



## FOSTER WHEELER ENVIRONMENTAL CORPORATION

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Subject: Final Drum Removal Report  
Drum Investigation  
Portsmouth Naval Shipyard  
Kittery, Maine

Dear Ms. Cassidy and Mr. McLeod:

On the behalf of the US Navy, Foster Wheeler Environmental Corporation is pleased to present the Final Drum Removal Report for Drum Investigation at the Portsmouth Naval Shipyard in Kittery, Maine. This Final Drum Removal Report has been revised to address comments from the USEPA and MEDEP on the December 13, 2000 Drum Investigation Final Report. The comments and responses are included herein.

Should you have any questions or request for additional information please feel free to contact Mr. Fred Evans at (610) 595-0567 Extension 159.

Very truly yours,

Carl Tippmann, PE

cc: Distribution  
File



**Distribution List for Navy EFA Northeast RAC I – DO 38  
Drum Investigation Final Drum Removal Report  
Portsmouth Naval Shipyard, Kittery, Maine.**

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**RESPONSES TO USEPA COMMENTS DATED FEBRUARY 7, 2001  
DRUM INVESTIGATION FINAL REPORT  
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE  
SUBMITTED DECEMBER 13, 2000**

**Comment:** EPA has no specific technical comments on this document. EPA would like to express our disappointment in the overall quality of this document. Foster-Wheeler, the Navy's contractor that prepared this report, has repeatedly submitted reports that have been carelessly drafted. EPA questions whether there is any quality control effort required in the Navy's contract with Foster-Wheeler. In the future, EPA requests that Foster-Wheeler and the Navy ensure that reports do not have repeated problems with verb tense, do not include text taken directly from work plan with no revisions to reflect the work done, etc.

**Response:** The report will be resubmitted in a clear concise format. Please note that this report only covers the removal of drums. The TtNUS report "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity" presents the results of the test pit investigation.



**RESPONSES TO MEDEP COMMENTS DATED FEBRUARY 6, 2001  
DRUM INVESTIGATION FINAL REPORT  
PORTSMOUTH NAVAL SHIPYARD, KITTERY, MAINE  
SUBMITTED DECEMBER 13, 2000**

1. **Comment:** This is a draft, not final, report. Therefore, the title of this document should be Draft Drum Investigation Report, not Draft Drum Investigation Final Report.

**Response:** The title of the report has been changed to Final Drum Removal Report.

2. **Comment:** There is no reference whatsoever to the corresponding October 2000 Tetra-Tech report "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity." As the Tetra-Tech document presents the meat of the results of the investigation it is crucial that it be referenced in the Foster-Wheeler report.

**Response:** Reference to the Tetra Tech NUS report titled "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity", has been added to various sections in the Final Drum Removal Report.

3. **Comment:** This report is, in many sections, an update of the work plan with verb tense changes. Therefore, no new information appears in these sections. Most such sections serve no purpose in a report of accomplishments/findings (i.e., all of Section 2, Section 3.3). These should be deleted.

**Response:** The report has been revised to eliminate unnecessary sections.

4. **Comment:** The Tetra-Tech portion of the Final Work Plan for Mercury Burial Vault II and Drum Investigation states, "At a minimum, the test pit log will include the following information...Photographs of test pit walls and excavated material." Photographs were not included in either the October 2000 Tetra Tech Test Pitting Investigation Report or the December 2000 Foster-Wheeler Drum Investigation Report. Please submit the required photographs. This can be separate from the Foster Wheeler Final Drum Removal Report.

