

May 3, 2005

Mr. Michael J. Meisner, Chief Nuclear Officer  
Maine Yankee Atomic Power Company  
321 Old Ferry Road  
Wiscasset, Maine 04578-4922

SUBJECT: MEETING REPORT FOR THE APRIL 19, 2005, MEETING WITH MAINE  
YANKEE ATOMIC POWER COMPANY (MAINE YANKEE)

On April 19, 2005, U.S. Nuclear Regulatory Commission (NRC) staff members met with representatives of Maine Yankee to discuss open technical issues regarding Supplements 1, 2, 5 and 6, of Maine Yankee's final status survey (FSS) report. Attached is the report documenting this meeting.

Questions regarding this letter should be directed to John Buckley at 301-415-6607.

Sincerely,

**/RA/**

John T. Buckley, Project Manager  
Decommissioning Directorate  
Division of Waste Management  
and Environmental Protection  
Office of Nuclear Material Safety  
and Safeguards

Attachment: Meeting Report

Docket: 50-309  
License: DPR-36

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## MEETING REPORT

**Date:** April 19, 2005

**Time:** 8:30 a.m. to 3:00 p.m.

**Place:** U.S. Nuclear Regulatory Commission (NRC)  
11545 Rockville Pike  
Rockville, MD 20852

**Purpose:** To discuss technical issues regarding Supplements 1, 2, 5 and 6 of Maine Yankee Atomic Power Company's (Maine Yankee's) final status survey (FSS) report.

### Attendees:

<u>NRC</u>	<u>Maine Yankee</u>	<u>Others</u>
John Buckley	Mike Whitney	Jim Berger
Bruce Watson	George Pillsbury	
Mark Roberts		
Robert Prince		

### Background:

NRC approved Maine Yankee's License Termination Plan (LTP), via License Amendment No. 168, on February 28, 2003. Section 1.4.2 of the LTP describes Maine Yankee's approach for the phased unrestricted release of site property from its Part 50 license, leading to eventual license termination.

The LTP describes a three-phased approach for releasing site land and terminating Maine Yankee's license. Phase 1, the release of 641 acres of land associated with Eaton Farm and land north of Ferry Road, was completed on July 30, 2002. Phase 2 includes releasing the remainder of the site not associated with the ISFSI. Phase 3 includes the release of land associated with the ISFSI and termination of Maine Yankee's license.

Maine Yankee's FSS report contains 10 supplements. On April 7, 2005, Maine Yankee submitted Supplement 9 for NRC review and approval. To date, the NRC has conditionally approved Supplements 3 and 4. As a result of NRC's review of Supplements 1, 2, 5, 6, and 7, the staff identified a number of issues requiring resolution before receiving NRC approval. These issues were transmitted to Maine Yankee in the form of Requests for Additional Information (RAIs) dated March 28, 2005 (ADAMS No. ML0508202970), March 28, 2005 (ADAMS No. ML0508202970), March 13, 2005 (ADAMS No. ML0506902890), April 7, 2005 (ADAMS No. ML050980002), and April 15, 2005 (ADAMS No. ML051050496) for Supplements 1, 2, 5, 6, and 7, respectively.

Attachment

Maine Yankee transmitted responses to the RAIs for Supplements 1, 2, and 5 on April 13, 2005 (ADAMS No. ML0511003180), April 13, 2005 (ADAMS No. ML0511003180), and April 7, 2005 (ADAMS No. ML0510904330), respectively.

**Discussion:**

The goal of the meeting was to discuss and agree on a strategy for resolving the outstanding technical issues associated with NRC's RAI for FSS Report Supplements 1, 2, 5, and 6.

The meeting was brought to order at 8:30 a.m.

**AGENDA ITEM 1: FSS REPORT SUPPLEMENTS 1 AND 2**

Numerous unresolved technical issues have existed since September 2004. NRC's unresolved technical issues on FSS Report Supplements 1 and 2, were transmitted to Maine Yankee in a RAI dated March 28, 2005 (ADAMS No. ML0508202970). Maine Yankee responded to the RAI on April 13, 2005 (ADAMS No. ML0511003180). During the meeting, participants discussed each unresolved issue and agreed on strategy to reach resolution. Below is a restatement of NRC's comments, the corresponding Maine Yankee responses, and the agreed upon resolution.

**1. NRC General Comments**

Based on your response, it appears that NRC and Maine Yankee agree on the point that: Maine Yankee agreed to include a statement in the relevant Final Status Survey (FSS) release records that states, "All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth. . ." In accordance with License Termination Plan (LTP) Section 5.9.2, "Survey Unit Release Record," when a release record is approved by Maine Yankee it becomes a quality record. Quality records must be identifiable and retrievable (Part 50, App. B, Sec. XVII). Therefore, Maine Yankee is required to keep the release records and survey data supporting the release records.

NRC has a responsibility to verify statements made by Maine Yankee in the FSS release records. The staff's verification of Maine Yankee's statement, "All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth. . ." is consistent with the staff's understanding of the September 9, 2004, meeting agreement. The staff disagrees with Maine Yankee's clarification regarding the 30,000 cpm criterion as outlined in the Maine Yankee February 15, 2005, letter. Specifically, the staff's response to the six points raised by Maine Yankee in the introduction portion of the February 15, 2005, letter follows.

1. As documented in NRC letters dated October 14, 2004, November 4, 2004, November 30, 2004, and January 7, 2005, the staff has repeatedly informed Maine Yankee that LTP Section 5.5.1, requires surveys and/or sampling of structures, and the cracks and wall/floor interfaces. At the September 9, 2004, meeting, the staff indicated that gamma surveys were a technically acceptable alternative to extensive sampling. As a result, Maine Yankee stated that gamma scans had been completed on all basement surfaces and agreed to state in the relevant FSS reports that, "All basement surfaces were remediated to the 30,000 cpm gross gamma activity

criterion value to detect and remove contamination at depth. . .” to document that the requirements of LTP Section 5.5.1 had been met. Therefore, Maine Yankee’s assertion that “Up to this point, [gamma surveys] has not been part of the License Termination Plan” is incorrect.

2. The staff agrees that the 30,000 cpm criterion does not apply to concrete surfaces that no longer exist, bedrock surfaces or metallic surfaces. However, if a concrete wall was removed, the 30,000 cpm criterion does apply to the juncture where the once present wall intersected the still present floor and applies to metallic surfaces where residual radioactivity could migrate beneath the metal (i.e., Containment Building floor).

3. The staff disagrees with Maine Yankee’s statement that the 30,000 cpm criterion, “Is not exclusive nor necessary provided other technical means are applied (e.g., technical judgement that an elevated gamma reading is clearly due to adjacent radiation sources, analysis of sampling results, etc.)” If the survey unit release record states that “All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth. . .” then Maine Yankee should have the data to support this statement. If the release record does not include the statement, and provides alternative documentation to demonstrate compliance with LTP Section 5.5.1, the staff has no comment. Technical judgement is not adequate justification for the lack of gamma scan data. As noted in NRC’s letter dated January 7, 2005, the potential for under-building contamination cannot be technically justified or modeled until the extent of the residual activity is determined by actual measurements.

