

# Maine Yankee

321 OLD FERRY RD. • WISCASSET, ME 04578-4922

April 7, 2005

MN-05-016

RA-05-017

Proposed Change No. 218, Supplement 18

UNITED STATES NUCLEAR REGULATORY COMMISSION

Attention: Document Control Desk

Washington, DC 20555

- References:
- (1) License No. DPR-36 (Docket No. 50-309)
  - (2) Maine Yankee Letter to the USNRC, MN-02-048, dated October 15, 2002, Revision 3, Maine Yankee's License Termination Plan
  - (3) USNRC Letter to Maine Yankee, dated February 28, 2003, Issuance of Amendment No. 168 to Facility Operating License No. DPR-36
  - (4) Maine Yankee Letter to the USNRC, MN-04-020, dated March 15, 2004, License Amendment Request: Release of Non-ISFSI Site Land, Proposed Change No. 218

**Subject: Release of Non-ISFSI Site Land - FSS Final Report No. 9**

On March 15, 2004, Maine Yankee submitted a request for amendment (Reference No. 4) to the facility operating license (Reference No. 1) pursuant to 10 CFR 50.90 and in accordance with the NRC Approved License Termination Plan (LTP) for Maine Yankee (Reference No. 2), to indicate NRC's approval of the release of the Non-ISFSI site land from the jurisdiction of the license. In support of that request, Maine Yankee supplied the information required in LTP section 1.4.2 and 5.9.3. The land area associated with the license amendment request included the entire non-ISFSI portion of the site land. Maine Yankee is submitting the required dismantlement and survey information for the survey units that make up the non-ISFSI portion of the site land in a phased fashion. Accordingly, Maine Yankee is herewith supplying the dismantlement and survey information for five survey areas comprising ten survey units. Other descriptive information and technical evaluations contained in Reference No. 4 are unaffected by these revisions and are, therefore, not included in this submittal, as indicated.

Attachment I - Final Status Survey Final Report No. 9, provides dismantlement and summary survey information for the survey units covered in this submittal and the revised schedule for the submittal of the remaining dismantlement and survey information. Attachment II provides a copy of the revised, supporting final status survey release records for the survey units that make up this phase of survey information.

Maine Yankee requests timely review and acceptance of this dismantlement and survey information.

NMSSD/

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If you have any questions, please contact me.

Sincerely,

 For M.J.M

Michael J. Meisner

Vice President and Chief Nuclear Officer

Attachments

- I. Final Status Survey Final Report No. 9
- II. Release Records

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Figure 1 Survey Areas

Figure 2 Survey Areas (Site Industrial Area)

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**1.0 Description**

This letter is submitted as a supplement to Proposed Change No. 218 (Reference 7.3), which requests an amendment to the Operating License No. DPR-36 for Maine Yankee, specifically License Condition 2.B(9), addressing release of lands from the jurisdiction of the Facility Operating License. Maine Yankee requested that the NRC review and approve the release of remaining land under License No. DPR-36 with the exception of the land where the Independent Spent Fuel Storage Installation (ISFSI) is located. In support of that request, Maine Yankee supplied the information required in LTP section 1.4.2 and 5.9.3. The land area associated with the license amendment request included the entire non-ISFSI portion of the site land. Maine Yankee is submitting the required dismantlement and survey information for the survey units that make up the non-ISFSI portion of the site land in a phased fashion. Other descriptive information and technical evaluations contained in Reference No. 7.3 are unaffected by these submittals and are, therefore, not included in this submittal, as indicated.

In this submittal, Maine Yankee is providing the dismantlement and survey information for five areas (ten survey units), as described in Table 1 in Section 4.1.1. Maine Yankee is providing this information to facilitate NRC review and acceptance. This written NRC acceptance must conclude, for the land associated with the release, that the remaining dismantlement has been performed in accordance with the approved license termination plan, and the terminal radiation survey and associated documentation demonstrates that the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E by meeting a site release criteria of 10 millirem TEDE per year over background (all pathways) with no more than 4 millirem (as distinguishable from background) TEDE per year from groundwater sources of drinking water in accordance with the approved License Termination Plan.

Reference 7.3 provided the information required by section 1.4 of Maine Yankee's License Termination Plan (LTP). LTP section 1.4 discusses the information to be provided in support of releasing land from the jurisdiction of License No. DPR-36 and also describes Maine Yankee's overall phased approach to releasing land. This submittal provides the dismantlement, FSS results, and recontamination prevention and control information required by LTP section 1.4 specific to the survey units covered in this submittal.

The information contained in this submittal, together with the information provided in the prior and subsequent supplemental phases will be sufficient for the NRC to make a determination equivalent to 10 CFR 50.82(a)(11) regarding the lands to be released from the license. Once these lands are so released, it is understood that the NRC will not require any additional surveys or decontamination of these areas unless the NRC determines that the criteria of 10CFR Part 20, Subpart E were not met and that residual activity remaining on the land could result in a significant threat to public health and safety.

**2.0 Proposed License Condition**

The proposed wording for the license condition is provided in Reference 7.3 and is not affected by this supplement.

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**3.0 Background**

Reference 7.3 transmitted an application to amend Maine Yankee's License No. DPR-36 to release the remaining non-ISFSI land from the jurisdiction of the license. The process for releasing land from Maine Yankee's license is established in section 1.4 of the License Termination Plan. This LTP section defines the information that will be provided to support release of land from Maine Yankee's license. This information, includes (1) a description of the boundaries associated with the area to be released, (2) discussion of dismantlement activities performed; (3) final status survey results; (4) evaluation of the potential for re-contamination and controls applied to prevent this; (5) an evaluation of the impact on the exclusion area for site lands remaining under the Part 50 license; (6) an evaluation of possible combined dose effects as a result of partial release; (7) an evaluation of potential impact on various licensee programs and; (8) a no significant hazards determination evaluation. Items (1), (5), (6), (7), and (8) are applicable to the License Amendment Request and the release of the entire remaining non-ISFSI land. Items (2), (3), and (4) are specific to each survey unit/area. This information is contained in this submittal for the survey units covered by this submittal.

**4.0 Site Information and Physical Description**

**4.1 Physical Description of Land to be Released**

The land to be released is described in Reference 7.3 and is unchanged by this submittal.

**4.1.1 Survey Unit Information Included in this Submittal**

As discussed in section 1.0 above, this submittal provides a discussion of demolition activities completed and final status survey results for the survey units located on the proposed land to be released. Details are provided for each survey unit on survey methods, results, data analysis, and conclusions. Additional information on all remaining survey units for the Non-ISFSI land areas will be provided in subsequent submittals. In all cases, Maine Yankee is providing sufficient information, as required, relating to each survey unit so that the NRC staff can verify that the License Termination Plan has been fully implemented for each survey area and that the final status survey results support unrestricted release of the land from License DPR-36 in accordance with the proposed license amendment.

