
<td></td>
</tr>
<tr>
<td>Final Status Survey (FSS) Complete</td>
<td>Q3 2006</td>
</tr>
<tr>
<td>Confirmatory Survey(s) DPH and NRC</td>
<td>Q4 2006</td>
</tr>
<tr>
<td>Conduct Groundwater Monitoring for Tritium Trending</td>
<td>Ongoing</td>
</tr>
<tr>
<td>File Appropriate Deed Notifications and Activity and Use Limitations Based on Final Site Conditions</td>
<td>Q1 2007</td>
</tr>
<tr>
<td>Conduct Landfill Post-Closure Monitoring of Final Site Grading</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Maintain ISFSI Until DOE Takes Possession Of Spent Fuel And GTCC Waste And Transports It To A DOE Storage Or Disposal Facility</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Terminate Part 50 NRC License</td>
<td>Projected 2021</td>
</tr>
<tr>
<td><strong>Complete Decontamination/Dismantlement</strong></td>
<td></td>
</tr>
<tr>
<td>Demolition Of Site Subsurface Utilities and Structures As Necessary</td>
<td>Q3 2006</td>
</tr>
<tr>
<td>Characterize And Reuse As Fill Site Demolition Materials In Compliance With DEP Approved BUD</td>
<td>Complete</td>
</tr>
<tr>
<td>Dispose Off-Site All Site Demolition Materials With Radioactivity Exceeding Background Levels</td>
<td>Complete</td>
</tr>
<tr>
<td>Complete SCFA Remedial Actions</td>
<td>Complete</td>
</tr>
<tr>
<td>As-Built Report on SCFA Removal</td>
<td>Q3 2006</td>
</tr>
<tr>
<td>Dispose Of Impacted SCFA Soils And Non-Native Materials</td>
<td>Complete</td>
</tr>
<tr>
<td>Final Site Restoration, Grading and Planting</td>
<td>Q3 2006</td>
</tr>
<tr>
<td><strong>Environmental and Site Closure Activities</strong></td>
<td></td>
</tr>
<tr>
<td>Site Closure Project Plan Stakeholder Outreach</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Phase IV Completion Report</td>
<td>Q4 2006</td>
</tr>
<tr>
<td>Human Health Risk Assessment Report Completion</td>
<td>Q1 2007</td>
</tr>
<tr>
<td>Ecological Risk Assessment Report Completion</td>
<td>Q1 2007</td>
</tr>
<tr>
<td>Complete Phase II Equivalent Site Assessment Documenting Post-Remediation, Post-Decommissioning Site Environmental Conditions</td>
<td>Q3 2006</td>
</tr>
<tr>
<td>Complete Riverfront and Wetlands Buffer Restoration</td>
<td>Q3 2006</td>
</tr>
<tr>
<td>Complete Wetlands Monitoring</td>
<td>Q4 2007</td>
</tr>
<tr>
<td>Conduct Post-Completion Monitoring of Wetlands, Habitat and Riverfront Restoration</td>
<td>Q4 2007</td>
</tr>
<tr>
<td>Application to Town of Rowe for Certification of Completion of Wetlands Activities</td>
<td>Q4 2007</td>
</tr>
<tr>
<td>Issue Response Action Outcome</td>
<td>Q1 2007</td>
</tr>
<tr>
<td>Issue Final Environmental Closure Report</td>
<td>Q2 2007</td>
</tr>
<tr>
<td><strong>Site Transfer Activities</strong></td>
<td></td>
</tr>
<tr>
<td>Site Transfer Stakeholder Outreach</td>
<td>Ongoing</td>
</tr>
</tbody>
</table>
### TABLE 5-1: State and Local Non-Radiological Regulatory Compliance Plan