4. The staff does not consider the 30,000 cpm criterion to be qualitative. It is a quantitative number that Maine Yankee stated it met to confirm that no contamination is present at depth.

5. Even though the 30,000 cpm criterion was applied during remediation, it verifies the lack of contamination at depth, which ultimately demonstrates compliance with the LTP. See response No. 1 above.

6. Meeting the 30,000 cpm criterion is the basis for performing beta surveys for the FSS. As stated by NRC in its letter dated January 7, 2005, and restated here to avoid confusion in the future, acceptable gamma survey results provide the justification for performing surface measurements to demonstrate compliance with the dose criteria.

#### **Maine Yankee Response:**

Maine Yankee stands by its clarification of the 30k cpm gross gamma activity criterion. Since the application of the criterion is in question only for a very small number of grid areas, we provide only a brief discussion below.

As previously noted, Maine Yankee agreed to provide a statement<sup>1</sup> concerning the 30K criterion during a meeting with NRC on 9/9/04. At the meeting, we noted the limitations of such a simple statement (e.g., applies to concrete basement surfaces only), some of which were reiterated in

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<sup>1</sup> “All basement surfaces were remediated to the 30,000 cpm gross gamma activity criterion value to detect and remove contamination at depth. . .”

our previous RAI response (e.g., records weren't required and may be difficult to retrieve; surveys were not performed to the same standards as FSS surveys). Nonetheless, NRC staff agreed that the use of pre-FSS gamma surveys was one acceptable alternative to other approaches outlined in LTP Section 5.5.1.

The 30k statement was understood to be "shorthand" encompassing all its obvious limitations. The statement cannot be literally interpreted. For instance, the phrase "all basement surfaces" clearly does not include bedrock or metal surfaces or walls/floors that no longer exist, even though they are "basement surfaces" within a literal interpretation. Given its remediation phase genesis, FSS pedigree or rigor beyond DCGL criteria could not be inferred from the statement. Exclusive use of gamma surveys was obviously not intended – using already approved methods in LTP 5.5.1 rather than gamma scans was not prohibited by the statement.

Because Maine Yankee wanted to be accurate and avoid further misunderstandings about the 30k criterion, Maine Yankee prepared a clarification.

At the time of the September 2004, meeting, the 30k criterion was not a part of the LTP. In particular, LTP 4.2.1 had not yet been updated in accordance with 10CFR50.71(e).

#### **Resolution:**

NRC and Maine Yankee agreed to disagree on the need to provide gamma survey data to demonstrate that there is no contamination at depth. This issue will be addressed by NRC Region 1 as an inspector follow-up item. However, Maine Yankee has responded to NRC's RAIs by providing gamma survey data for all basement surfaces, with the exception of nine FSS grids in the Spray Building. During the meeting, Maine Yankee staff provided the locations of the grids with the missing gamma survey data. It was determined that the missing gamma survey data is from wall grids and upper level floors, not floors in contact with soil or juncture grids, and each of these grids is surrounded by grids with gamma survey data demonstrating that the activity level is less than 30,000 cpm. Therefore, since there is minimal potential for contamination at depth resulting from these grids that could provide a pathway for under building contamination and subsequently to the groundwater, the NRC is closing the gamma survey issue for Supplements 1 and 2. A detailed discussion regarding the missing gamma survey data for these grids is provided below under Specific Comments 2 and 3.

## **2. NRC Specific Comment FSS Supplement No. 1**

### Category A - Acceptable Gamma Surveys are Documented

Survey Unit 8 - Clarification is needed because the Spray Building Survey Map, dated February 22, 2003, which was provided as part of your response, shows containment wall values of 3K - 126K cpm across from area P12B.

#### **Maine Yankee Response:**

Spray Building Survey Map, dated February 27, 2003, was being provided in response to an RAI regarding Survey Unit No. 9 not Survey Unit No. 8. Survey Unit No. 9, consisted of the vertical wall interfaces (shake spaces) with the Containment Building. Spray Building Survey

Maps dated September 3 and 15, 2003, explicitly showed the gamma survey results of these shake spaces. Spray Building Survey Map, dated February 27, 2003, was provided to show the gamma survey results of the Containment Wall up to the interfacing exterior Spray Building wall in the E3B cubicle. In our response (Reference No. 22), we noted the following: "Note that the February 27, 2003, survey shows that gamma scan of the Containment wall right up to the interfacing exterior Spray Building wall in the E3B cubicle was less than 30 k cpm (16 to 24 k cpm)." Maine Yankee's intent with this note was to focus the reviewer's attention on the relevant piece of information being provided on this map.

The February 27, 2005, map also contained unrelated survey results across from area P12B. This survey data was associated with surfaces contained in Survey Unit No. 6. The gamma surveys associated with this Survey Unit have been previously reviewed by the NRC.

**Resolution:**

NRC staff finds the Maine Yankee response to be acceptable.

**3. NRC Specific Comment FSS Supplement No. 1**

Category B - Contaminated Concrete Source Removed

Survey Unit 2 - Maine Yankee's response does not indicate that gamma surveys were performed after the pump mount curb and Ric Wil pipes were removed. Please provide this gamma survey data.

**Maine Yankee Response:**

In Reference No. 13, the NRC referred to a Remediation Survey Gamma Scan of Survey Unit 2, Grid C032 near the pump (heat exchanger) mount curb showing 36,000 cpm. This gamma result is shown on the accompanying map to be probe size (20 cm<sup>2</sup>) at 36 k cpm. Using the dose assessment method described in Category C, a spot contaminated at this magnitude and size would result in a dose of 2.3 E-05 mrem. See Maine Yankee's answer below on the sensitivity of this dose assessment to the assumed depth of contamination.

Attached (Appendix A of Reference No. 28) are remediation survey gamma scan results of the concrete surrounding the Ric Wil pipe in Survey Unit No. 2 (interior Spray Building prior to Ric Wil pipe removal). Survey Map dated May 7, 2003, shows the Ric Wil pipe with elevated gamma readings (up to 900k cpm). Survey Map dated June 10, 2003, shows the Ric Wil pipe loaded with lead blankets to shield the radiation from contamination inside the pipe from the concrete surfaces around the pipe which were being surveyed. All of the remediation survey gamma scan results of the concrete surrounding the Ric Wil pipe penetration were less than 30 k cpm. This survey demonstrated that the elevated gamma results were due to the Ric Wil pipe not concrete around the Ric Wil pipe. The Ric Wil pipe was removed as part of the excavation associated with FR-0111 Survey Unit 3 as shown in Appendix B of Reference No. 22. FR-0111 Survey Unit 3 (Map FR0111U3-04), shows ISOCS measurements taken on the exterior Spray Building wall following Ric Wil pipe removal. Maine Yankee has not located a gamma scan result of the interior Spray Building wall following Ric Wil pipe removal.