Table 1 provides a description of the survey units addressed in this submittal.

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<b>Table 1 - Survey Unit Description</b>			
<b>Survey Area</b>	<b>Survey Unit</b>	<b>Class</b>	<b>General Description of Survey Unit</b>
FD-3500	1	1	<b>Storm Drains</b> – This survey unit consists of the piping leading into Outfalls 11 and 12. (Storm Drain Sections 3 and 4, respectively per LTP Attachment 5A). The survey unit is approximately 346 m <sup>2</sup> .
FD-3500	2	3	<b>Storm Drains</b> – This survey unit consists of the storm drain piping leading into Outfalls 9 and 10 (Storm Drain Sections 1 and 2, respectively per LTP Attachment 5A). The survey unit is approximately 416 m <sup>2</sup> .
FD-3500	4	3	<b>Storm Drains</b> – This survey unit consists of storm drain piping in the vicinity of the Warehouse and Fire Pond areas. This included concrete piping upstream of manhole 27 (the system low point) and is designated as Section 7 in the LTP. The survey unit also includes an unconnected section of 8" PVC storm drain line that ran under Warehouse 2/3. The survey unit is approximately 162.6 m <sup>2</sup> .
FR-0111	11	1	<b>Yard West Excavations</b> – A rectangular excavated soil area approximately 26 meters wide extending northward approximately 58 meters from the north end of FR-0111 Survey Unit 10. The hole was created in part as a result of the excavation of contaminated sub-surface soil at locations S074 and S075 as identified in Characterization Survey Package CR5000. Also contributing to the size and depth of this area was the removal of portions of storm drain piping and catch basins, LSA and RCA Building slabs, CR-3 foundations, and the High Rad Bunker sump drain line. The survey unit is approximately 1517 m <sup>2</sup> .
FR-0111	12	1	<b>Yard West Excavations</b> – An area located northwest of the former Containment Building. The area was bordered to the south by the excavation made to remove the spent fuel pool liner (Survey Area FA-0400). The survey unit is approximately 1,550 m <sup>2</sup> .
FR-0111	17	1	<b>Yard West Excavations</b> – An area located southeast of the former Containment Building. The area was bordered on the north by FR-0111 Survey Unit 18, on the west by FR-0111 Survey Unit 13 and FR-0100 Survey Units 2 and 3. Survey Area FR-0200 borders the unit to the East. The survey unit is approximately 1,563 m <sup>2</sup> .
FR-0200	2	3	<b>Yard East</b> – An area of land located at the NE corner of the site Industrial Area yard, which encompassed the former Circulating Water Pump House (CWPH). Most recently, this area was used as a truck/equipment maintenance area and a truck radiological monitoring station. The survey unit is approximately 2,752 m <sup>2</sup> .
FR-0200	3	1	<b>Yard East</b> – An area located in the SE corner of the site, residing in the former "Industrial Area" yard. The area was bordered on the north by FR-0200 Survey Units 9 and 4, on the west by FR-0111 Survey Unit 17, and is bounded by FR-0200 Survey Unit 1 to the South and East. The survey unit is located within the current Restricted Area (RA) and includes a 4 meter wide buffer zone outside the RA. The survey unit is approximately 1,687 m <sup>2</sup> .

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<b>Table 1 - Survey Unit Description</b>			
<b>Survey Area</b>	<b>Survey Unit</b>	<b>Class</b>	<b>General Description of Survey Unit</b>
FR-0220	1	3	<b>Spare Transformer Pad Footprint</b> – An area consisting of the subsurface soils below the demolished spare transformer pad. The survey unit is approximately 183 m <sup>2</sup> .
FR-0800	1	1	<b>Administration and Parking Areas</b> - The parking area and land surrounding the former Staff Building. The survey unit consists of open, graded land. Asphalt-covered parking areas and roadways formerly covered the major portion of the survey unit. A small building of metal construction on a concrete slab, called the “Annex” (Warehouse 4), formerly sat on the SW corner of the survey unit. The unit is approximately 9,080 m <sup>2</sup>

These areas and locations of these survey units are shown in Figure 1. The cross-hatched portions of the site represent the areas for which detailed dismantlement and survey information is being provided in this submittal. Shaded areas in Figure 1 represent those included in previous submittals. See Figure 2 for an expanded scale illustration, showing the site’s industrial area.

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**4.1.2 Survey Unit Information Being Provided in Subsequent Submittals**

As discussed above, Maine Yankee will provide additional submittals of detailed information on dismantlement activities and final status survey results as these activities are completed. Below is a list of the Survey Areas that remain to be submitted along with an expected schedule for submittal. The schedule indicates the changes to the schedule from that provided in the last FSS Report. These survey areas encompass the remaining survey areas specified in the Maine Yankee License Termination Plan that have not yet been submitted. The actual submittal schedule, the grouping and scope of survey areas, and sequence of these survey areas, is subject to adjustment based upon the progress of dismantlement, remediation and survey activities.

**Tenth Submittal Scheduled for 5/27/05**

FA-0400 Fuel Building - 1 Survey Unit (moved from Submittal 9)  
FD-0600 Service Water Piping (moved from Submittal 9)  
FR-0111 Yard West Excavations - 5 Survey Units [15, 16, 18, 19, 20] (15 & 16 moved from Submittal 9)  
FR-0200 Yard East - 6 Survey Units  
FR-2600 Duct Banks (moved from Submittal 9)  
FR-2900 Railroad Tracks & Roadways - 2 Survey Units

**4.2 Dismantlement Activities**

The Maine Yankee License Termination Plan (LTP) describes the dismantlement activities to be performed for each structure and area of the Maine Yankee plant. In general, the LTP indicates that structures will be demolished to an elevation corresponding to three feet below grade. A few structures will remain in-place including the 345 kV switchyard and associated relay house. The LTP stated the possibility of other structures, such as the Warehouses and Staff Building, to be left standing following successful completion of final status surveys. The Warehouses and Staff Building have now been demolished. The former Low Level Waste Storage Building, now the ISFSI Security Operations Building (SOB), will remain in-place until fuel is transferred to the United States Department of Energy and will be dismantled and/or released concurrent with FSS of the ISFSI and license termination. Portions of the west plant access road will remain in-place to service the ISFSI and/or other future uses of the site. Since Old Ferry Road is a public road, it will also remain in-place. Certain below grade structural remnants and buried/embedded piping will remain in-place as described in LTP section 3.2.4.