<table>
<thead>
<tr>
<th>Program</th>
<th>Compliance Plan</th>
<th>Completeness status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massachusetts Environmental Policy Act (MEPA)</td>
<td>YAEC has filed an Expanded Environmental Notification Form to address the environmental impacts of wetland-related activities that may exceed MEPA review thresholds. The Secretary of EOEA certified on May 7, 2004 that the environmental impacts of the project do not warrant further review under MEPA.</td>
<td>All activities necessary for compliance with MEPA have been accomplished.</td>
</tr>
<tr>
<td>Wetlands Protection Act (WPA)</td>
<td>YAEC has submitted an Abbreviated Notice of Resource Area Delineation to confirm the classification and delineation of wetland resource areas. A Notice of Intent has been submitted in advance of the removal of shoreline structures and sediment – the decommissioning activities that are expected to impact wetland resource areas. An Order of Conditions was issued by the Town of Rowe on September 9, 2004 setting the terms for the project to comply with the WPA and confirmed by DEP on October 10, 2004.</td>
<td>Upon receipt of the Order of Conditions, YAEC completed its required permitting under the Wetlands Protection Act for site closure. YAEC completed two of the WPA permitted activities – removal of sediments from Sherman Reservoir and from the West Storm Drain and the decommissioning of the circulating water intake and discharge system components located on the bank of Sherman Reservoir – consistent with the Order of Conditions which set forth, in addition to the permitted activities, certain site restoration, monitoring and reporting obligations that are currently ongoing. Removal of the SCFA and reuse or off-site disposal of removed material is also currently in progress.</td>
</tr>
<tr>
<td>Clean Water Act (CWA)</td>
<td>YAEC has filed an application for a Section 401 Water Quality Certificate concerning the remediation of sediment in Sherman Reservoir and removal of shoreline structures. A Water Quality Certificate was issued on September 9, 2004, setting the terms for the project to comply with the CWA.</td>
<td>YAEC has completed its required permitting to receive a Section 401 Water Quality Certificate concerning the remediation of sediment in Sherman Reservoir and removal of shoreline structures. YAEC completed the permitted activities consistent with the conditions imposed by the Water Quality Certification which set forth, in addition to the permitted activities, certain site restoration, monitoring and reporting obligations that are currently ongoing.</td>
</tr>
<tr>
<td>Public Waterfront Act, Chapter 91</td>
<td>YAEC has filed an application for approvals under Chapter 91 for the anticipated remediation of sediment in Sherman Reservoir. A permit was issued on September 8, 2004 setting the terms for the project to comply with Chapter 91.</td>
<td>YAEC has completed its permitting activities concerning Chapter 91 of the Public Waterfront Act and received the requisite approvals. YAEC performed the permitted activities consistent with the conditions imposed by Chapter 91. There are no remaining requirements for compliance with Chapter 91.</td>
</tr>
</tbody>
</table>
TABLE 5-1: **State and Local Non-Radiological Regulatory Compliance Plan** cont.