### **Resolution:**

During the meeting, Maine Yankee stated that it does not have gamma survey data which shows that Grid C032 is below 30,000 cpm. During the meeting, NRC and Maine Yankee staff discussed the location of grid C032 and determined that the missing gamma survey data is from the 14 ft elevation floor grid, not a floor or juncture in contact with soil, and Grid C032 is surrounded by grids with gamma survey data demonstrating that the activity level is less than 30,000 cpm. In addition, beta scan results indicate that Grid C032 is less than 3000 cpm/20cm<sup>2</sup>. Therefore, given there is minimal potential for contamination at depth resulting from this grid, the NRC is closing this issue.

During the meeting, Maine Yankee stated that it does not have gamma survey data which shows that the interior Spray Building wall following Ric Wil pipe removal is below 30,000 cpm. Following discussions with Maine Yankee staff during the meeting, NRC staff find the Maine Yankee response to be acceptable.

#### **4. NRC Specific Comment FSS Supplement No. 1 Category C - Evaluation Performed - First Paragraph**

As noted in NRC's letter dated January 7, 2005, the potential for under-building contamination cannot be technically justified or modeled until the extent of the residual activity is determined by actual measurements. The evaluation presented in Appendix H of Maine Yankee's response assumes a contamination depth of 15 cm. Maine Yankee's assertion that 15 cm is the expected depth of view of the NAI detector is not adequate justification for this assumption.

### **Maine Yankee Response:**

Out of the large number of remediation survey gamma scans that were conducted in the Spray Building and the Primary Auxiliary Building, there are a very small number of areas (< 0.3%) of low radioactivity and small areal extent where the documentation has not been located showing a final gamma scan result less than 30 k cpm. Most likely these areas were remediated. However, the purpose of this evaluation was to provide a means of dispositioning these small number of missing records by showing that even if these areas were not remediated, the dose consequences of the last recorded gamma scan results are inconsequential. The evaluation is based upon the expected depth of view of the Nal detector, as a common sense approach to compare against a gamma scan. However, even if the depth of contamination were two orders of magnitude greater, eg. 1.5 meters, the dose consequences would be E-02 mrem/yr. This depth is greater than the thickness of the concrete mat itself. This sensitivity analysis indicates that increasing the contamination depth assumption by two orders of magnitude results in an insignificant dose consequence.

### **Resolution:**

During the meeting, NRC and Maine Yankee staff discussed the location of grids with missing gamma survey data. It was determined that the missing gamma survey data is from wall grids, and upper level floors, not floors in contact with soil or juncture grids, and each of these grids is surrounded by grids with gamma survey data demonstrating that the activity level is less than 30,000 cpm. Therefore, there is minimal potential for contamination at depth resulting from

these grids that could provide a pathway for under building contamination and subsequently to the groundwater. However, the FSS release records need to be revised to account for the residual contamination at-depth for the grids located in items 1-4 above. Following discussions with Maine Yankee, the staff finds the dose assessment to be acceptable, and this issue is therefore closed.

**5. NRC Specific Comment FSS Supplement No. 1**  
**Category C - Evaluation Performed - Paragraphs 2 and 3**

In addition, based on Maine Yankee Condition Report (CR) No. 04-126, submitted as Appendix L of the response, it appears that there are many areas in the PAB and Spray Building that did not receive surveys. Staff is concerned that Maine Yankee did not inform NRC previously that these areas did not receive appropriate FSS surveys and did not include a discussion of these missed areas in its response to NRC RAIs for Supplements 1 and 2.

On November 4, 2004, and November 30, 2004, NRC transmitted RAI's on Maine Yankee's FSS Supplements 1 and 2, respectively. In the RAI, the staff stated that the FSS release records did not include sufficient information to document that wrap-around areas, such as door frames, penetrations and other openings were surveyed. Maine Yankee's responses to the RAIs were dated December 7, 2004, and December 23, 2004. The responses provide adequate information for several wrap-around areas, penetrations and other openings, but fail to address numerous other areas in the PAB and Spray Building which were not surveyed, as documented in CR-04-126. The CR, which was reviewed and approved on December 6, 2004, documents junctures which did not receive surveys and other areas which did not receive FSS. It is unclear why Maine Yankee failed to provide this information earlier.

**Maine Yankee Response:**

NRC stated that based on CR No. 04-126, that it appears that there are many areas in the PAB and Spray Building that did not receive gamma surveys. This is incorrect. The subject of CR No. 04-126 was missing beta scan documentation on juncture surfaces<sup>2</sup> in PAB SU 5 and 12. CR No. 04-126 was not the subject of missing gamma scans. In Reference No. 22 (Appendix L), Maine Yankee provided gamma scans for the small number of areas where there was missing beta scan documentation on juncture surfaces and interferences.

NRC expressed a concern that Maine Yankee did not inform NRC previously that these areas did not receive appropriate FSS surveys and did not include a discussion of these missed areas in its response to NRC RAI's for Supplements 1 and 2. This is incorrect. In Maine Yankee's first response to an RAI on this Condition Report, Maine Yankee informed the NRC of the results of the extent of condition.

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<sup>2</sup> The concrete interfaces are typically scanned using both 43-68 (FSS Phase) and SPA-3 (Remediation Phase) detectors right up to the joint. Both of these scans are capable of detecting elevated measurements which need to be investigated further. As an added measure of conservatism, MY developed a reduced efficiency technique for performing an additional scan of junctures with the 43-68 detector held at a 45 degree angle over the interface. This technique has a much lower efficiency (0.06 vs 0.13) due to the distance between the detector and the inaccessible joint itself.

On December 23, 2004 (Reference No. 18), Maine Yankee responded to NRC RAI # 3 on FSS Report No. 2. In this response, Maine Yankee made the following statement:

“An extent of condition review was performed on survey data for the entire Primary Auxiliary Building and the Spray Building. This review identified relatively small areas of surfaces related to interferences that may not have received 100% (beta) scan. These areas represent a very small fraction of the survey surface area, but are documented and evaluated in the CR closure package.”

At that time, Maine Yankee provided the substance of the CR closure package evaluation in its response to the RAI. On January 19, 2005 (Reference No. 20), NRC provided its evaluation of the Maine Yankee RAI responses and closed the RAI on PAB SU 5 due to acceptable gamma survey the associated junctures. On February 16, 2005 (Reference No. 22), Maine Yankee provided gamma surveys of the grids for PAB SU 12 and other PAB areas where there were missing beta scan juncture surveys as identified in the CR closure package extent of condition review.

The NRC stated that Maine Yankee failed to address numerous other areas in the PAB and Spray Building. Maine Yankee did identify and address these other areas in the PAB and Spray Building in the first response (Reference No. 18) and with additional information beyond the CR closure evaluation in Reference No. 22.

The NRC repeated its statement that the CR documents junctures which did not receive gamma surveys. As indicated above, this is incorrect. The CR documented missing beta scans not gamma scans.

The NRC repeated its concern that Maine Yankee failed to provide this information earlier. As indicated above, Maine Yankee informed the NRC of the results of the extent of condition review in the first response to an RAI on the CR.

In addition to being factually incorrect, this RAI does not request additional information from Maine Yankee, it simply makes statements with which Maine Yankee disagrees. As indicated above, Maine Yankee has submitted to the NRC sufficient information to resolve this item.