Various options for sequencing building demolition and final status survey activities are established for buildings within the Restricted Area. Typically, a final status survey is conducted on building basement surfaces before fill material is placed in the basement. The fuel building will be demolished to bedrock, except for the fuel pool slab, and surveyed as an excavation prior to backfill. Routine communications are held with State of Maine and NRC representatives to facilitate scheduling of State and NRC surveys, as necessary.



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This section reviews the activities that have been performed for the survey area(s) included in this submittal.

#### 4.2.1 FD-3500 Storm Drains

Per LTP 5-1E, the Storm Drains systems consisted of both Class 1 and Class 3 areas.

As discussed in section 3.2.4 of the LTP, portions of the storm drain system piping serving the site radiologically Restricted Area (that is, "Hot Side" storm drains) were to be decontaminated, if required, and left in place. The storm drain system outside the Restricted Area (that is "Cold Side storm drains), were to be left in place with the following caveats: All catch basins and manholes will be cleaned out, demolished to three feet below grade, and backfilled.

Storm drains are currently in the process of being removed. Upstream manholes and catch basins will be removed. In general, piping outside the Restricted Area (RA) will remain in-place. One segment of piping (outside the RA) was removed for FSS purposes. Piping in storm drains in Class 1 areas (that is, inside the original RA) has been or will be removed. The last section of piping at the discharge to Outfall 6 has been removed and the trench excavation was subject to FSS and backfilled with rip-rap material.

This report includes the FSS for three survey units from this area, Survey Units 1, 2 and 4. The FSS of the Survey Unit 3 was reported in a previous submittal.

#### 4.2.2 FR-0111 Yard West Excavations

Survey Area FR-0111 addresses FSS in a number of soil remediation areas within the site's radiologically RA and is comprised of twenty survey units.

This report includes the FSS for three survey units from this area, Survey Units 11, 12 and 17. The FSS of the other survey units from FR-0111 have either been reported in previous submittals, or will be reported in subsequent submittals.

Dismantlement activities for these survey units involved demolition of above grade structures including the LSA Building, RCA Building, and BWST / PWST Tank Structures. These survey units included surface and subsurface excavations as required to remediate contaminated soils, structures and piping.

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**4.2.3 FR-0200 Yard East (2 Survey Units)**

Survey Area FR-0200 addresses the FSS of a large portion of the industrial area east of the power block area but outside the original RA. Two survey units are included in this report; Survey Units 2 and 3. The FSS of the other survey units from FR-0200 have either been reported in previous submittals, or will be reported in subsequent submittals.

Survey Unit 2 encompassed the former Circulating Water Pump House (CWPH). Most recently, this area was used as a truck/equipment maintenance area and a truck radiological monitoring station. All temporary structures, with exception of the truck monitor and control shack, were removed and all former permanent structures were demolished to at least 3 feet below grade. The truck monitor and control shack have since been removed.

During decommissioning, the RA boundary was expanded to include a portion of FR-0200 including Survey Unit 3. Thus, Survey Unit 3 was reclassified to Class 1. Part of this area was previously surveyed as part of Survey Area FB-0500 (Turbine Building Footprint). All temporary structures were removed and all former permanent structures were demolished to at least 3 feet below grade.

**4.2.4 FR-0220 Spare Transformer Pad Footprint**

As discussed in section 3.2.4 of the LTP, concrete foundations for tanks, guard towers, yard crane footings, vehicle barriers, transformers and buildings will be demolished to three feet below grade. Footings and foundations below three feet below grade may remain in place. All demolition activities associated with the Spare Transformer have been completed.

**4.2.5 FR-0800 Administration and Parking Areas**

FR-0800 includes the parking lot for the Staff Building, with the asphalt removed, and the surface soil surrounding the Staff Building footprint and the Annex footprint.

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**5.0 Technical Evaluation**

**5.1 Potential for Cross-contamination from Subsequent Activities**

Since decommissioning activities are being conducted onsite in parallel with final status survey and release decisions, measures must be taken to protect survey areas from contamination during and subsequent to the final status survey (FSS). Maine Yankee LTP sections 3.5.6, 5.1.2 and 5.11 describe contamination and access controls measures and periodic routine monitoring practices to prevent and/or detect the re-contamination of survey areas during or following FSS. These requirements are implemented, as appropriate, through established procedures and were summarized in Reference 7.3.

The potential for re-contamination and the contamination controls/monitoring for the specific survey areas included in this release phase are discussed and evaluated below:

**5.1.1 FD-3500 Storm Drains**

Per LTP Table 5-1E, the Storm Drains systems consisted of both Class 1 and Class 3 areas. While some portions were determined to be Class 1, soil sampling from the various excavations in the area of storm drain system components (manholes and/or piping) did not indicate substantial residual plant-derived activity. Class 1 storm drains were removed.

Given the removal and backfill of manholes and catch basins, as well as the removal of certain portions of piping, there no longer can be flow within the system. Soil excavations have been backfilled. The surface area above remaining piping will be incorporated into the appropriate soil survey area. The area, following backfill, will be subject to routine contamination control surveys to ensure that decommissioning activities have not introduced recontamination to the area. In addition, standard controls and procedures were implemented including provisions for access control and postings.

**5.1.2 FR-0111 Yard West Excavations**

Contamination controls for the soil remediation areas required special measures due to the proximity of other demolition and excavation work on-going in adjacent survey units and to manage water from both rain and groundwater sources.

1. In general, standard access controls and posting requirements were implemented following the completion of excavation.
2. Buffer zones were established around excavation areas to minimize the potential for foreign material to be inadvertently moved into the excavation.
3. As a general practice, backfilling was accomplished as expeditiously as possible, to minimize the duration that the excavation was open.

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4. Due to rainwater and groundwater intrusion, a number of water management measures were instituted. Dikes were used around the open excavation to minimize rainwater accumulation within the excavation. Pooled water in the excavation was sampled, processed, and discharged, meeting applicable discharge permit requirements.

As an additional control measure, following FSS of these survey units, the site RA boundaries were revised to reduce the overall size of the RA. As a result, the subject FR-0111 survey unit areas were no longer within the RA. This action not only provides for improved management and control of activities (within a smaller RA) but also further reduces the possibility of vehicles traversing and contaminating the subject FR-0111 survey unit areas.

#### 5.1.3 FR-0200 Yard East

These associated survey units are inside the industrial area, to the east of the power block. Survey Unit 3 was within the expanded RA; Survey Unit 2 was outside of the RA. Following FSS of the survey units reported here, standard controls and procedures were implemented including provisions for access control, postings, and routine surveys.