<table>
<thead>
<tr>
<th>Program</th>
<th>Compliance Plan</th>
<th>Completeness status</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Massachusetts Solid Waste Regulations (SCFA)</strong></td>
<td>YAEC has submitted a Corrective Action Design (CAD) to describe the specific means for removal, materials management and on-site re-use of native materials in its remediation of the SCFA. YAEC has submitted an application for a Beneficial Use Determination (BUD) to allow for the re-use of the landfill materials from the SCFA as fill for site grading and for installation of a 3-foot layer over remaining concrete subsurface structures. The BUD for the SCFA was provisionally approved on December 23, 2004.</td>
<td>Approval by DEP of the Corrective Action Design and the Beneficial Use Determination fulfilled the final permitting prerequisites to the removal of the SCFA and the reuse or off-site disposal of the removed material. YAEC is currently completing the permitted activities - excavation, segregation and removal of the SCFA, beneficial reuse of excavated soils as fill in the industrial area, and disposal off-site of solid wastes and unacceptable soils. This is being performed consistent with the requirements of the BUD, which prohibits reuse of soils with site-related radioactivity exceeding background levels, specifies the configuration for reuse and requires deed notification and activity and use limitations (AULs) limiting future use of fill areas. In addition, the post-completion conditions must be addressed in a site-wide risk assessment conducted in accordance with the Massachusetts Contingency Plan.</td>
</tr>
<tr>
<td><strong>Massachusetts Solid Waste Regulations (Industrial Site)</strong></td>
<td>YAEC submitted an application for a BUD to allow it to leave subsurface structures (foundations and buried utilities) in place, along with concrete and asphalt rubble generated from the demolition of site structures within the industrial footprint of the former operating plant. In July 2005, DEP issued a partial approval of the application, subject to a series of requirements and conditions on the nature of the materials approved for reuse. DEP issued a final BUD approval in September 2005, incorporating modifications for approved protocols to assure that non distinguishable plant-related radioactivity above background will be reused under the BUD.</td>
<td>Approval by DEP of the final BUD permit for structures fulfilled the final permitting prerequisites. YAEC has completed the majority of decommissioning, testing, segregation of and reuse of materials in accordance with requirements stipulated in the BUD permit approval. Reuse of materials under the BUD is prohibited for all site-related radioactivity exceeding background levels. The BUD also specifies the configuration for reuse and requires a deed notification and activity and use limitations (AULs) limiting future land uses within filled areas. In addition, the BUD requires that post-completion conditions must be addressed in a site-wide risk assessment conducted in accordance with the Massachusetts Contingency Plan.</td>
</tr>
<tr>
<td><strong>Massachusetts Contingency Plan (MCP)</strong></td>
<td>YAEC has submitted a Phase IV Remedy Implementation plan that details its MCP remediation activities during 2004 and 2005.</td>
<td>The Phase IV remedial action was completed, resulting in removal of PCB-contaminated sediments to meet the cleanup standard of 1 ppm PCB. YAEC will publish a Phase IV Completion Report that documents the end result of the Phase IV remediation.</td>
</tr>
</tbody>
</table>
YAEC discovered additional oil and hazardous materials subject to MCP requirements in soil at various locations during decommissioning activities. The discovered materials were principally associated with limited impacts to soil resulting from: 1) petroleum and/or petroleum-based organic compounds stored on site; 2) dioxin associated with former incinerators and lead associated with a former shooting range. In each case, the release condition was reported to DEP along with notification of YAEC’s intent to remediate soils to the extent feasible during excavation associated with site decommissioning efforts. Therefore, in June 2005 YAEC filed an amended Phase III/IV Report presenting the rationale for proposed modifications in remedial objectives, alternatives and technologies to address the additional material.

YAEC prepared a Phase II-Comprehensive Site Assessment Report (Phase II Report) in January 2005 that summarized the source(s), nature and extent of radiological and non-radiological constituents in the environment and what additional investigative and remedial actions were planned at the site. This report was developed at DEP’s request to compile and organize information presented in many previous documents and to provide DEP with an update of assessment and remedial efforts in order for DEP to determine if additional characterization may be necessary and/or appropriate to support the risk assessment. YAEC completed additional groundwater monitoring well installations in the Spring of 2006 along with the collection of additional data to prepare a final Phase II Comprehensive Site Assessment Report in the Fall of 2006.

YAEC is closing its hazardous waste accumulation and storage areas in accordance with 310 CMR 30.689. YAEC has developed a Closure Plan to verify and document that all hazardous wastes and residues have been removed from the waste accumulation and storage areas.

One storage area will remain in use until decommissioning activities are completed, at which point YAEC will inspect and close the area.
TABLE 5-1: State and Local Non-Radiological Regulatory Compliance Plan cont.

<table>
<thead>
<tr>
<th>Program</th>
<th>Compliance Plan</th>
<th>Completeness status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title 5</td>
<td>YAEC will inspect any septic systems that will remain in place following decommissioning and will take appropriate measures to ensure these systems are in compliance with Title V prior to transferring the title of the facility that the septic system serves.</td>
<td>There were four (4) active or previously used septic systems inspected/characterized at the site. Two (2) of these systems were removed in their entirety and the remaining systems were abandoned in-place in accordance with Title V requirements.</td>
</tr>
</tbody>
</table>
### TABLE 5-2: Federal Non-Radiological Regulatory Compliance Plan

