



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
WESTERN REGIONAL OFFICE

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September 9, 2005

Yankee Atomic Electric Company  
19 Midstate Drive, Suite 200  
Auburn, MA 01501  
Attention: Joseph Lynch, Site Closure Director

&

TransCanada Hydro Northeast, Inc.  
4 Park Street  
Concord, NH 03301  
Attention: Michael G. Kline, General Manager

RE: Rowe-DSWM-05-253-009  
MADEP Solid Waste Permitting  
Beneficial Use Determination (BUD)  
Subsurface Structures/Concrete Rubble  
**Final Permit Approval**  
Yankee Nuclear Power Station  
49 Yankee Road  
BWPSW013  
Transmittal #W050861

**Final BUD Permit Approval**

Dear Sirs:

On July 29, 2005, the Massachusetts Department of Environmental Protection (the Department) issued a Beneficial Use Determination ("BUD") permit to Yankee Atomic Electric Company ("Yankee") to leave subsurface structures (foundations and buried utilities) in place, along with concrete and asphalt rubble from demolition of site structures, and Southeast Construction Fill Area ("SCFA") soils, at the former industrial facility area of the Yankee Nuclear Power Station (YNPS) in Rowe, MA. The Department had received from Yankee the original BUD permit application on September 24, 2004, and a revised BUD permit application on March 23, 2005 (collectively referred to as "the BUD application"). The BUD application was prepared on behalf of Yankee by their consultant, Environmental Resources Management

("ERM") of Boston, MA, by John McTigue, Licensed Site Professional ("LSP") # 6423, and Gregg Demers, LSP #9642 and Massachusetts-registered Professional Engineer ("P.E.") #39434 of ERM, and the plans contained in the revised application were submitted under Mr. Demers' P.E. stamp. The BUD application was signed by officers for the permittees as follows: Frank Helin, Decommissioning Director for Yankee; and Michael Kline, General Manager for TransCanada Hydro Northeast, Inc. ("TransCanada"). TransCanada is the owner of the property between the former industrial facility area of the YNPS and Sherman Reservoir/Deerfield River, where a small portion of the proposed BUD area is located.

The Department issued the BUD permit ("the permit") in accordance with the appropriate permit review regulations outlined at 310 CMR 19.037 of the Department's Solid Waste regulations. On August 19, 2005, Yankee submitted to the Department, within the required 21-day period, a "Request to Deem BUD Permit a Provisional Decision" in accordance with the regulations outlined at 310 CMR 19.037(4)(b), as Yankee states that they were aggrieved by certain conditions of the permit. Yankee requested that the permit be deemed provisional and that the administrative record be re-opened for the 21-day period specified in the regulations, prior to issuance of the final permit. Yankee submitted proposed modifications as follows:

- A proposed addition to the Department's terminology of "no distinguishable plant-related radioactivity above background levels", as this terminology was contained in Conditions 4,6, 10, and 22 of the permit. The proposed addition was received by the Department on September 8, 2005 and is found in Attachment A of this final permit. Yankee proposes continuance of the existing analysis sensitivity for gamma emitting radionuclides in substructures and backfill, based on the environmental lower limit of detection ("LLD") of 0.18 picoCuries/gram (pCi/g) for Cs-137, and that the permit terminology be supplemented to include Attachment A, which proposes, in addition:
  - minimum detection limits ("MDLs") for the Hard-to-Detect ("HTD") radionuclides tritium, C-14, and Sr-90 in concrete of 5 pCi/g, 2 pCi/g, and 2 pCi/g, respectively;
  - averaging of tritium, C-14, and Sr-90 levels within individual subsurface concrete structures (or rubble piles) for comparison to the individual MDLs outlined above; and
  - the establishment of maximum, Upper Limit (UL) values for tritium, C-14, and Sr-90 at three times the MDLs, or 15 pCi/g (tritium), 6 pCi/g (C-14), and 6 pCi/g (Sr-90) for any concrete "hotspots" in subsurface structures or rubble piles.
- A proposed modification to the Department's requirement in Condition 22 of the permit that all unacceptable rubble and SCFA soils be shipped off-site to appropriate disposal locations prior to any backfilling with acceptable rubble and SCFA soils. The proposed modification was received by the Department on September 8, 2005 and is found in Attachment B, "Materials/Pile Management Protocol", of this final permit.

This Final BUD permit approval ("the final permit") modifies and supplements portions of the July 29, 2005 BUD permit, in accordance with the regulations outlined at 310 CMR 19.037(4)(b). The final permit has been modified as follows:

- the Department's terminology of "no distinguishable plant-related radioactivity above background levels", as contained in Conditions 4,6, 10, and 22 of the permit, has been modified to include Attachment A; and
- Condition 22 of the permit has been modified to include Department approval of Attachment B, the "Materials/Pile Management Protocol".