As an additional control measure, following FSS of Survey Unit 3, the site RA boundaries were revised to reduce the overall size of the RA. As a result, Survey Unit 3 was no longer within the RA. This action not only provides for improved management and control of activities (within a smaller RA) but also further reduces the possibility of vehicles traversing and contaminating the subject FR-0200 survey unit areas.

#### 5.1.4 FR-0220 Spare Transformer Pad Footprint

This associated survey unit area is inside the industrial area, to the east of the power block but outside of the RA. Following FSS of the survey unit area reported here, standard controls and procedures were implemented including provisions for access control, postings, and routine surveys.

#### 5.1.5 FR-0800 Administration and Parking Areas

This associated survey unit area is outside the industrial area and the RA. Following FSS of the survey unit area reported here, standard controls and procedures were implemented including provisions for access control, postings, and routine surveys. The area is still used for parking clean vehicles.

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## **6.0 Final Status Survey Report**

Maine Yankee LTP section 5.9.3 identifies the contents of the written reports of final status survey results that are to be submitted to the NRC. These contents include the items described in NUREG 1757, Vol. 2, Section 4.5 (Reference 7.6). The survey unit design information and survey results are provided below in summary fashion. Specific survey unit design details and results are provided in a copy of each survey unit release record in Attachment II of this submittal.

### **6.1 Overview of Results**

The following survey units are included in this report:

1. FD-3500-SU-1 Storm Drains – This survey unit consists of the piping leading into Outfalls 11 and 12. (Storm Drain Sections 3 and 4, respectively per LTP Attachment 5A).
2. FD-3500-SU-2 Storm Drains – This survey unit consists of the storm drain piping leading into Outfalls 9 and 10 (Storm Drain Sections 1 and 2, respectively per LTP Attachment 5A).
3. FD-3500-SU-4 Storm Drains – This survey unit consists of storm drain piping in the vicinity of the Warehouse and Fire Pond areas. This included concrete piping upstream of manhole 27.
4. FR-0111-SU-11 Yard West Excavations – A rectangular excavated soil area approximately 26 meters wide extending northward approximately 58 meters from the north end of FR-0111 Survey Unit 10.
5. FR-0111-SU-12 Yard West Excavations – An area located northwest of the former Containment Building. The area was bordered to the south by the excavation made to remove the spent fuel pool liner (Survey Area FA-0400).
6. FR-0111-SU-17 Yard West Excavations – An area located southeast of the former Containment Building. The area was bordered on the north by FR-0111 Survey Unit 18, on the west by FR-0111 Survey Unit 13 and FR-0100 Survey Units 2 and 3. Survey Area FR-0200 borders the unit to the East.
7. FR-0200-SU-2 Yard East – An area of land located at the NE corner of the site Industrial Area yard, which encompassed the former Circulating Water Pump House (CWPH).
8. FR-0200-SU-3 Yard East – An area located in the SE corner of the site, residing in the former “Industrial Area” yard. The area was bordered on the north by FR-0200 Survey Units 9 and 4, on the west by FR-0111 Survey Unit 17, and is bounded by FR-0200 Survey Unit 1 to the South and East.
9. FR-0220-SU-1 Spare Transformer Pad Footprint - An area consisting of the subsurface soils below the demolished spare transformer pad.
10. FR-0800-SU-1 Administration and Parking Areas - The parking area and land surrounding the former Staff Building.

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The release record for each survey unit contains a description of the survey unit; design information including classification, size, number of measurements, map, scan coverage, and DCGL; survey results; survey unit investigations (anomalous data); data assessment results, including statistical evaluations, if applicable and a simplified general retrospective dose estimate; changes in initial survey unit assumptions on extent of residual activity, an evaluation of LTP changes subsequent to the FSS of the survey unit and survey unit conclusions.

Overall, the release records for these survey units demonstrate that they meet the criteria for release for unrestricted use in accordance with the NRC approved Maine Yankee License Termination Plan.

## **6.2 Discussion of Changes to FSS Program**

The purpose of this section is to discuss changes to the FSS program. Relevant NRC guidance documents (Reference Nos. 7.5 and 7.6) recommend a discussion of any changes that were made in the final status survey from what was proposed in the decommissioning plan or other prior submittals. Since Maine Yankee began performing final status survey activities prior to NRC approval of the LTP, some of the elements of the FSS program described in the approved LTP are different than those used in the design and conduct of early FSS activities. Some changes to the LTP were made following NRC approval using the change process outlined in the license condition and described in LTP section 1.4.1. In addition, some changes to the FSS program may be associated with a License Amendment Request to the LTP made in accordance with 10 CFR 50.90. The key FSS program changes that might impact completed FSS surveys covered in this Final FSS Report were included in Reference Nos. 7.3 and 7.4. The impacts of applicable changes on each survey unit are discussed in the survey units' release record provided in Attachment II.

### **6.2.1 Exploranium GR-130 Minimum Detectable Concentration (MDC) of Cs-137 and Co-60 in Surface Soil**

The Maine Yankee License Termination Plan (LTP), Revision 3 (Reference 7.1) was incorporated into the Maine Yankee License on February 28, 2003 (Reference 7.2). LTP Section 5.5.1, "Survey Measurement Methods" stated:

*Final site survey measurements include surface scans, direct surface measurements, and gamma spectroscopy of volumetric materials. In situ gamma spectroscopy or other methods not specifically described may also be used for final status surveys. If so, Maine Yankee will give the NRC 30 days notice to provide an opportunity to review the associated basis document as described in LTP Section 5.3.1.<sup>1</sup>*

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<sup>1</sup> The reference to section 5.3.1 in the LTP was a typographical error. It should have referenced section 5.5.2.a.

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In accordance with the above 30 day notice requirement, Maine Yankee prepared a Technical Basis Document (TBD) for the limited use of the Exploranium GR-130 instrument. This TBD, Engineering Calculation (EC) 004-04 "Exploranium GR-130 Minimum Detectable Concentration (MDC) of Cs-137 and Co-60 in Surface Soil", was submitted to the NRC on January 26, 2005 (Reference No. 7.27).

The Exploranium GR-130 MiniSPEC (GR-130) is a portable, battery powered, hand held instrument with an internal 4.5 cubic inch NaI (TI) gamma scintillator probe and a 256-channel pulse height analyzer. The TBD describes the use of the GR-130 to quantitatively investigate scan alarms to determine whether the alarm is related to plant derived activity in surface soils to a depth of 15cm.

Maine Yankee's quantitative reliance on the use of the GR-130 instrument for Final Status Survey (FSS) measurements was limited to the conduct of investigations in one survey unit, FR-0220 Spare Transformer Pad Footprint.