**Response:** Photographs will be submitted under separate cover.

5. **Comment:** The Department still has concerns that drums could exist in a central portion of the landfill at depths greater than reached by the test pits. The depth of test pit excavations in a central N-S belt that overlies the deepest fill/overburden (as interpreted from OU3 FS cross sections) ranged from 5 to 10 feet. The water table was encountered in this depth range, and the test pit excavations were terminated just below the groundwater level. Most of this area is approximately 107 feet PNS datum, or 7 feet above mean high tide water. Therefore, the test pits bottomed at 97 to 102 feet PNS datum; again close to mean high tide. The above N-S belt can be drawn as wide as 300 feet without encountering a monitoring well. Using data from JW-12B, JW-13B and JW-17B as guides, a 10 to 15 foot depth interval below mean high tide is not documented as to the thickness of fill versus natural mudflats sediments. It appears that the bedrock surface is at least 10 feet below mean high tide (90 feet PNS datum) in the TP-4 location, where the buried drums were found at a maximum depth of approximately 6 feet. Therefore, some potential yet exists for undiscovered drums at depth, and the results of the test pitting investigation must be applied with caution.

**Response:** Comment noted.

6. **Comment:** Introduction, p. 1-1

"This report describes the site investigation activities that were conducted at the Jamaica Island Landfill at the Portsmouth Naval Shipyard (PNS)."



Change this statement to, "This report describes the site investigation activities performed by Foster-Wheeler starting on February 29, 2000 at the Jamaica Island Landfill...Foster-Wheeler's work during the investigation was limited to mobilization, site preparation, test pit excavation, site restoration, and demobilization. This report does not discuss work performed by Tetra-Tech during the same investigation. Information regarding Tetra-Tech's work can be found in the document, "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity..."

**Response:** The following sentences have been added to Section 1 Introduction:

This report describes the site investigation activities performed by Foster Wheeler starting on February 29, 2000 at the Jamaica Island Landfill. Foster Wheeler's work during the investigation was limited to mobilization, site preparation, test pit excavation, site restoration, and demobilization. This report does not discuss work performed by Tetra Tech NUS (TiNUS) during the same investigation. Information regarding TiNUS's work can be found in the document, "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity. The TiNUS report presents the test pit locations, a description of the subsurface materials, the sampling and analytical results, and compares the new data to existing data.

7. **Comment:** Section 1.2, Objective, p. 1-1, 2<sup>nd</sup> sentence:

"The purpose of these test pits was to provide additional information regarding the quantity of drums that were disposed of in the landfill."

The above stated purpose is one of several reasons for the investigation. Other objectives were to (1) ground-truth the interpretation of the MTADS geophysical survey so that subsurface findings might be extrapolated into other geophysically anomalous areas that were not explored by the test pit program, and (2) identify the contents of drums that were found as to chemical hazards posed.

**Response:** The following paragraphs have been added to Section 1.2 Objective:

The objectives of the project were: 1) to perform additional investigation of the Jamaica Island Landfill to aid in further characterization in support of determining a final remedy of the site under CERCLA, 2) to ground-truth the interpretation of the MTADS geophysical survey, and 3) to identify the presence and contents of any buried drums. This report documents the removal of drums encountered during the investigation. The TiNUS report titled "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity presents the data collected and provides the interpretation of the investigation.

The additional investigation of the landfill involved two tasks. The first task consisted of exploratory excavation in the landfill in an attempt to locate Mercury Burial Vault II (MBII). Previous attempts to locate the vault have been unsuccessful. However, since the time of the previous investigation, additional information has been obtained from base personnel that were involved with the burial of MBII. This information indicates that the vault may be in a different location than originally suspected. The field work for locating the Mercury Burial Vault II was conducted in the July of 2000. The MBII results are presented in the Foster Wheeler Environmental Corporation "Draft Mercury Burial Vault Removal at Portsmouth Naval Shipyard, Kittery, Maine." September 22, 2000.

In addition, the following sentence in Section 1.2 Objective has been changed to the following:

The second task involved the excavation of twenty-five test pits throughout the landfill.

8. **Comment:** Section 1.2, Objective, p. 1-2, 2<sup>nd</sup> para, 1<sup>st</sup> sentence

Add that the selections for test pit locations was also based on "inputs from the regulatory agencies and the Seacoast Anti-Pollution League (SAPL)".