<table>
<thead>
<tr>
<th>Program</th>
<th>Compliance Plan</th>
<th>Completeness Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resource Conservation and Recovery Act (RCRA)</td>
<td>YAEC is closing its hazardous waste accumulation and storage areas in accordance with 310 CMR 30.689. YAEC has developed a Closure Plan to verify and document that all hazardous wastes and residues have been removed from the waste accumulation and storage areas.</td>
<td>One storage area will remain in use until decommissioning activities are completed, at which point YAEC will inspect and close the area.</td>
</tr>
<tr>
<td>National Pollutant Discharge Elimination System (NPDES)</td>
<td>YAEC will maintain its NPDES permit in effect to regulate stormwater discharges as long as storage of containerized nuclear fuel in the ISFSI continues at the site, or as long as required under federal and state regulations.</td>
<td>YAEC will maintain an NPDES permit at the site to manage storm water discharges in effect as long as spent nuclear fuel is stored at the ISFSI at the site.</td>
</tr>
<tr>
<td>Toxic Substances Control Act (TSCA)</td>
<td>YAEC has submitted a Risk-Based Disposal Approval Application to obtain EPA approval for its PCB cleanup actions, including the verification and management of PCB-remediation wastes. EPA approved the Risk-Based PCB Remediation under 40 CFR 761.61(c) on September 28, 2004.</td>
<td>The removal of PCB contaminated soils and sediments from the East and West Storm Drains and from Sherman Reservoir have been completed. Certain monitoring and documentation activities, including preparation of a Final Report, are ongoing.</td>
</tr>
<tr>
<td>Toxic Substances Control Act (TSCA)</td>
<td>YAEC has submitted a Notification and Certification of Self-Implementing Cleanup &amp; Disposal of PCB Remediation Waste (SCFA) (4/4/2005) to obtain EPA approval for disposal of PCB remediation waste and impacted soil. EPA approved the Self-Implementing Cleanup Notification on April 28, 2005.</td>
<td>The removal of PCB contaminated soils and sediments from the East and West Storm Drains and from Sherman Reservoir has been completed. Certain monitoring and documentation activities, including preparation of a Final Report, are ongoing.</td>
</tr>
<tr>
<td>Toxic Substances Control Act (TSCA)</td>
<td>YAEC has submitted a Notification and Certification of Self-Implementing Cleanup &amp; Disposal of PCB Remediation Waste (Industrial Site) (5/6/2005) to obtain EPA approval for disposal of PCB remediation waste and impacted soil. EPA approved the Self-Implementing Cleanup Notification on June 23, 2005.</td>
<td>The removal of PCB contaminated soil from the Industrial portion of the site was completed in the Fall of 2005. Monitoring and documentation activities, including preparation of a Final Report are ongoing.</td>
</tr>
<tr>
<td>Federal Energy Regulatory Commission (FERC)</td>
<td>YAEC will work with TransCanada, which holds the FERC license, to determine what reviews may be required.</td>
<td>The removal of PCB contaminated soil from the East and West Storm Drains and from Sherman Reservoir has been completed, as has the decommissioning of the circulating water intake and discharge structures which was also authorized by the ACOE permit. All compliance activities required by the Category 2 Programmatic General Permit have been accomplished.</td>
</tr>
<tr>
<td>Clean Water Act (CWA)</td>
<td>YAEC has submitted an application to the ACOE for a Programmatic General Permit for the proposed removal of shoreline structures and remediation of sediments in Sherman Reservoir, which the ACOE approved on October 14, 2004.</td>
<td></td>
</tr>
</tbody>
</table>
The YNPS natural resources inventory confirmed that compliance with the ESA will not require further action.

Apart from completion of field documentation, no further action is anticipated concerning the presence of pale green orchis at the site. As a result, compliance with the ESA will require no further action.

<table>
<thead>
<tr>
<th>Program</th>
<th>Compliance Plan</th>
<th>Completeness Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Endangered Species Act</td>
<td>The YNPS natural resources inventory confirmed that compliance with the ESA will not require further action.</td>
<td>Apart from completion of field documentation, no further action is anticipated concerning the presence of pale green orchis at the site. As a result, compliance with the ESA will require no further action.</td>
</tr>
</tbody>
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