#### **Resolution:**

During the meeting, NRC and Maine Yankee discussed the apparent inconsistencies between Condition Report (CR) No. 04-126 and Maine Yankee RAI responses dated December 7, 2004 and December 23, 2004. Participants have a common understanding of the issue and Maine Yankee agreed to evaluate the CR and referenced RAI responses to identify any discrepancies in wrap-around surveys.

#### **6. NRC Specific Comment FSS Supplement No. 2 - Comment No. 2**

PAB Survey Unit 1, Grids C039, C086, and C087: Maine Yankee's response states, "It was the surveyor's judgement that the reason the scan results were higher than the 30 K cpm gamma scan guideline was due to the shine from the fuel building not from the wall grids themselves. . . . It was not possible to demonstrate that these wall grids met the 30 k cpm guideline without first

removing the fuel building tunnel walls. The fuel Building tunnel walls are now being demolished and properly removed. In addition, Maine Yankee will also removed the PAB wall areas associated with wall grid nos C026, C039, C086 and C087 (Appendix J).”

“Surveyor’s judgement” is not acceptable justification for the lack of survey data. Upon completion of the remediation activities, please provide the gamma scan data and revised FSS survey data for these areas.

**Maine Yankee Response:**

Surveyor judgement was necessary to guide remediation activities. In this instance, if surveyor judgement was not allowed to be used, remediation of the PAB surfaces would have continued ad infinitum since the source of radiation was not in the PAB surfaces, but in the fuel building tunnel. The issue has never been whether surveyor judgment is an acceptable justification for the lack of survey data; but rather to what extent was remediation data required to be maintained. In this case, surveyor judgement during the remediation phase was a practical necessity to completing the remediation. Furthermore, NRC recognizes the role played by surveyor judgement in scanning. NUREG/CR-6364, “Human Performance in Radiological Survey Scanning,” (Reference No. 26 ) provides a complete discussion of the human factors as they relate to the performance of scan surveys.

Maine Yankee is perplexed by the NRC’s evaluation of our response to this RAI, since Maine Yankee discussed its plans to address the PAB concrete surfaces associated with the grids. Accordingly, attached (Appendix B of [Reference No. 28](#)) are the gamma scans of these concrete floors and walls (concrete wall grids have been almost completely removed).

**Resolution:**

During the meeting participants discussed what level of “surveyor judgement” was acceptable during FSS. It was concluded that NRC and Maine Yankee are in agreement about the role of “surveyor judgement.” This issue is closed based on Maine Yankees submittal of gamma scan data for concrete floors and walls in Grids C026, C039, C086 and C087.

**7. NRC Specific Comment FSS Supplement No. 2 - Comment No. 3**

PAB Survey Unit 6: The NRC approved DCGLs are listed in LTP Table 6-11. To date, the NRC has not approved a DCGL for bedrock. The building-specific surface/volume ratios referenced in LTP Section 6.6.1 b, pertain to concrete surfaces. Revising the DCGLs requires NRC approval, per LTP Section 1.4.1. The DCGL for bedrock must be submitted to NRC for approval.

**Maine Yankee Response:**

The issue of bedrock has already been raised and resolved by the NRC.

As we noted in our prior response (Reference No. 22), the LTP does not provide a bedrock DCGL because bedrock inhibits the transport of cobalt and cesium sufficient to prevent any significant groundwater contamination. Specifically, we noted:

“Maine Yankee evaluated the fate and transport of Cs-137 and Co-60 contamination through bedrock at Maine Yankee with known groundwater chemistry parameters. The evaluation concluded that negligible Co-60 would be transported because the Co-60 would irreversibly co-precipitate with iron on rock surfaces. The evaluation also concluded that Cs-137 would have a finite but low mobility within the bedrock. Finally, the evaluation constructed a worst-case scenario and predicted relatively low concentrations of Cs-137 in a postulated residential well. Maine Yankee submitted this evaluation as part of the LTP by reference to the NRC on August 28, 2002, MN-02-037 “Maine Yankee Addendum Report Regarding Site Hydrogeology”.

Based on the above, Maine Yankee did not include a bedrock DCGL in the LTP nor identify it as a source of contamination in the resident farmer’s dose model – all of which was approved by NRC on February 28, 2003 (Reference No. 4).

As the effect of bedrock on contamination transport has already been addressed and accepted by the NRC, we request NRC withdraw this request.

**Resolution:**

Based on Maine Yankee’s understanding that the building-specific surface/volume ratios pertaining to concrete surfaces in LTP 6.6.1.b are applicable, the staff finds Maine Yankee’s response to be acceptable and this issue is closed.

**8. NRC Specific Comment FSS Supplement No. - Comment No. 4**

PAB Survey Unit 10: Maine Yankee’s response states, “For the floor grid numbers C029 and C064 it was the surveyor’s judgement that the reason the scan results were higher than the 30 k cpm gamma scan guideline was due to the shine from the fuel building not from the floor grids themselves. . . . It was not possible to demonstrate that these floor grids met the 30 k cpm guideline without first removing the fuel building tunnel walls. The fuel Building tunnel walls are now being demolished and properly removed. In addition, Maine Yankee will also removed the PAB floor associated with floor grid numbers C029 and C064 (Appendix J).”

“Surveyor’s judgement” is not acceptable justification for the lack of survey data. Upon completion of the remediation activities, please provide the gamma scan data and revised FSS survey data for these areas.

Appendix J includes two photographs with grid numbers C08 and C038 marked on them. On FSS-RR Map #FA0600-10A, grid C08 is a floor grid in cubical FL-35B (more than 28 meters from grids C029 and C064) and grid C038 is a floor grid approximately 10 meters from grids C029 and C064. It appears that the photos submitted by Maine Yankee do not correspond to the grids in question. Please clarify this apparent discrepancy.

**Maine Yankee Response:**

Appendix J of Reference No. 22 included two photographs which showed the uncovered walls of the PAB which interface with the fuel building tunnel. These pictures were intended to show the current status of fuel building tunnel demolition up to the interface with the PAB and provide

the NRC with confidence that Maine Yankee intended to uncover/demolish/survey the grids (SU 1 wall grid nos. C039, C086 and C087 and SU 10 floor grid numbers C029 and C213) which could not be surveyed because of the shine from the fuel building tunnel. Wall grid number C038 (next to C039 - indicating that C039 had already been demolished) and wall grid number C087 are shown on FSS-RR Map FA0600-01B. The last digit of wall grid number C087 was defaced by the excavator. (There is no grid number C08, since all grids have three digit numbers following the material designator. . . in this case "C" for concrete.) As indicated in the above Maine Yankee response to NRC Specific Comment on FSS Report No. 2 - Comment No. 2, the gamma scan results for the removed surfaces are provided in Appendix B.

**Resolution:**

During the meeting participants discussed what level of "surveyor judgement" was acceptable during FSS. It was concluded that NRC and Maine Yankee are in agreement about the role of "surveyor judgement." This issue is closed based on Maine Yankee's submittal of gamma scan data for concrete floors and walls in Grids C029, C064.

**9. NRC Specific Comment FSS Supplement No. 2 - Comment No. 5**

PAB Survey Unit 12: See NRC comments on SU6.