**Response:** The sentence in Section 1.2 Objective has been changed to the following:

A total of 25 test pits were selected based on the results of the Navy's Draft MTADS Geophysical Survey Report dated May 18, 1999 and the Navy's landfilling records, with inputs from the regulatory agencies and the Seacoast Anti-Pollution League (SAPL).

9. **Comment:** Figure 1-1, Site Location Map:

This figure is of poor quality and readability. Also, the circle showing the site location covers only a small portion of the area where test pits were excavated, and may mislead the reader. The Jamaica Landfill should be highlighted.

**Response:** A new Figure 1-1, Site Location Map has been added to the report.

10. **Comment:** Figure 1-2, Facility Layout Map:

This figure serves no real purpose that is not covered by Figures 1-1 and 1-3. Why is the location of Mercury Burial Site II featured in this figure?

**Response:** Figure 1-2 Facility Layout Map has been removed from the report.

11. Figure 1-3, Jamaica Island Landfill and Mercury Burial Site II Layout Map:

**Comment:** The results of the MTADS survey (i.e., anomalous areas) should be added to this figure. The landfill boundary is indicated in the legend as a heavy black line, whereas on the figure it appears as double thin lines. The heavy single line is most effective.

**Response:** The MTADS survey information can be found in the MTADS survey report and has not been added to Figure 1-2 Jamaica Island Landfill Layout Map. In addition, the landfill boundary on Figure 1-2 Jamaica Island Landfill Layout Map has been changed to a heavy black line on the figure to match the legend.

**Comment:** The word "reported" should be removed from the label for Mercury Burial Site II.

**Response:** The Mercury Burial Site II location and text has been removed from Figure 1-2 Jamaica Island Landfill Layout Map.

12. **Comment:** Section 3.7.2, Equipment Decontamination, p. 3-2

In the first sentence, more explanation is needed to inform the reader how it was predetermined that a particular task did not involve environmental contamination, and that decontamination was not necessary. What equipment-based tasks within the landfill were considered clean?

**Response:** The sentence in Section 2.6.2 Equipment Decontamination has been changed to the following:

All contaminated equipment was decontaminated when switching from a contaminated task (excavating the test pits) to a clean one (stripping and replacing topsoil), prior to being demobilized from the site, and following excavation of each test pit.

13. **Comment:** Section 3.7.2, Equipment Decontamination, p. 3-3

"Solids and liquids that were generated during decontamination activities were..."

Suggested rewording is: "*Residual solids and liquids collected from the decontamination process were...*"



**Response:** The sentence in Section 2.6.2 Equipment Decontamination has been changed to the following:

The excavator bucket was washed immediately above the test pit location, and residual solids and liquids from the decontamination process were returned to the test pit prior to placing topsoil."

14. **Comment:** Section 4.2.1, Soil Stockpile Areas, p. 4-1, 2<sup>nd</sup> sentence

Please explain the rationale involved here. That is, why did scraping away the topsoil eliminate the need to use a polyethylene liner? The reason may not be obvious to some readers. As this action was potentially a significant modification to the work plan, the regulatory agencies should have been consulted.

**Response:** Section 3.2.1 has been changed to the following:

A stockpile area for excavated soils was established adjacent to each test pit location. Initially an impermeable polyethylene liner was placed over the topsoil at the base of the stockpile area to provide a barrier between the clean landfill surface and the excavated material. Foster Wheeler obtained permission from the Navy to scrape away the clean topsoil adjacent to the test pits to expose the landfill surface. By exposing the contaminated landfill surface, Foster Wheeler was able to eliminate the use of the polyethylene liner. Elimination of the liner decreased the amount of solid waste generated during the project, and increased productivity by decreasing the setup time at each location. All of the stockpiled soil was used to backfill the excavation as discussed later in Section 3.

15. **Comment:** Section 4.2.2, Site Survey, p. 4-1

"The survey coordinates for the excavation areas were provided in Appendix A of the work plan."