The Technical Basis Document concludes that the GR-130 can easily detect Cs-137 activity at or below the soil DCGL's (typically 2.39 pCi/g). The TBD also concludes that the MDC values for Co-60 are typically greater than the DCGL's (typically 0.86 pCi/g) for the nominal count times used. However, for the only instance where Maine Yankee quantitatively relied on the use of the GR-130 instrument for FSS measurements, the Co-60 MDC value was less than the soil DCGL. FR-0220 Spare Transformer Pad Footprint consisted of one Class 3 survey unit inside the Industrial Area (IA) but outside the Restricted Area (RA); therefore the Co-60 soil DCGL was 1.52 pCi/g. Furthermore, the GR-130 instrument was only used to quantitatively investigate scan alarms. In this application, 30 minute count times were used. The Co-60 MDC was estimated to be 1.16 pCi/g for 30 minute count times. Thus, Maine Yankee's use of the GR-130 is appropriate on a limited basis.

The NRC concurred with this determination in a letter dated February 24, 2005 entitled "Acceptance of Maine Yankee Technical Basis Document for the Limited Use of the Exploranium GR-130 Instrument" (Reference 7.28).

#### 6.2.2 Area Classification Change: Storm Drains (D3500) - Section 7

In a letter to the NRC, dated January 26, 2005 (Reference No. 7.29), Maine Yankee notified the NRC (per LTP section 1.4.1) of the change in area classification of a portion of storm drain piping Section 7 from Class 1 to Class 3.

License Termination Plan Section 5, Attachment 5A describes the embedded and buried pipe that will remain on site and identifies the classification and final status survey requirements for each pipe. In this LTP Attachment, storm drain piping sections 5 through 7 were classified as Class 1 buried pipe. This classification change applied to the portion of section 7 storm drain piping upstream of manhole 27 as shown on Figure 1 of Reference No. 7.29.

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Maine Yankee applied the criteria specified in LTP section 5.6.4 to reduce this classification and notified the NRC accordingly. It was determined that this portion of section 7 storm drain piping meets the Class 3 requirements (per LTP Section 5.2.2), i.e., has a low probability of containing residual radioactivity. And that there is sufficient knowledge regarding the distribution of contamination within the reclassified Class 3 area to support a conclusion that the area has a low probability of containing residual radioactivity. In support of this determination, Maine Yankee examined the historical record and reviewed available soil survey data from the surrounding land areas that would be drained by this portion of the drain piping and reviewed available data from water samples routinely taken from the drain piping discharge outfall.

The NRC Staff responded with two comments in its letter to Maine Yankee, dated February 9, 2005 (Reference No. 7.30). Maine Yankee supplied additional information (Reference 7.31) on survey measurements taken on the drain pipe and the measures taken to segregate and control the separation of Class 1 and Class 3 boundaries.

Based upon the foregoing information, Maine Yankee concluded that a reclassification of storm drain section 7 upstream of manhole 27 satisfies the applicable criteria of the License Termination Plan. The NRC concurred with this reclassification in letter dated March 21, 2005 entitled "Storm Drain Area Survey Unit Classification Change" (Reference 7.32).

#### 6.2.3 Clarification of Storm Drain System Description

License Termination Plan Section 2.4.7.g and Section 5, Attachment 5A provide descriptions of the storm drain, roof drain and sanitary waste systems. These descriptions were clarified by an LTP change to reflect the configuration of the system at the time of the conduct of FSS on the system. The description of sanitary waste manholes and piping which were previously grouped with storm drain system have been deleted. These manholes and piping are covered in the sanitary waste system. An option has been added to removed the abandoned leg of the Sanitary Sewer piping that connected the sanitary facilities in the Restricted Area to the Sewage Treatment Plant rather than surveying it. The intent to remove Class 1 storm and roof drains has been described. The redirection of section 5 flow from the seal pit forebay to Bailey Cove has been described. The portions of section 7, classified a Class 1, have been administratively grouped with section 6 for ease of reference in FSS documentation. Also included in this LTP change are other minor editorial changes. This change does not affect a survey unit classification or change the survey requirements.



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**6.3 Final Status Survey Methodology**

This section summarizes the implementation of the LTP Final Status Survey methodology for the survey units that are included in this report supporting the release of remaining non-ISFSI site land. Table 2 lists the key FSS design features for each survey unit. These design features include the survey unit classification and size, the standard deviation and Lower Boundary of the Gray Region (LBGR) used for determining the number of static measurement taken, the percent scan coverage, the Derived Concentration Guideline Limit (DCGL), the design  $DCGL_{EMC}^2$ , and the number of measurements required.

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<sup>2</sup>  $DCGL_{EMC}$ : Derived Concentration Guideline Limit for the Elevated Measurement Comparison

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**Table 2 - Survey Unit Final Parameters**

<b>Survey Unit</b>	<b>Class</b>	<b>Survey Unit Size (m<sup>2</sup>)</b>	<b>Standard Deviation</b>	<b>LBGR</b>	<b>DCGL</b>	<b>Design DCGL<sub>EMC</sub></b>	<b>Units</b>	<b>No. Meas.</b>	<b>% Scan</b>
<b>FD-3500 Storm Drains</b>									
1	3	346	408	8,576	9,800	N/A	dpm/100 cm <sup>2</sup>	30	1.7
2	3	416	727	4,900	9,800	N/A	dpm/100 cm <sup>2</sup>	30	1.1
4	3	162.6	408	8,576	9,800	N/A	dpm/100 cm <sup>2</sup>	30	1.8
<b>FR-0111 Yard West Excavations</b>									
11	1	1,517	1.33	1.2	2.39 0.86	3.9 1.4	pCi/g Cs-137 pCi/g Cs-60	40	100
12	1	1,550	1.33	1.2	2.39 0.86	3.82 1.38	pCi/g Cs-137 pCi/g Cs-60	40	100
17	1	1,563	1.33	1.2	2.39 0.86	3.82 1.38	pCi/g Cs-137 pCi/g Cs-60	40	100
<b>FR-0200 Yard East</b>									
2	3	2,752	0.17	3.69	4.2	N/A	pCi/g Cs-137	14	11.3
3	1	1,687	1.33	1.2	2.39 0.86	3.8 1.4	pCi/g Cs-137 pCi/g Cs-60	40	100
<b>FR-0220 Spare Transformer Pad Footprint</b>									
1	3	183	0.17	3.69	4.2	N/A	pCi/g Cs-137	14	9.8
<b>FR-0800 Administration and Parking Areas</b>									
1	3	9,080	0.13	3.81	4.2	N/A	pCi/g Cs-137	14	10

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**6.4 Final Status Survey Results**

The methods used to determine the number of static measurements to be taken are described in the LTP and the specific survey unit release records provided in Attachment II.