### Summary of Regulatory Authorities

The YNPS plant is in the process of decommissioning, in accordance with Nuclear Regulatory Commission (NRC) regulations 10 CFR Part 50, the Massachusetts Department of Public Health's Radiation Control Program (the MADPH) regulations at 105 CMR 120.000, and applicable Department regulations. The BUD permit for the former industrial facility area is being proposed in accordance with the Department's Solid Waste regulations at 310 CMR 19.000. In addition, the YNPS facility is a designated Tier 1B site as outlined in the Department's Bureau of Waste Site Cleanup (BWSC) regulations at 310 CMR 40.000 (the Massachusetts Contingency Plan, or MCP), and a site-wide BWSC Phase II Investigation Report and Risk Assessment (for both non-radiological and radiological parameters) is being completed by Yankee in accordance with the requirements at 310 CMR 40.000. All non-radiological and radiological issues associated with decommissioning of the YNPS fall under the authority of the NRC, the MADPH, the United States Environmental Protection Agency (the EPA), and the Department, as applicable.

On December 23, 2004, the Department issued a separate BUD permit to Yankee for the reuse of soils to be excavated from the former Southeast Construction Fill Area (SCFA) on the YNPS property, to be used as fill in the subject BUD fill area at the former industrial facility area. The details of non-radiological and radiological assessment activities performed up to 2003 for the industrial facility area, the SCFA, and other site areas are outlined in the BUD application, Notification & Certification of Self-Implementing Cleanup & Disposal under TSCA, and the Historic Site Assessment (HSA) of the License Termination Plan (LTP), Volumes I & II, prepared by Yankee to meet NRC regulations (among others).

### **Proposed BUD Permit Application**

#### General Information

As part of decommissioning activities, Yankee has demolished the original, above-ground buildings and structures within the Facility portion of the site. The "Facility" portion of the YNPS is defined as the former industrial area where facility structures were located, and the proposed BUD area coincides with the Facility area. Only a few above-ground structures will remain on-site, all outside the Facility area, in order to accommodate interim storage of spent fuel in the Independent Spent Fuel Storage Installation (ISFSI), which is also located outside the Facility area.

Yankee is in the process of demolishing some of the remaining concrete or cinder-block building foundations and/or slabs within the Facility area, and crushing the concrete rubble on-site. Within the Facility area, Yankee proposes by this BUD permit application (the application) to leave in-place a number of sub-surface building foundations, slabs, and buried utilities, and to use a portion of the crushed concrete rubble (and asphalt rubble), along with SCFA soils, as fill in this area. Figure 2 of the application depicts the locations of former structures at the Facility, and outlines the specific subsurface foundations and slabs which are being removed, as well as those that are proposed to be left in place. Figure 3 of the application outlines: the "Anticipated BUD Boundary" area, approximately 5.5 acres in size, where subsurface structures will be left in-place (the BUD Area); and the "Processed Concrete & Asphalt Boundary", approximately 3.5 acres in size, within the BUD Area, where concrete and asphalt rubble and SCFA soils will be used as fill over the subsurface structures (the BUD Fill Area).

In accordance with NRC, MADPH, EPA and Department requirements and guidelines, Yankee is completing radiological and non-radiological assessment of the soils, groundwater, foundations, slabs, and buried utilities of the Facility area. The application proposes, based on the results of this assessment work, that Yankee must remove any concrete, asphalt, utilities, or contaminated soils that do not meet reuse

criteria, for proper off-site disposal. The application also proposes that foundations, slabs and buried utilities which meet reuse criteria will be left in place, and above grade concrete/asphalt rubble and excavated soils which meet reuse criteria will be used as backfill in and around foundation holes in the BUD Fill Area. SCFA soils would be similarly used as backfill, as grading material for the closure of the BUD Fill Area (in accordance with this BUD permit and the SCFA soils BUD permit), and would also be used as a portion of a 3-foot thick layer of soil over the entire BUD Fill Area.

#### Radiological Assessment for the BUD permit

Radiological assessment of the BUD Area and BUD materials is being performed in accordance with applicable NRC requirements for the LTP and Department requirements, as applicable. Radiological assessment in accordance with the appropriate radiological release criteria will be performed on all existing soils and subsurface structures and utilities within the BUD Area prior to any filling of the area with concrete and asphalt rubble and SCFA soils. Appropriate radiological characterization will also be performed on all concrete and asphalt rubble and SCFA soils prior to their placement in the BUD Fill Area as fill.