**Maine Yankee Response:**

See above Maine Yankee response to NRC Specific Comment on FSS Report No. 2 - Comment No. 3

**Resolution:**

The staff finds Maine Yankee's response to be acceptable and this issue is closed.

**10. NRC Specific Comment FSS Supplement No. 2 - Comment No. 6**

RAI No. 3: RAI No. 3 deals with Maine Yankee's failure to perform 100% surface scans as required by the LTP for Class 1 areas. Maine Yankee's response references CR No. 04-126 and SU12 surveys dated April 2003. The response states, "As part of the evaluation and followup to the Condition Report, Maine Yankee performed an extent of condition to document any other similar conditions. Some similar instances were identified in PAB SU1, 4, 5, 6 and 12 and the Spray Building." The staff will evaluate CR-04-126 in detail and provide comments at a later date.

**Maine Yankee Response:**

As discussed above, Maine Yankee provided (Reference No. 22) gamma scans for the areas where there was missing documentation of beta scans on junctures or interferences. Maine Yankee requests prompt review of the information provided in Reference No. 22.

**Resolution:**

During the meeting, NRC and Maine Yankee discussed the apparent inconsistencies between Condition Report (CR) No. 04-126 and Maine Yankee RAI responses dated December 7, 2004

and December 23, 2004. In this evaluation Maine Yankee used gamma survey data in place of missing FSS beta survey data. Participants have a common understanding of the issue and Maine Yankee agreed to evaluate the CR and referenced RAI responses to identify any discrepancies in wrap-around surveys. This evaluation in conjunction with gamma scan data provided by Maine Yankee for PAB Survey Units 1,4, 5, 6 and 12, should be sufficient to close this issue.

#### **11. NRC Comments on Appendix M, LTP Change, Concrete Remediation Gamma Scans**

1. General Comment: The staff disagrees with Maine Yankee's LTP change to eliminate the need for gamma scan documentation. The staff disagrees with Maine Yankee's limitations and conditions on the use of the 30,000 cpm as documented above.

2. The staff plans to evaluate Maine Yankee's 50.59 evaluation justifying the change to LTP Section 4.2.1 and Appendix 4C. The staff will inform Maine Yankee of its evaluation results at a later date. It appears that the effective date of the change to LTP Section 4.2.1 and Appendix 4C, is February 15, 2005. The staff would like to remind Maine Yankee that FSS surveys conducted before this date will be evaluated for compliance with the LTP Revision in effect at the time of the surveys. In other words, FSSs conducted prior to February 15, 2005, (all FSSs and associated release records in Supplement Nos. 1-8) will be evaluated against the requirements of LTP Rev. 3.

#### **Maine Yankee Response:**

Maine Yankee's LTP change did not "eliminate the need for gamma scan documentation."

While the NRC staff may disagree with Maine Yankee's clarification on use of the 30k criterion, the disagreement has no regulatory basis. The purpose of 10CFR50.59 is simply to distinguish between license basis changes that require NRC approval and those changes that can be made under the authority granted by 10CFR50.59 to the licensee.

NRC indicates that they intend to review the 50.59 evaluation justifying the LTP change. To assist the staff, we note that the LTP change did not have a "50.59 evaluation", rather it was "screened" as a clarification<sup>3</sup>.

Since the LTP change is a clarification, it has no effective date. The clarification reflects our intent during the meeting in September, 2004. And, as noted above, the 30k statement cannot stand on its own since it has obvious logical limitations, and was only intended as a "shorthand" statement. In any case, the statement was not part of the LTP and is moot from the viewpoint of LTP compliance.

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<sup>3</sup> NRC staff may wish to refer to NEI 96-07, "Guidelines for 10 CFR 50.59 Implementation," for the difference between a "50.59 evaluation" and a "screening." NEI 96-07 has been endorsed by the NRC.

## **Resolution:**

Participants agreed not to address this issue during the meeting. Resolution of NRC's comments on Appendix M, LTP Change, Concrete Remediation Gamma Scans, will be addressed in the future.

## **AGENDA ITEM 2: FSS REPORT SUPPLEMENT 5**

NRC's unresolved technical issues on FSS Report Supplement 5, were transmitted to Maine Yankee in a RAI dated March 13, 2005 (ADAMS No. ML0506902890). Maine Yankee responded to the RAI on April 7, 2005 (ADAMS No. ML0510904330). During the meeting, participants discussed each unresolved issue and agreed on strategy to reach resolution. Below is a restatement of NRC's comments, the corresponding Maine Yankee responses, and the agreed upon resolution.

### **1. FA-0100 SU 2 Containment Floors**

FSS - Release Record FA-0100 Survey Unit 2 is a Class 1 area. LTP Section 5.4.1 requires the performance of 100% Scan Survey for Class 1 areas in accordance with MARISSM. In addition, LTP Section 5.5.1 (a & d) require sampling or surveys to determine contamination at depth. During the May 24-27 site inspection, the staff observed large deep holes in the floors principally near the pedestals, where the flow-able concrete placed during original plant construction left voids. In addition, the staff noted that in some areas the metal liner was missing and the floor was bare concrete. The holes in the floor are not mentioned in the release record nor is survey information provided that specifically corresponds to these configuration anomalies. Please provide survey data to demonstrate these areas were scanned to comply with the 100% scan requirement.

In addition, the staff observed significant quantities of water on the containment floor which required a significant effort by Maine Yankee to dry prior to performing FSSs of floor surfaces. Given the influx of water onto the containment floor and observing the water under the steel liner, the potential for migration of contamination existed. Please provide (gamma) surveys of the areas (either in conjunction with the FSS or from the Remediation Phase) that demonstrate that no significant contamination at depth was present under the metal liner.

### **Maine Yankee Response:**

Holes were made in the steel liner as a consequence of the removal of all concrete from the Containment floors down to the liner. The holes were not a pre-existing condition. In order to ensure that the underlying concrete did not become contaminated to significant levels, the exposed area beneath the liner was checked. The larger holes were surveyed by SPA-3 and 43-68 for signs of elevated activity. Concrete samples were taken and analyzed using the same criteria as previous sub-surface samples. Results of 74 floor and sub-liner SPA-3 measurements were all less than 30,000 c/m. The concrete samples were all less than the 37 pCi/g criteria for 1 cm depth of concrete. (The maximum value was 19.2 pCi/g). These survey results demonstrate that no significant contamination at depth is present under the metal liner.

Attached (Appendix A of Reference No. 27) are the gamma scan results of the Containment Building liner holes.

**Resolution:**

The NRC staff finds Maine Yankee's response to be acceptable, and this issue is closed.

**2. FA-0100 SU 4 Containment Building In Core Instrument (ICI) Sump and Access Tunnel**

In FA-0100 SU4, Table 2, Sample Location 15 has a negative value of -580 cpm equating to -1395 dpm/100 cm<sup>2</sup>. This measurement appears to be excessively negative and does not appear to be a valid sample measurement within the data set presented. Please justify the quality of the sample measurement and validity of the measurement within the data set.