<b>Table 3 - Survey Unit FSS Results</b>							
<b>Survey Unit</b>	<b>Class</b>	<b>No of Static Meas. Taken</b>	<b>Mean Sample (see units)</b>	<b>Maximum Sample (see units)</b>	<b>Standard Deviation (see units)</b>	<b>Units</b>	<b>No. Scan Elevated Areas (Note 1)</b>
<b>FD-3500 Storm Drains</b>							
1	3	32	677	2,362	483	dpm/100 cm <sup>2</sup>	0
2	3	32	553	2,820	788	dpm/100 cm <sup>2</sup>	0
4	3	30	1,340	2,305	333	dpm/100 cm <sup>2</sup>	0
<b>FR-0111 Yard West Excavations</b>							
11	1	40	1.26E-01	3.83E-01	6.68E-02	Unitized	0
12	1	40	1.03E-01	3.24E-01	5.01E-02	Unitized	0
17	1	40	9.80E-02	4.34E-01	5.78E-02	Unitized	0
<b>FR-0200 Yard East</b>							
2	3	14	5.76E-02	9.28E-02	1.62E-02	pCi/g Cs-137	0
3	1	42	5.12E-02	1.15E-01	1.31E-02	pCi/g Cs-137	0
<b>FR-0220 Spare Transformer Pad Footprint</b>							
1	3	14	5.52E-02	6.14E-02	4.75E-03	pCi/g Cs-137	0
<b>FR-0800 Administration and Parking Areas</b>							
1	3	14	6.71E-02	2.97E-01	6.65E-02	Unitized	0

Note 1: This column (No. Scan Elevated Areas) indicates the number of verified scan alarms whose post investigation, as-left, contamination level exceeded the DCGL (or unity for multiple nuclides).

**6.5 Survey Unit Conclusions**

Maine Yankee concludes that this information is sufficient for the NRC to make a determination equivalent to 10 CFR 50.82(a)(11) regarding the survey units contained in this submittal. The surveys for these survey units and associated documentation demonstrate that these areas of the facility and site are suitable for release in accordance with the criteria for decommissioning in 10 CFR part 20, subpart E by meeting a site release criteria of 10 millirem TEDE per year over background (all pathways) with no more than 4 millirem (as distinguishable from background) TEDE per year from groundwater sources of drinking water in accordance with the approved License Termination Plan.

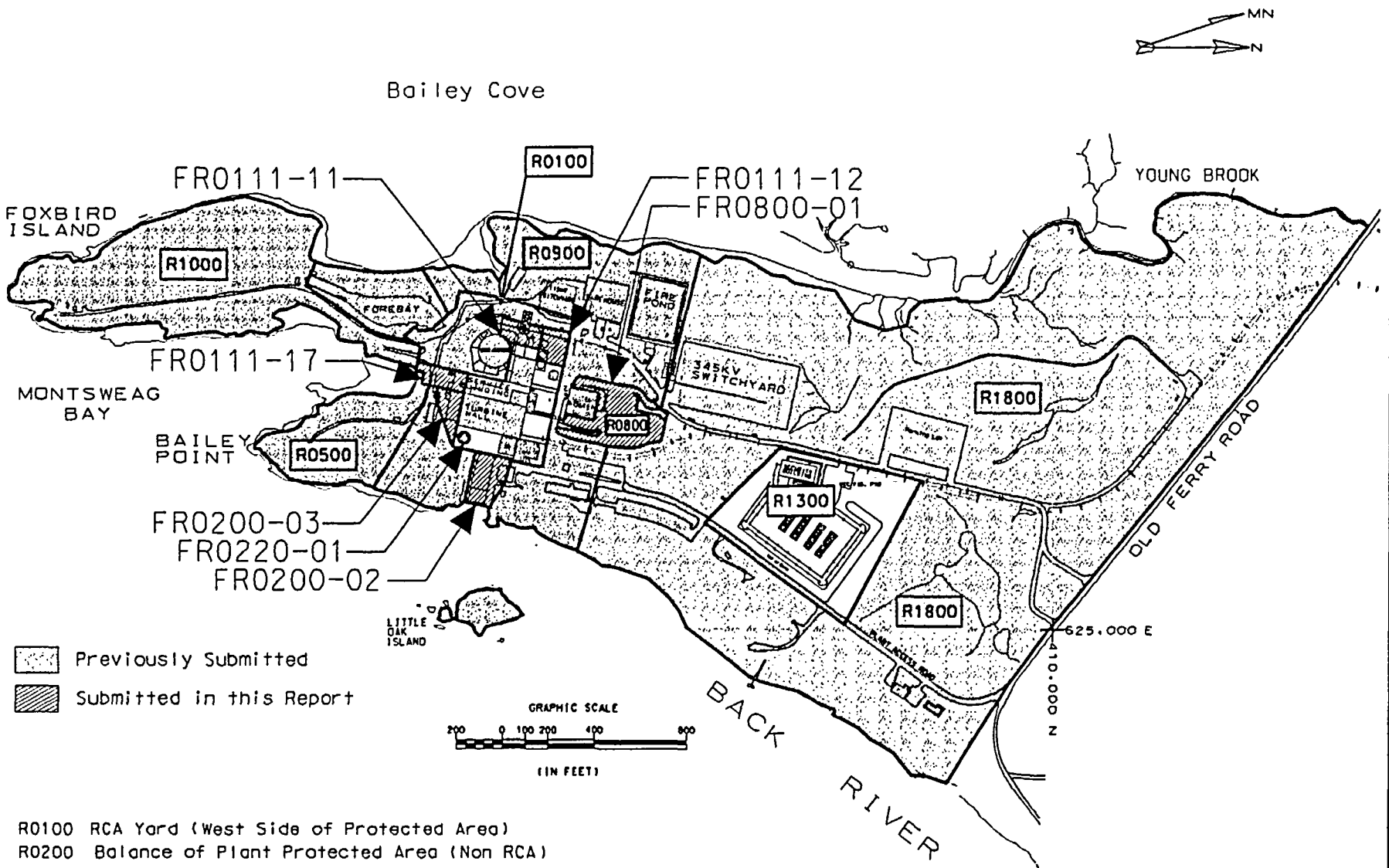
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**7.0 References**