SCFA soils have been characterized and the Department issued a previous separate BUD Approval, which requires that no SCFA soils with distinguishable plant-related radioactivity above background may be used as backfill.

Existing soils and groundwater within the BUD Area will meet the Derived Concentration Guideline Levels (DCGLs) for the MADPH standard of 10 mrem/yr Total Effective Dose Equivalent (TEDE) of radioactivity above background.

#### Non-Radiological Assessment for the BUD permit

As directed by the Department, ERM followed the procedures outlined in the Department's Draft Interim Guidance Document for Beneficial Use Determination Regulation ("the Draft BUD Guidance") for assessing whether the subject materials (subsurface structures and utilities, concrete and asphalt rubble, and soils from the SCFA) are suitable for use as fill in the BUD for non-radiological parameters, including the performance of a BUD Risk Assessment. ERM states that Yankee will establish a Deed Restriction for the Facility area where the BUD soils will be used as fill, and that therefore the use of the soils is a Category 3 (Beneficial use in a Restricted Application) BUD, according to the Draft BUD Guidance.

Sampling and analysis of concrete, coatings, soils, and groundwater at the BUD area (and of the SCFA soils to be used as fill) has included the following parameters for numerous samples (additional parameters have been analyzed for a portions of the samples):

- volatile organic compounds (VOCs) by EPA Method 8260;
- RCRA 8 metals;
- semivolatile organic compounds (SVOCs) by EPA Method 8270;
- Extractable and Volatile Petroleum Hydrocarbons (EPH/VPH) by the Department's Office of Research & Standards (ORS) Method; and
- Polychlorinated Biphenyls (PCBs) by EPA Method 8082.

In addition, mastic coatings on subsurface structures and utility coverings have been sampled and analyzed for the presence of asbestos-containing materials (ACM).

### Buried Utilities

Yankee proposes to remove much of the network of buried utilities at the site, and to leave in-place the following selected buried utilities:

- Pipes (either concrete or steel), electrical conduits, and electrical lines located beneath or immediately adjacent to a remaining building slab or foundation;
- Pipes (either concrete or steel), electrical conduits, and electrical lines which are primarily located over 5 feet below original grade elevation; and
- Concrete-encased duct banks, containing electrical conduits and wires, with some ACM wire wrap, and with two-inch thick creosote planks along the top of the concrete duct banks, used as a marker for the duct banks.

Yankee proposes to leave the selected buried utilities described above under the following conditions:

- Yankee proposes to remove all buried utilities with residual radioactivity above background, except for limited portions of the deeply buried stormwater drain system, which Yankee states will meet the MADPH 10 mr/yr standard for subsurface structures.
- Pipes would be emptied of any water. The limited amount of oil piping at the site would be drained of oil and removed;
- Pipes with a diameter of greater than 8 inches would be filled in-place with flowable concrete fill;
- Pipes with a diameter of 8 inches or less would not be filled, any wires within the pipe would be removed as possible, and the ends would be plugged with grout;
- The majority of the storm water drain system (East and West) is proposed to be filled in place with flowable fill, due to its depth; and
- Closure of sanitary sewer lines is proposed to be addressed according to the Massachusetts Title 5 regulations at 310 CMR 15.000.

### **DEPARTMENT DETERMINATIONS – FINAL BUD PERMIT**

The Department determined that the July 29, 2005 BUD permit was deemed a provisional decision on August 19, 2005, the date that Yankee's request was received by the Department. The administrative record for the permit was therefore re-opened for a period of 21 days, as outlined at 310 CMR 19.037(4)(b), and the additional information submitted by Yankee was reviewed by the Department prior to the issuance of this Final Permit. Attachment A, "Demonstration Protocol for BUD Compliance", dated September 8, 2005, and Attachment B, the September 8, 2005 "Materials/Pile Management Protocol", are attached to, and considered part of, this Final Permit.

The Department has reviewed the proposed BUD application to reuse on-site structures and rubble as fill, within the industrial Facility area of the YNPS, in accordance with the Massachusetts Solid Waste Regulations 310 CMR 16.00 & 19.000, the Massachusetts Contingency Plan, 310 CMR 40.0000, and other laws as specified. The NRC and MADPH also have authority over radiological aspects of the site, and site assessment and closure shall also be performed in accordance with applicable NRC and MADPH regulations, policies and guidance. The Department hereby issues this Final BUD permit, which approves in part and does not approve in part the BUD application, in accordance with the regulations for Beneficial Use of Solid Wastes

at 310 CMR 19.060 and other regulations and statutes as specified, subject to the following conditions and requirements.