**Maine Yankee Response:**

While the measurement at Sample Location 15 appears to be excessively negative, it is within 2 sigma (501 cpm) of the mean value of 398 cpm. All 21 measurements were taken with the same 43-68 detector and E-600 instrument. The detector and E-600 used in the survey were properly calibrated and source checked prior to performing the survey. Both were satisfactorily checked following the survey. There were no problem reports issued for the instrument at the time of the direct measurement survey.

Survey location M015 was located on the south wall of the access tunnel to the ICI Sump area. The direct measurement location was near the opening of the tunnel into the ICI Sump. Since the location was near the opening, it was exposed to higher neutron fluence rates than portions of the vertical shaft further away from the opening such as M011 and M012 but less than those located in the ICI Sump wall such as M018 through M021. The complex geometry of the ICI Sump resulted in variations in the ambient radiation levels.

The mean and standard deviation of the 21 FSS direct measurements was 957 dpm/100cm<sup>2</sup> and 1,205 dpm/100cm<sup>2</sup>, respectively. If sample measurement, M015, were removed from the data set, the mean and standard deviation would be: 1075 dpm/100cm<sup>2</sup> and 1106 dpm/100cm<sup>2</sup> respectively, resulting in an actual relative shift of 15.3, which when adjusted to 3.0 would result in a required number of samples of 14. Therefore, the survey unit would have passed with sufficient statistical power even if sample measurement, M015, were removed from the data set.

**Resolution:**

During the meeting the participants discussed the reason for the excessively negative value of -580 cpm. Maine Yankee informed the staff that the negative value is due to the instrument's low efficiency and the variability of the sample population. The NRC staff finds Maine Yankee's response to be acceptable, and this issue is closed.

### 3. FA-0100 SU 5 Containment Penetrations

On October 14, 2004, Maine Yankee submitted an addendum to FSS Supplement 1. In this addendum, Table 2A, information is provided on how and where various features not included in the scope of FSS Supplement 1 will be dispositioned. Table 2A indicates that a number of penetrations from the Spray Building will be surveyed with the survey units from Supplement 5. Specifically, based on our review of Supplement 5, the staff was not able to verify the following:

- Survey of 10 inch penetration from FA-1700 SU3 in FA-0100 SU5.
- Survey of 10 inch penetration from FA-1700 SU4 in FA-0100 SU5.
- Survey of 2 inch penetration from FA-1700 SU5 in FA-0100 SU5.
- Surveys of the 5 penetrations thru the south wall (from FA1700 SU2) and the 5 penetrations thru south wall (from FA-1700 SU8). Table 2A indicates that these penetrations will be surveyed as part of alleyway east-west excavations (FR-0110 SU3). Based on information in Supplement 5, alleyway east-west excavations are included in FR-0110, not FR-0111 (identified as soil remediation survey unit areas). Further, these 10 penetrations do not appear to be included in the east-west excavations FR-0111 SU3.

Please provide survey data for the above referenced penetrations.

#### **Maine Yankee Response:**

Provided below are the specific references to the FSS survey documentation where each of these penetrations is covered.

1. *Survey of 10 inch penetration from FA-1700 SU3 in FA-0100 SU5* - This penetration was designated M008 on Map FA 0100-U5-SCANS in survey package FA-0100-05.
2. *Survey of 10 inch penetration from FA-1700 SU4 in FA-0100 SU5.* - This penetration was designated C007 on Map FA 0100-U5-SCANS in survey package FA-0100-05. The penetration was core bored and removed during the remediation process. The resulting hole was a 24" concrete penetration hence the "C" designation.
3. *Survey of 2 inch penetration from FA-1700 SU5 in FA-0100 SU5* - This penetration was designated C005 on Map FA 0100-U5-SCANS in survey package FA-0100-05. The penetration was core bored and removed during the remediation process. The resulting hole was an 8" concrete penetration hence the "C" designation.
4. *Surveys of the 5 penetrations thru the south wall (from FA1700 SU2)* - Except for two 14" PCC penetrations, all pipe sleeves were removed from the wall. The opening, surrounding concrete, and PCC penetrations were surveyed in Survey Package FR0111-03. This survey package also contains Map FR0111U3-04 which shows the remaining PCC penetrations as P001 and P002. Additional information of the removed penetrations was provided in Reference No 22.
5. *and the 5 penetrations thru south wall (from FA-1700 SU8).* - Except for two 14" SCC penetrations, all pipe sleeves were removed from the wall. The opening, surrounding concrete, and SCC penetrations surveyed in survey package FR0111-03. This survey package also contains Map FR0111U3-04 which shows the remaining SCC penetrations as P003 and P004. Additional information on the removed penetrations was provided in Reference No. 22.

6. *Table 2A indicates that these penetrations will be surveyed as part of alleyway east-west excavations (FR-0110 SU3). Based on information in Supplement 5, alleyway east-west excavations are included in FR-0110, not FR-0111 (identified as soil remediation survey unit areas). Further, these 10 penetrations do not appear to be included in the east-west excavations FR-0111 SU3. - As indicated above, these penetrations were surveyed as part of the Yard West Excavation Survey Unit 3 (FR-0111 SU 3).*

In Appendix B, Maine Yankee is providing an update to Table 2A of Reference No. 12. In this update, each penetration which was covered by FA-0100 and FR0111 survey unit release records are specifically identified. Note that the 10" penetration (SU-7 through north (containment) wall) does not exist and has been corrected.

**Resolution:**

The NRC staff finds Maine Yankee’s response to be acceptable, and this issue is closed.

**4. FR-0110 Survey Units 1, 2, 3, 4 PAB Excavated Areas from PAB to CSB**

The FSS design for these four survey units is based on the assumption that the soil nuclide fractions for Cs-137 and Co-60 are 0.890 and 0.009, respectively, as provided in Section 2.5.3, “Nuclide Profile,” Table 2-11, of the LTP. Consistent with this profile, Table 2-2 of FSS-RR for FR-0110 Survey Units 1-4, lists the scan MDC as 5.9 pCi/g for Cs-137 (per LTP Table 5-6). Information presented in the FSS-RRs suggests that significantly more Co-60 may be present in the soil than was anticipated. It is not clear from the FSS-RR that the FSS design adequately considered the potential for Co-60 and other contaminants in the soil. Therefore, it is not clear that appropriate measurements were performed to demonstrate compliance with requirements.

**Basis:**

Section B of the FSS-RR for FR-0110 Survey Units 1-4 states that the soil survey was suspended in late 2002 and resumed during the spring of 2003. At this time, “it was determined that radioactivity had migrated into the remaining soil from the open, abandoned pipes in the excavation.” The nuclide profile for contaminants in the abandoned pipe is not addressed in the FSS-RRs. However, FSS-RR Table 2, “Direct Measurements” data (see summary table below) indicates that the ratio of Co-60 to Cs-137 is approximately 1, for Survey Units 1-4. This ratio indicates that the Co-60 fractional activity for Survey Units 1-4 is higher than the 0.009 listed in LTP Table 2-11.