- 7.1 Maine Yankee Letter to USNRC dated October 15, 2002, "Revision 3, Maine Yankee's License Termination Plan", MN-02-048
- 7.2 USNRC Letter to Maine Yankee dated February 28, 2003, "Issuance of Amendment No. 168 to Facility Operating License No. DPR-36 - Maine Yankee Atomic Power Station (TAC No. M8000) - Approval of the MY License Termination Plan
- 7.3 Maine Yankee Letter to the USNRC, MN-04-020, dated March 15, 2004, License Amendment Request: Release of Non-ISFSI Site Land, Proposed Change No. 218
- 7.4 Maine Yankee Letter to the USNRC, MN-04-031, dated May 6, 2004, Release of Non-ISFSI Site Land - FSS Final Report No. 1A, Proposed Change No. 218, Supplement 1
- 7.5 USNRC, NUREG 1727 "NMSS Decommissioning Standard Review Plan"
- 7.6 USNRC, NUREG 1757 "Consolidated NMSS Decommissioning Guidance"
- 7.7 USNRC, NUREG 1575 "Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM)" Revision 1 dated October 18, 2000, supplemented June 2001
- 7.8 Maine Yankee Letter to the USNRC, MN-04-044, dated August 12, 2004, Release of Non-ISFSI Site Land - Resubmittal of FSS Final Report No. 1, Proposed Change No. 218, Supplement 2
- 7.9 Maine Yankee Letter to the USNRC, MN-04-047, dated September 2, 2004, License Amendment Request - Release of Non-ISFSI Site Lands, Proposed Change No. 218, Supplement 3
- 7.10 Maine Yankee Letter to the USNRC, MN-04-49, dated September 15, 2004, Release of Non-ISFSI Site Land - - FSS Final Report No. 2, Proposed Change No. 218, Supplement 4
- 7.11 Maine Yankee Letter to the USNRC, MN-04-052, dated October 12, 2004, Release of Non-ISFSI Site Land - FSS Final Report No. 3, Proposed Change No. 218, Supplement 5
- 7.12 Maine Yankee Letter to the USNRC, MN-04-053, dated October 14, 2004, Release of Non-ISFSI Site Land – Addendum to FSS Final Report No. 1, Proposed Change No. 218, Supplement 6
- 7.13 Maine Yankee Letter to the USNRC, MN-04-056, dated November 17, 2004, Release of Non-ISFSI Site Land – FSS Final Report No. 4, Proposed Change No. 218, Supplement 7
- 7.14 Maine Yankee Letter to the USNRC, MN-04-035, dated May 13, 2004, Area Classification Change: Containment Foundation Drain
- 7.15 Maine Yankee Letter to the USNRC, MN-02-063, dated December 12, 2002, Update on Forebay Dike Coring Results and Associated Changes to LTP Attachment 2H (LTP Revision 3 Addenda)
- 7.16 Maine Yankee Letter to the USNRC, MN-03-004, dated January 21, 2003, Forebay Remediation Plan Phase 2
- 7.17 Maine Yankee Letter to the USNRC, MN-03-049, dated September 11, 2003, Proposed Change: Revised Activated Concrete DCGL and More Realistic Activated Concrete Dose Modeling – License Condition 2.B.(10), License Termination
- 7.18 USNRC Letter to Maine Yankee dated February 18, 2004, Issuance of Amendment No. 170 to Facility Operating License No. DPR-36 – Maine Yankee Atomic Power Station (TAC NO. M8000)
- 7.19 Maine Yankee Letter to the USNRC, MN-04-059, dated December 7, 2004, Release of Non-ISFSI Site Land – FSS Final Report No. 5, Proposed Change No. 218, Supplement 9
- 7.20 Maine Yankee Letter to the USNRC, MN-03-051, dated September 3, 2003, Technical

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- Basis Document: Forebay FSS Survey Measurement Methods (In Situ Gamma Spectroscopy) - 30 Day Notice LTP Requirement
- 7.21 Maine Yankee Letter to the USNRC, MN-03-067, dated October 21, 2003, Maine Yankee Response to NRC and State of Maine Comments on the Technical Basis Document: Forebay FSS Survey Measurement Methods (In Situ Gamma Spectroscopy)
- 7.22 Maine Yankee Letter to the USNRC, MN-02-063, dated December 12, 2002, Update on Forebay Dike Coring Results and Associated Changes to LTP Attachment 2H (LTP Revision 3 Addenda)
- 7.23 Maine Yankee Letter to the USNRC, MN-04-060, dated December 22, 2004, Release of Non-ISFSI Site Land – FSS Final Report No. 6, Proposed Change No. 218, Supplement 10
- 7.24 Maine Yankee Letter to the USNRC, MN-04-061, dated December 23, 2004, Response to NRC RAIs on FSS Report No. 2, Proposed Change No. 218, Supplement 11
- 7.25 Maine Yankee Letter to the USNRC, MN-05-001, dated January 20, 2005, Release of Non-ISFSI Site Land – FSS Final Report No. 7, Proposed Change No. 218, Supplement 12
- 7.26 Maine Yankee Letter to the USNRC, MN-05-007, dated February 17, 2005, Release of Non-ISFSI Site Land – FSS Final Report No. 8, Proposed Change No. 218, Supplement 15
- 7.27 Maine Yankee Letter to the USNRC, MN-05-002, dated January 26, 2005, Technical Basis Document for NRC Review: Exploranium GR-130 minimum Detectable Concentration (MDC) of Cs-137 and Co-60 in Surface Soil - 30 Day Notice per LTP Requirement.
- 7.28 USNRC Letter to Maine Yankee dated February 24, 2005 entitled "Acceptance of Maine Yankee Technical Basis Document for the Limited Use of the Exploranium GR-130 Instrument".
- 7.29 Maine Yankee Letter to the USNRC, MN-05-003, dated January 26, 2005, Area Classification Change: Storm Drains (D3500) - Section 7
- 7.30 USNRC Letter to Maine Yankee dated February 9, 2005, "Response to Area Classification Change: Storm Drains (D3500)"
- 7.31 Maine Yankee Letter to the USNRC, MN-05-009, dated February 23, 2005, Response to NRC Comments on Maine Yankee Area Classification Change: Storm Drains (D3500) - Section 7
- 7.32 USNRC Letter to Maine Yankee dated March 21, 2005, Storm Drain Area Survey Unit Classification Change"



MAINE STATE GEOLOGICAL COORDINATE SYSTEM

- R0100 RCA Yard (West Side of Protected Area)
- R0200 Balance of Plant Protected Area (Non RCA)
- R0400 Forebay
- R0500 Bailey Point
- R0800 Administration and Parking Areas
- R0900 Balance of Plant Area
- R1000 Foxbird Island
- R1300 ISFSI Area/Contractor Parking Lot
- R1800 Bailey House Land
- R2900 Roads and Rails