1. The Department has determined that the requirement at 310 CMR 19.060(3), i.e. that the Department shall accept comments from the Rowe Board of Health (BOH) regarding the BUD permit application for a period of 21 days from the date that the application was submitted to the BOH, has been fulfilled. Yankee submitted a copy of the application to the BOH on March 23, 2005; the Department contacted the BOH on April 21, 2005 and was informed that the BOH had no comments on the application.
2. Yankee shall also comply with the requirements of the separate Department BUD permit approval dated December 23, 2004, for the use of the SCFA soils in the subject BUD Area.
3. The entire volume of the following structures, including all subsurface elements such as foundations, slabs, footings, structural components, and any buried utilities within, beneath or adjacent to these structures, shall be removed and properly disposed of off-site in accordance with all NRC, EPA, MADPH and Department regulations, requirements, policies, and guidelines: Spent Fuel Pool; Ion Exchange Pit; New Fuel Vault; Elevator Shaft; Fuel Transfer Enclosure; Rad. Lab Sump Pit; and Fuel Oil Transfer Pump House. The Department **does not allow** the reuse of any components of these structures or subsurface structures, including any rubble from these structures or subsurface structures, at the YNPS site. For all of the concrete rubble and other structural components generated from these specific structures, Yankee shall supply the following documentation to the Department:
  - A. Within 60 days of the date of this permit, Yankee shall submit to the Department the shipping documents for all of the rubble generated from the demolition of these specific structures which has been shipped off-site up to the date of this permit; and
  - B. Within 60 days of the date of the completion of shipment of this material, Yankee shall submit to the Department the remaining shipping documents for the rubble generated from the demolition of these specific structures.
4. This BUD permit approves only the re-use of the following materials within the designated areas outlined on Figure 3 of the application, at the industrial Facility area of the YNPS:
  - A. The specific, subgrade concrete foundations and slabs that are listed in Table 1, Figure 2, and pages 3 through 7 of the application that have no plant-related radioactivity above background levels (as amended by Attachment A), in accordance with the conditions of this permit. Note! Please see condition number 3 that details those structures that must be removed.
  - B. Buried utilities to be left in place that have no distinguishable plant-related radioactivity above background levels (as amended by Attachment A), in accordance with the conditions of this permit;
  - C. Concrete and asphalt rubble from the demolition of site structures that have no distinguishable plant-related radioactivity above background levels (as amended by Attachment A), in accordance with the conditions of this permit;
  - D. SCFA soils and concrete/asphalt rubble in accordance with the Department's December 23, 2004 BUD permit; and

E. Any changes in configuration of foundations, slabs or utilities describe within the BUD Application, or the configuration of the Anticipated Limits of the Processed Concrete and Asphalt Boundary or the BUD Area as depicted in Figure 3 of the BUD Application, shall be provided to the Department. All methods and controls described within this Approval shall continue to be followed.

This permit does not allow the reuse of these subject BUD materials at any other location within the Commonwealth of Massachusetts (the Department has no authority outside the Commonwealth). The use of unregulated materials (i.e. "clean fill") within the BUD area is not restricted by this permit.

5. **Assessment:** Radiological and non-radiological assessment shall be performed within the BUD Area **prior to**, during and following any backfilling, grading or closure of the BUD Area, in accordance with all appropriate NRC, EPA, MADPH and Department regulations, requirements, policies, and guidelines. Specifically, radiological assessment of the Facility/BUD Area shall be performed in accordance with: NRC regulations and requirements for License Termination; MADPH regulations and requirements; and Department requirements regarding both this BUD permit approval and the BWSC Phase II Assessment for the YNPS site. Non- radiological assessment of the Facility/BUD Area shall be performed in accordance with this BUD permit approval and: the Draft BUD Guidance; Department regulations and requirements regarding the BWSC Phase II Assessment for the YNPS site; and EPA TSCA regulations and requirements.
6. **Remedial Criteria – Radiological:** Remediation of any residual radioactivity shall be performed within the BUD Area in accordance with all appropriate NRC, EPA, MA DPH and Department regulations, requirements, policies, and guidelines **prior to**, during and following any backfilling, grading or closure of the BUD Area. Specifically, remedial measures shall reduce all residual radioactivity within the BUD Area to the following criteria:
  - A. **All processed concrete and asphalt rubble (demolition material), buried utilities and SCFA soils that will be placed in the BUD area as fill under this approval shall have no distinguishable plant-related radioactivity above background levels (as amended by Attachment A).**
  - B. All subsurface structures (including foundations and slabs), buried utilities, soils and groundwater left in place, and all concrete and asphalt rubble, SCFA and other soils used as backfill in the BUD Area, shall be included in the cumulative (radiological and non-radiological) BWSC Phase II Risk Assessment for the entire YNPS site, including any risk-reduction measures as approved by the Department. The Risk Assessment shall be performed in accordance with the requirements in 310 CMR 40.0000 and as approved by the Department.
7. **Remedial Criteria – Non-radiological:** The Department has determined that the applicable BWSC soil and groundwater classifications for the proposed BUD Area are S-2/GW-1. The Department requires that all subsurface structures, buried utilities, asphalt and concrete rubble, and soils to be used as part of this BUD shall meet the standards for non-radiological parameters (oil or hazardous material) as outlined in the S-2/GW-1 table of the Department's Draft BUD Guidance. Any such materials exceeding these standards shall be segregated and properly disposed of off-site at permitted disposal facilities. Any