FR-0110 Survey Unit	Co-60 Table 2 Mean pCi/g	Cs-137 Table 2 Mean pCi/g	Ratio Cobalt:Cesium
1	0.251	0.259	0.97
2	0.149	0.119	1.25
3	0.267	0.282	0.95
4	0.18	0.38	0.47
Average	0.21	0.26	0.81

LTP Table 2.8, “Nuclide Fractions for Contaminated Concrete Surfaces Special Areas,” which includes the PAB pipe tunnel, identifies fractions for Co-60 and CS-137 as 0.368 and 0.289,

respectively, which results in a ratio of approximately 1. The FSS-RR data appears to be more consistent with the nuclide fractions in LTP Table 2.8

As noted in the FSS-RRs Table 1, "Survey Unit Design Parameters," the survey design is based on a DCGL for Cs-137. A scan MDC of 5.9 pCi/g for Cs-137, from LTP Table 5-6, is listed in FSS-RR Table 2-2, as being utilized for FR-0110 Survey Units 1-4. The 5.9 pCi/g scan MDC exceeds the DCGL<sub>EMC</sub> for Co-60 shown in Table 2-2 as 3.3, 5.2, 5.8 and 3.3 pCi/g for Survey Units 1-4, respectively. A scan MDC for Co-60 is not provided.

In addition, the use of the scan MDC based solely on Cs-137 is non-conservative. According to NUREG 1507, Table 6.4, the scan MDC for Co-60 should be approximately twice the scan MDC for Cs-137, given that the efficiency of the SPA3 detector is less than half for the higher energy Co-60 gamma energies. In NUREG-1507, a 2 inch X 2 inch NaI detectors response for Co-60 is 430 cpm per microR/hr versus 900 cpm microR/hr for Cs-137.

Please justify the design for these survey units and the adequacy of the measurements performed.

#### **Maine Yankee Response:**

The FSS sampling design for the FR0110 survey units was based upon Cs-137, which is the predominant nuclide in the contaminated soil at Maine Yankee. As stated in LTP Section 5.8.1, "the Cs-137 to Co-60 ratio will vary in the final survey soil samples, and this will be accounted for using a "unity rule" approach as described in NUREG 1505 Chapter 11."

The survey design was based on a range of Cs-137 design DCGL<sub>EMC</sub> (*a priori*) values from 6.5 pCi/g to 16.3 pCi/g depending on the layout of the direct points and a scan MDC value of 5.9 pCi/g for Cs-137 as described in section 5.5.2 of the LTP. If the FSS sampling design was based upon the Co-60 DCGL (0.86 pCi/g), the range of Co-60 design DCGL<sub>EMC</sub> (*a priori*) values would be from 3.3 pCi/g to 5.8 pCi/g, for the sample area (the area between the sample points). The survey results are adequate to demonstrate that the survey units meet the release criterion based upon the following:

1. A total of 196 individual soil samples were taken in the four survey units including the investigation samples. Out of these 196 samples, only 6 showed as-left activity greater than the Co-60 DCGL with a maximum activity of 1.07 pCi/g. None of these results were greater than 50 % of the lowest Co-60 design DCGL<sub>EMC</sub> (*a priori*) of 3.3 pCi/g.
2. A significant portion of the survey unit's area was investigated. Of the 109 scan grids located in the survey units, 54 or 59 % were investigated. Only five of the grids had as-left activity above the DCGL.
3. As indicated in the LTP, the design basis hot spot is 2 m<sup>2</sup>. Table 6-12 of the LTP shows that the Co-60 area factor for a contaminated soil area of 2 m<sup>2</sup> is 7.2. This results in a DCGL<sub>EMC</sub> of 6.2 pCi/g for Co-60 which is greater than the scan MDC of 5.9 pCi/g (for Cs-137) given in the LTP. NUREG-1757, Vol. 2, Appendix A.7.6 identifies circumstances where design elevated area (*a priori*) may be set at less than the area between the sample points based upon an estimate of the area likely to have elevated

concentrations, similar to the design basis hot spot described in Maine Yankee LTP Section 5.5.2.d.

4. The four soil survey units in FR0110 covered a total of 513 m<sup>2</sup>. If this total area were divided by the total number of soil samples, the resulted sample frequency would be an average of one sample being taken per 2.6 m<sup>2</sup> (an area slightly larger than the design hot spot). A 2.6 m<sup>2</sup> area has a corresponding Co-60 area factor of 6.4 which gives a DCGL<sub>EMC</sub> of 5.5 pCi/g for Co-60.
5. As shown in the characterization data described in the LTP, the most likely nuclide to be present in elevated areas is Cs-137, which was scan detectable to levels less than the design DCGL<sub>EMC</sub> (*a priori*).
6. The SPA-3 is capable of detecting Co-60 activity at levels consistent with the lowest Co-60 DCGL<sub>EMC</sub> (*a priori*) and would have easily detected Co-60 activity at the DCGL<sub>EMC</sub> for the design basis hot spot (2m<sup>2</sup>).

The SPA-3 scan MDC identified in NUREG 1507, Table 6.4 for Co-60 is less than half that for Cs-137. Thus, NUREG 1507 reinforces our conclusion that it is conservative to use the scan MDC established for Cs-137 for comparison to Co-60 values. The scan MDC of the SPA-3 detector was established in EC-009-01 as described in the LTP based on a Cs-137 response factor of 472 c/m per pCi/g in soil. The scan MDC is a function of the detector response factor and the background count rate which gives an alarm rate corresponding to Type 1 and Type 2 errors of 0.05. The LTP (Table 5-4a) lists an MDC for the SPA-3 of 3.2 pCi/g (later administratively raised to 5.9 pCi/g) for a 2 m<sup>2</sup> design basis hot spot.

Maine Yankee determined the detector response factor for Co-60 in the same manner as the response to Cs-137 was determined, by measuring the counts per minute from a known pCi/g source of contaminated soil. Co-60 gives a detector response of 478 c/m per pCi/g in soil. As stated above, the MDC is a function of the response factor and the background count rate. Because the response factors are similar for either nuclide, the SPA-3 MDC for Co-60 is very similar and slightly lower than that for Cs-137.

7. Notwithstanding Maine Yankee's stated intent in LTP section 5.5.1.b, to treat excavated areas as surface soil for FSS purposes, the as-left location of this survey area is actually below the surface and not normally subject to scanning, as per NUREG-1757, Vol. 2, Appendix G.2.1.

Section B of the FR-0110 Survey Unit Release Records described the recontamination of the survey units following the initial remediation performed in late 2002. The radioactivity that had presumably migrated into the remaining soil from open, abandoned pipes in the excavation was no different than the contamination source that originally contaminated the PAB alleyway, i.e., the pipes which interfaced with the Refueling Water Storage Tanks. This contamination source relationship is established in LTP section 2.5.3.c (footnote 6). Furthermore, the nuclide fraction described in LTP Table 2.8 applies to specific special areas including the containment outer annulus trench and the Primary Auxiliary Building tunnel. The conditions which produced these special areas are described in the special report entitled: "Transuranic and other Hard to Detect Radionuclides in Maine Yankee Sample Media," transmitted to the NRC in Reference

No. 1. These conditions were not present in these contamination sources.