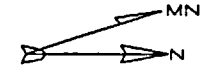
MAINE STATE GEOLOGICAL COORDINATE SYSTEM

N 406,000

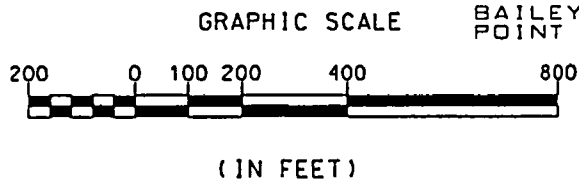
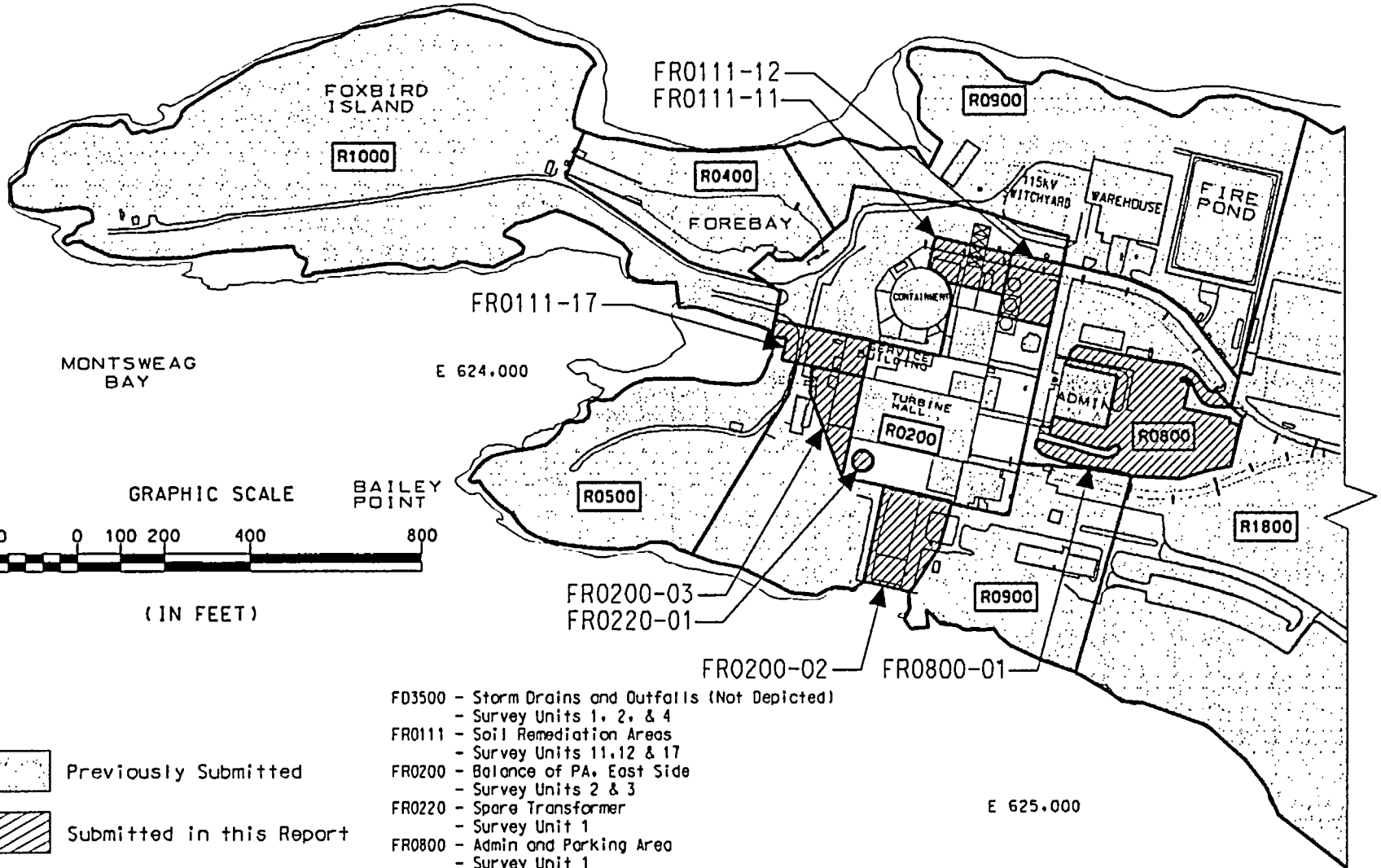
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Bailey Cove



- FD3500 - Storm Drains and Outfalls (Not Depicted)
  - Survey Units 1, 2, & 4
- FR0111 - Soil Remediation Areas
  - Survey Units 11, 12 & 17
- FR0200 - Balance of PA, East Side
  - Survey Units 2 & 3
- FR0220 - Spare Transformer
  - Survey Unit 1
- FR0800 - Admin and Parking Area
  - Survey Unit 1
- FR2600 - Electrical Ductbanks and Manholes (Not Depicted)
  - Survey Unit 1

E 625,000

Final Report No. 9  
 Survey Areas

Figure  
 2

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**Final Status Survey Release Records**

1. FD-3500-SU-1 Storm Drains – This survey unit consists of the piping leading into Outfalls 11 and 12. (Storm Drain Sections 3 and 4, respectively per LTP Attachment 5A).
2. FD-3500-SU-2 Storm Drains – This survey unit consists of the storm drain piping leading into Outfalls 9 and 10 (Storm Drain Sections 1 and 2, respectively per LTP Attachment 5A).
3. FD-3500-SU-4 Storm Drains – This survey unit consists of storm drain piping in the vicinity of the Warehouse and Fire Pond areas. This included concrete piping upstream of manhole 27.
4. FR-0111-SU-11 Yard West Excavations – A rectangular excavated soil area approximately 26 meters wide extending northward approximately 58 meters from the north end of FR-0111 Survey Unit 10.
5. FR-0111-SU-12 Yard West Excavations – An area located northwest of the former Containment Building. The area was bordered to the south by the excavation made to remove the spent fuel pool liner (Survey Area FA-0400).
6. FR-0111-SU-17 Yard West Excavations – An area located southeast of the former Containment Building. The area was bordered on the north by FR-0111 Survey Unit 18, on the west by FR-0111 Survey Unit 13 and FR-0100 Survey Units 2 and 3. Survey Area FR-0200 borders the unit to the East
7. FR-0200-SU-2 Yard East – An area of land located at the NE corner of the site Industrial Area yard, which encompassed the former Circulating Water Pump House (CWPH).
8. FR-0200-SU-3 Yard East – An area located in the SE corner of the site, residing in the former “Industrial Area” yard. The area was bordered on the north by FR-0200 Survey Units 9 and 4, on the west by FR-0111 Survey Unit 17, and is bounded by FR-0200 Survey Unit 1 to the South and East.
9. FR-0220-SU-1 Spare Transformer Pad Footprint - An area consisting of the subsurface soils below the demolished spare transformer pad.
10. FR-0800-SU-1 Administration and Parking Areas - The parking area and land surrounding the former Staff Building.