non-radiological contaminants present above background within the BUD Area must be included in the cumulative Risk Assessment for the YNPS site.

8. Yankee shall comply with all applicable USEPA Toxic Substances Control Act (TSCA) regulations, requirements and permit approvals concerning the presence of PCBs in any BUD materials or within the BUD Area. If Yankee chooses to do so, PCB-contaminated soils (and concrete rubble, as approved) may be treated and utilized on-site to meet the EPA TSCA and Draft BUD Guidance S-2/GW-1 standards, if performed in accordance with this BUD permit, USEPA TSCA requirements, and any other permits or approvals required for such on-site treatment.
9. The Department approves Yankee to leave in-place within the BUD Area a limited amount of asbestos-containing material (ACM) within mastic coatings on subsurface concrete structures and in certain utility coatings or components, only at the locations identified in the application. As outlined at Condition 16 of this permit, Yankee shall identify these specific locations on the as-built plan to be contained in the Deed Notice for the BUD Area. Yankee (and any subsequent permittee) shall ensure that these areas containing ACM are not disturbed without prior written approval of the Department, and that all proper precautions and Health & Safety measures are taken to avoid any release of asbestos to the environment from the subject ACM.
10. The Department approves Yankee's proposals to leave buried utilities in place within the BUD Area, with the following conditions:
  - A. **No buried utilities with any levels of distinguishable plant related radioactivity above background (as amended by Attachment A)** shall be left in place;
  - B. All pipes shall be emptied of liquids. Any pipes which contained liquids other than water (other products) shall be properly drained. Any pipes containing oil shall be properly drained and removed entirely;
  - C. Sufficient assessment shall be performed and made available to the Department to ensure that any buried utilities are not source areas for radiological or non-radiological contamination, prior to backfilling of these areas within the BUD Fill Area;
  - D. Closure of sanitary sewer lines shall comply with all of the conditions of this BUD permit, as well as the requirements of the Department's Title 5 regulations;
  - E. The locations and depths of all remaining buried utilities shall be shown, on appropriate scale to allow for field identification, on the final BUD site plan(s) contained in the Deed Restriction, as outlined at Condition 16 of this permit; and
  - F. Any remaining hazards associated with buried utilities and associated areas within the BUD area must be included in the cumulative Risk Assessment for the YNPS site. The Department reserves the right to require removal of any remaining buried utilities at the BUD area at any time (including subsequent to closure of the BUD area), should the Department determine that the buried utilities or associated areas pose a significant risk to human health or the environment.
11. Existing soils from within the BUD Fill Area shall not be used or placed outside the BUD Fill Area, except for proper off-site disposal, in accordance with the anti-degradation provisions of the Department's MCP regulations at 310 CMR 40.0032(3)(b).
12. As proposed, a minimum 3-foot thick layer of soil shall be placed over the entire

“Processed Concrete & Asphalt Boundary” (BUD Fill) area outlined on Figure 3 of the application. The 3-foot thick soil layer **shall not contain any distinguishable plant-related radioactivity above background levels**, and shall consist only of the following: SCFA soil in accordance with the December 23, 2004 BUD permit; or clean soils from outside the Facility area, not impacted by radiological or non-radiological contamination from the YNPS facility. The historic SCFA soil shall only be utilized as fill and grading material in the lower 2 feet of the 3-foot soil cap layer, or in the fill beneath this layer, but shall not be utilized in the top 1 foot of the 3-foot soil cap layer. The top 1 foot of the 3-foot soil cap layer shall consist of 6 inches of clean fill, overlain by 6 inches of clean topsoil, and completed in accordance with the “Post-Decommissioning Grading Plan and Stormwater Management Analysis” and the “Post-Decommissioning Planting Plan and Specifications” dated August 2004, as approved by the Rowe Conservation Commission and the Department. The 6 inches of clean fill in the upper 1 foot may include the soil that was excavated to prepare the engineered sub-base for the Interim Spent Fuel Storage Installation (ISFSI) area at the Facility, which was previously sampled and analyzed in accordance with Department requirements and stored on the top of the SCFA with Department approval (“the ISFSI soil”).