**Resolution:**

After discussion of this issue by the participants, Maine Yankee prepared the following text to justify the FSS design for FR-0110, Survey Units 1-4.

FR-0110 Alleyway Soil Survey

The LTP gives the Cs to Co ratio for soil as approximately 9 to 1. This is based on site characterization samples which included the highest areas of soil contamination found onsite in order to properly account for hard to detect nuclides.

The alleyway contamination was the result of PCC/SCC pipe leaks which had mostly Cs contamination. The survey design for FR-0110 was based on Cs to Co ratios of at least 3.3 to 1 as determined by the continuing characterization soil samples taken from within the RA. Sample size, n, did not require any adjustment according to the EMC criteria.

Alleyway remediation was begun late in the year with soil samples showing low levels of both Cs and Co. The excavation and remediation was performed up to and including the removal of the charging and letdown pipes from the outer PAB wall to the corner of the spray building. The pipe ends were taped up and the excavation abandoned for the winter. When the alleyway remediation was resumed in the spring, it was discovered that some of the Co activity had migrated out of the pipes and had contaminated the soil following the spring thaw. Soil samples collected in the spring showed higher Co levels than those previously collected, but Cs was still the major nuclide and there were no "indicator" gamma emitters such as Cs-134 which would be indicative of a different media or nuclide fraction such as the one for "special areas." (During the Technical Issues Resolution Process - TIRP, it was determined that "special areas" arose primarily in floor trenches and sumps which were water-filled and at higher than ambient temperatures for extended periods of time. The conditions which produced these special areas are described in the special report transmitted to the NRC via Maine Yankee Letter to USNRC dated January 16, 2002, MN-02-002, "Transuranic and other Hard to Detect Radionuclides in Maine Yankee Sample Media").

During remediation, the highest activity nuclides are the easiest to reduce so the dominant nuclide(s) shows a larger decrease relative to lower activity nuclides and the result is that Cs and Co end up at nearly equal activity. (Similar situations have been seen in concrete remediation.)

Overall, nothing was found in the soil sample results which would have required changing the survey design for FR0110.

Based on this additional information the NRC staff considers this issue closed.

AGENDA ITEM 3: FSS REPORT SUPPLEMENT 6

NRC's unresolved technical issues on FSS Report Supplement 6, were transmitted to Maine Yankee in a RAI dated April 7, 2005 (ADAMS No. ML0509800021). Maine Yankee has not yet officially responded to the RAI. During the meeting, participants discussed Maine Yankee's proposed resolution to each unresolved issue. Based on the discussion, the NRC staff believes Maine Yankee's official response to the RAI should be adequate to resolve the outstanding technical issues.

#### AGENDA ITEM 4: PUBLIC COMMENTS

Mr. Jim Berger, Consultant to the State of Maine, attended the meeting as a member of the public. Following completion of the technical discussion, Mr. Berger was asked for his comments on the meeting or any of the discussions that had taken place during the meeting. Mr. Berger indicated that many of the issues raised by the NRC were also concerns of the State. He indicated that he was generally satisfied with the discussion of the issues and resolutions achieved.

#### AGENDA ITEM 5: MEETING ADJOURNMENT

The meeting was adjourned at approximately 3:00 p.m.

#### **Actions:**

See resolution to Issues 5 and 11 from FSS Supplements 1 and 2.

## References

7. Maine Yankee Letter to USNRC dated January 16, 2002, MN-02-002, Transuranic and other Hard to Detect Radionuclides in Maine Yankee Sample Media.
8. Maine Yankee Letter to USNRC, MN-02-037, dated August 28, 2002, Maine Yankee Addendum Report Regarding Site Hydrogeology.
9. Maine Yankee Letter to USNRC, MN-02-048, dated October 15, 2002, Revision 3, Maine Yankee's License Termination Plan.
10. 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 - Approval of the MY License Termination Plan.
11. 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; Proposed Change No. 216.
12. 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 - Approval of the Revised Activated Concrete DCGL and More Realistic Activated Concrete Dose Modeling.
13. Maine Yankee Letter to USNRC, MN-04-020, dated March 15, 2004, License Amendment Request: Release of Non-ISFSI Site Land, Proposed Change No. 218.
14. Maine Yankee Letter to 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.
15. Maine Yankee Letter to USNRC, MN-04-047, dated September 2, 2004, License Amendment Request - Release of Non-ISFSI Site Land, Proposed Change No. 218, Supplement 3.
16. USNRC Letter to Maine Yankee dated October 14, 2004, Meeting Report for the September 9, 2004, Meeting with Maine Yankee Atomic Power Company.
17. Maine Yankee Letter to USNRC, MN-04-049, dated September 15, 2004, Release of Non-ISFSI Site Land - FSS Final Report No. 2, Proposed Change No. 218, Supplement 4.
18. Maine Yankee Letter to 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.
19. USNRC Letter to Maine Yankee dated November 4, 2004, Request for Additional Information (RAI) Regarding Final Status Survey (FSS) Supplement Nos. 1 and 3.

20. USNRC Letter to Maine Yankee dated November 30, 2004, Request for Additional Information (RAI) Regarding Final Status Survey (FSS) Supplement No. 2.
21. Maine Yankee Letter to USNRC, MN-04-058, dated December 7, 2004, Response to NRC RAI's on FSS Report Nos. 1 and 3, Proposed Change No. 218, Supplement 8.
22. Maine Yankee Letter to 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.
23. Maine Yankee Letter to 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.
24. Maine Yankee Letter to USNRC, MN-04-061, dated December 23, 2004, Response to NRC RAI's on FSS Report No. 2, Proposed Change No. 218, Supplement 11.
25. USNRC Letter to Maine Yankee dated January 7, 2005, Receipt of Maine Yankee's Response to Request for Information on Final Status Survey Report Supplements 1 and 3.
26. USNRC Letter to Maine Yankee dated January 19, 2005, Request for Additional Information (RAI) Regarding Final Status Survey (FSS) Supplement No. 2.
27. Maine Yankee Letter to 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.
28. Maine Yankee Letter to USNRC, MN-05-006, dated February 16, 2005, Response to NRC RAI's on FSS Final Report Nos. 1 and 2, Proposed Change No. 218, Supplement 14.
29. Maine Yankee Letter to 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.
30. Maine Yankee Letter to USNRC, MN-05-008, dated February 23, 2005, Release of Non-ISFSI Land - FSS Final Report No. 8 - Attachment I, Figure 1 and 2 and Attachment II Header Page, Proposed Change No. 218, Supplement 16.
31. USNRC Letter to Maine Yankee dated March 13, 2005, Request for Additional Information (RAI) Regarding Final Status Survey (FSS) Supplement No. 5.
32. NUREG/CR-6364, "Human Performance in Radiological Survey Scanning," December 1997.
33. Maine Yankee Letter to USNRC, MN-05-015, dated April 7, 2005, Response to NRC RAI on FSS Final Report No. 5, Proposed Change No. 218, Supplement 17.
34. Maine Yankee Letter to USNRC, MN-05-017, dated April 13, 2005, Response to NRC RAI on FSS Final Report Nos. 1 and 2, Proposed Change No. 218, Supplement 19.