13. As proposed, solid wastes shall not be used as fill in this BUD. All solid wastes encountered in the excavation of the BUD Area shall be segregated and disposed of properly off-site at permitted solid waste and/or radioactive waste disposal facilities (as appropriate). Concrete and asphalt rubble from the BUD Area and the SCFA may be utilized as fill in the BUD Fill Area, as long as it meets **all of** the requirements of this permit, and as long as the rubble does not exceed 2 feet in diameter.
14. Yankee (as both owner and operator) shall comply with all conditions of this permit for the BUD Area located on the YNPS property. Yankee (as an operator) shall comply with all conditions of this permit for the portion of the BUD Area located on the TransCanada property. TransCanada (as the owner) shall comply with the conditions of this permit for the portion of the BUD Area located on the TransCanada property (TransCanada is not responsible for compliance on the YNPS property). Yankee and TransCanada are jointly and severally liable for complying with this permit for the portion of the BUD Area located on the TransCanada property.
15. No transfer of this permit shall be permitted except in accordance with the Department’s regulations at 310 CMR 19.044.
16. **Deed Notification:** A notification shall be recorded in the registry of deeds or in the registry section of the land court for the district in which the YNPS property and the TransCanada property are located, consistent with the Department’s Solid Waste statute at M.G.L. c. 111§150A and regulations at 310 CMR 19.141, relative to the BUD permit area. The deed notification shall specifically contain the following:
  - A. Identification of record owners of the property;
  - B. A description of the BUD Area on the property, by metes and bounds and by reference to an appropriate map or plan to be recorded therewith, signed by a Massachusetts-registered professional engineer or land surveyor, depicting:
    - a. the boundaries of the BUD Area;
    - b. the boundaries of the BUD Fill Area for asphalt and concrete rubble and SCFA

- soils;
  - c. the boundaries of the 3-foot soil cover area;
  - d. the location and identification of all subsurface structures remaining within the BUD Area, including all foundations, slabs, and buried utilities;
  - e. the location of any asbestos-containing materials (ACM), e.g. mastics on subsurface structures or pipe wrap on utilities, remaining within the BUD Area; and
  - f. the location of any and all groundwater monitoring wells within and immediately down gradient of the BUD Area;
  - g. A cross-section depicting the type and extent of the soil cover on the BUD Fill Area; and
  - h. A description of the nature and duration of post-closure maintenance for the BUD area.
- C. Reference to the Department file number (Solid Waste File #253-009) for identifying the BUD file and
- D. The deed notification shall contain the following statement “ The premises described herein are subject to the provisions of MGL c. 111, sec. 150A, 310 CMR 19.000, and/or a Beneficial Use Determination on file with the Department of Environmental Protection (Solid Waste File #253-009). Said premises shall not be used for any purpose other than as a closed BUD fill area without prior written approval of the Massachusetts Department of Environmental Protection. Continued operation of the site as a BUD fill area requires the transfer of the permit in accordance with 310 CMR 19.044. The procedure for Department approval for any use other than as a closed BUD fill area is set forth at 310 CMR 19.143. Such Department approval of other use is transferable or assignable only upon written approval of the Department.”.

Within one year of completion of the BUD permit fill activity, Yankee shall submit to the Department: Copies of all materials outlined in Condition 16 above; documentation that the deed notifications were completed as required above and recorded at the Franklin County Registry of Deeds; and documentation that all solid waste and/or radioactive material which did not meet the reuse criteria specified in the conditions of this permit has been properly disposed of off-site at permitted facilities.

17. The post-closure requirements at 310 CMR 19.143 shall apply to the BUD Area, including the requirement that there be no disturbance of the 3-foot soil layer, excavation of the BUD Area, or any other invasive procedures in the BUD Area (i.e soil borings, well installation, etc.) without prior written approval from the Department. Post-closure maintenance shall be performed for the BUD Area, as outlined at 310 CMR 19.142, including maintenance of the soil layer and grass cover. Any erosion of the soil cover layer shall be immediately repaired. The BUD Area shall be maintained in accordance with the “Post-Decommissioning Grading Plan and Stormwater Management Analysis” and the “Post-Decommissioning Planting Plan and Specifications” dated August 2004 or as subsequently updated (as approved by the Department). Environmental monitoring of the BUD Area shall be performed as outlined in the Department’s written review of the BWSC Phase II Report and Risk Assessment. For purposes of 310 CMR 19.142 and 19.143, the term “BUD Area” shall be substituted for the terms “facility”, “landfill” and “site”.
18. The material within the BUD Area, including all building foundations, slabs, and buried utilities, all concrete and asphalt rubble, SCFA soils and concrete/asphalt rubble, and existing soil and groundwater, must be included in the site-wide Risk Assessment (for both

non-radiological and radiological parameters) to be completed as part of the site-wide BWSC Phase II Report.

19. Yankee is responsible for obtaining (and complying with) any other local, state or federal permits which may be necessary for utilization of the subject materials in the BUD permit, including any permits required by the USEPA, NRC, MADPH, or the Rowe Conservation Commission, as appropriate.
20. The Department reserves the right to modify or rescind this approval at any time, should the conditions of this approval not be met, should nuisance conditions be created, or should the Department otherwise determine that the BUD materials or BUD Area poses a threat to public health, safety or the environment. The Department reserves the right to restrict, modify or rescind this BUD permit approval based on its review of the results of monitoring data, including soil and groundwater sampling and analysis.
21. The Department and its agents and employees shall have the right to enter upon the site at reasonable times and with reasonable notice, to inspect the BUD Area and to otherwise monitor compliance with this Permit and other Department environmental laws and regulations. This right of entry and inspection shall be in addition to the Department's access authorities and rights under applicable federal and states laws and regulations, as well as any permits or other agreements between the Permittee and the Department.
22. **Portion of BUD Application Not Approved and Oversight:** The Department does not approve the portion of the BUD application that requested approval to use, as fill, concrete substructures, concrete and asphalt rubble (and SCFA soils) that contain distinguishable plant-related radioactivity above background levels, including tritium (note that the Department has supplemented the definition of "distinguishable plant-related radioactivity above background levels" to include Attachment A). The Department's reasons for not approving portions of the BUD application include, but are not limited to:
  - A. Pursuant to G.L.c.111, §150A, the definition of "refuse" (and pursuant to 310 CMR 19.000, the definition of solid waste) excludes "materials defined as source, special nuclear or byproduct material under the provisions of the Atomic Energy Act of 1954"; therefore, the regulatory scheme of c.111, §150A, is not the appropriate scheme for regulating concrete and asphalt rubble that contains plant-related radiation above background levels;
  - B. a separate statutory and regulatory scheme is established pursuant to G.L.c.111H (the Massachusetts Low Level Radioactive Waste Management Act), and regulations promulgated thereunder, for the siting of facilities for the treatment, storage and disposal of low-level radioactive waste, such as the tritium-containing concrete and asphalt rubble proposed in the BUD application; and
  - C. "beneficial use" is defined in 310 CMR 19.000 as an "effective substitute for a commercial product or commodity"; the Department is not convinced that low level radiological waste rubble is an effective substitute for a commercial product or commodity related to the placement of fill material, especially given the availability of other non-radiological substitutes.

In order to assure conformance with this BUD, the Department requires, and Yankee and TransCanada shall perform, appropriate radiological characterization (including the procedures outlined in Attachment A) on all concrete substructures, and concrete and asphalt rubble (and SCFA soils as appropriate) prior to their use in the BUD Area as fill. Also, all rubble and soils (including SCFA soils) shall be managed in accordance with the procedures outlined in Attachment B, the "Materials/Pile Management Protocol", as attached to this Final Permit. Copies of the radiological characterization (analysis data) shall be made available to the Department upon request. The Department also specifically reserves the right to perform its own surveys and analysis of the any material, including fill material, in order to assure compliance.

Pursuant to 310 CMR 19.037(5), any person aggrieved by the issuance of this decision, except as provided for under 310 CMR 19.037(4)(b), may file an appeal for judicial review of said decision in accordance with the provisions of M.G.L. c. 111, s. 150A and c.30A not later than thirty [30] days following notice of this decision. Any aggrieved person intending to appeal the decision to the superior court shall provide notice to the Department of said intention to commence such action. Said Notice of Intention shall include the Department File Number (05-253-009) and shall identify with particularity the issues and reason(s) why it is believed the approval decision was not proper. Such notice shall be provided to the Office of General Counsel of the Department and the Regional Director for the regional office that made the decision.

The appropriate addresses to which to send such notices are:

General Counsel  
Department of Environmental Protection  
One Winter Street  
Boston, 02108

&

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

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

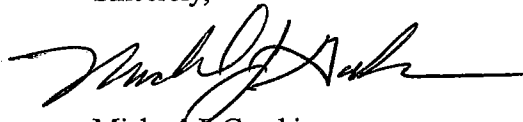
This Determination pertains only to the solid waste management aspect of the proposal and does not negate the responsibility of the owners or operators to comply with any other applicable state, local, or federal laws or regulations now or in the future.

The Department has determined that the filing of an Environmental Notification Form ("ENF") with the Secretary of Environmental Affairs, for solid waste management purposes, was not required prior to this action by the Department. Notwithstanding this determination, the Massachusetts Environmental Policy Act and Regulation 301 CMR 11.00, Section 11.04 provide

certain "Fail-Safe Provisions" which allow the Secretary to require the filing of an ENF and/or Environmental Impact Report at a later time.

If you have any questions concerning this matter, please contact David Howland of this office, at #413-755-2280.

Sincerely,



Michael J. Gorski  
Regional Director

DEH/LGH/lgh

Cc: Yankee Atomic – Rick Kacich, Greg Maret, Kenneth Dow, Greg Babineau  
Rowe Board of Selectmen  
Rowe Board of Health  
Rowe Conservation Commission  
ERM, Inc. – John McTigue, LSP  
MA DPH – Radiation Control Program – Michael Whalen  
USEPA, Region 1 – Marvin Rosenstein, Kimberly Tisa  
USEPA, Washington, D.C. – Philip Newkirk  
NRC – John Hickman  
DEP/WERO – David Howland, Larry Hanson, Daniel Hall, Anna Symington, Tony  
Kurpaska, Robert Shultz, Robert Bell  
DEP/Boston/BWP – Paul Emond  
DEP/Boston/ORS – Nancy Bettinger, Carol Rowan-West  
Franklin Regional Council Of Governments  
Deborah Katz – Citizens Awareness Network

September 8, 2005

Attachment A  
Demonstration Protocol for BUD Compliance

The following protocol was developed to demonstrate compliance with the BUD criterion of “no distinguishable plant-related radioactivity above background levels” for radionuclides in substructures and materials suitable for backfill in the BUD Fill Area.

- For gamma emitting radionuclides, the analysis system sensitivity will be established to ensure that the environmental lower limit of detection (LLD) of 0.18 pCi/gm for Cs-137 is met. Given this level of system sensitivity, any gamma emitting radionuclides that have positive radioactivity identified above their respective minimum detectable activity (MDA) will be considered to be distinguishable above background.
- The Hard-To-Detect (HTD) radionuclides that have the potential for being present in substructures and/or materials suitable for backfill and will be analyzed for are:

Tritium (H-3)  
Carbon 14 (C-14)  
Strontium 90 (Sr-90)

- The Detection Limits (DLs) for determining background for the HTD radionuclides are:
  - Tritium – 5 pCi/gram
  - Carbon 14 – 2 pCi/gram
  - Strontium 90 – 2 pCi/gram
- The Upper Limit (UL) for any single data point of the measurements taken will utilize a multiplier of 3 above the DL, which is consistent with DEP direction. This UL for any single data point will be used when evaluating the average concentration of each radionuclide analyzed. The resultant UL for the HTD radionuclides are:

Tritium – 15 pCi/gram  
Carbon 14 – 6 pCi/gram.  
Strontium 90 – 6 pCi/gram

- The sample locations and justification for the selection of substructures that will require further characterization to demonstrate compliance with the BUD are provided in a Yankee Sampling Plan, “Foundations HTD Investigation.”
- Sample results will be analyzed for the HTDs listed in this protocol and trended to validate the sample density determined for each sub-structure. In the event samples yield results that exceed the criteria established for BUD compliance, an investigation will be initiated to validate the results and undertake an expansion of the sampling and/or remediation, as necessary.

Attachment B

Materials/Pile Management Protocol

The Materials/Pile Management Protocol includes the following:

1. The attached OP – MEMO #2DD-10, “Characterization, Utilization, and Disposal (CUD) of Site Materials Plan”, dated April 25, 2005;
2. The “Pile Management Plan, Revision10”, dated August 8, 2005, which is on file at the YNPS and the DEP Western regional office (weekly updates are on file at the YNPS); and
3. The “Pile Inventory Summary”, dated August 8, 2005, which is on file at the YNPS and the DEP Western regional office (weekly updates are on file at the YNPS).

Note – due to its length (24 pages), OP-MEMO #2DD-10 was not included with all permit copies. If an electronic or paper copy of OP-MEMO #2DD-10 is desired, please contact Larry Hanson of the Department at #413-755-2287.