Include the reference for the work plan in the References section of this report.

**Response:** The following reference has been added to Section 6 References:

Foster Wheeler Environmental Corporation. Final Work Plan for Mercury Burial Vault II and Drum Investigation at Portsmouth Naval Shipyard, Kittery, Maine. February 2000.

16. **Comment:** Section 4.3, Investigation Activities, p. 4-2

"Water encountered during the excavation activities was returned to the excavation."

This statement implies that groundwater was removed from the excavation. Please explain the nature of the removal, the volumes involved, how it was stored, and how it was returned.

**Response:** The sentence in Section 3.3 Investigation Activities has been changed to the following two sentences:

Saturated soil encountered during the excavation activities was placed in stockpiles adjacent to the excavation. The saturated soil was returned to the excavation during backfill operations.

17. Figure 4-1, Test Pit Location Map:

**Comment:** All the test pits are represented by the same size rectangle, but the fact is that some pits were longer than other pits. The actual as-built size should be shown. It would be nice if the rectangle areas were given a pattern so that they stand out better.



**Response:** An as-built survey was not conducted at the conclusion of the field program. Figure 3-1 Test Pit Location Map has been provided to illustrate the general location of the test pits. For additional information on the test pits please see the October 2000 Tetra Tech NUS report titled "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity."

**Comment:** The location of the two former mercury burial vaults should be shown.

**Response:** This report is a drum removal report for the test pit operations and Figure 3-1 Test Pit Location Map has been provided to illustrate the general location of the test pits. Information pertaining to Mercury Burial Vault Site I can be found in the Final Closeout Report for Mercury Burial Vault Site I and information pertaining to Mercury Burial Vault Site II can be found in the Final Removal Action Report for Mercury Burial Vault Site II.

**Comment:** Building 354 should be labeled as "Former Solid Waste Handling Facility".

**Response:** Building 354 is labeled as "Solid Waste Handling Facility" on Figure 3-1 Test Pit Location Map. Building 354 is an "Active Solid Waste Handling Facility".

18. **Comment:** Section 5.4, Quality Control Samples, p.5-1:

In the first sentence, the Department believes that "will be" should actually be "were".

**Response:** This section of the report has been deleted.

19. Section 6.1, The Jamaica Island Ball Field, p. 6-1:

"The varying depth that water was encountered indicates that the water is trapped in several locations."

**Comment:** This statement is unclear, and is questionable in technical soundness. In the test pits that Department personnel observed in progress, the depth where groundwater was observed entering the excavation was generally significantly below the elevation of standing water in the pit before the pit was backfilled. In fine-grained materials, this situation is common due to large differences in soil permeability due to stratification with depth. Groundwater initially entering the relatively shallow holes may appear to be "trapped" (isolated), but the entire depth penetrated by the pits comprises a single groundwater body. Within the landfill, if most pits were allowed to stand open at various depth below the water table for a sufficiently long time, a single water table elevation should result from all depths penetrated. Therefore, the word "trapped" does not seem appropriate. However, in several instances, very shallow groundwater might be perched above slightly deeper groundwater, and two water elevations could result by varying the pit depth. Please revise and elaborate using real test pit examples based on field observations. Alternatively, if this situation is explained in better detail in the Tetra-Tech Test Pitting Report, then reference that document.

**Response:** The sentence in Section 5.1 The Jamaica Island Ball Field has been changed to the following:

The varying depth to water may indicate that water is perched inside landfill debris pockets, for additional information please see the October 2000 TtNUS report "Test Pitting Investigation Report, Jamaica Island Landfill, February/March 2000 Activity."

**Comment:** A statement should be added to this paragraph that drums were not encountered in the ball field area, if that is true.

**Response:** The following sentence has been added to Section 5.1 The Jamaica Island Ball Field:

Drums were not encountered in the Jamaica Island ball field area.



20. Table 6-1, Test Pit Location Summary:

**Comment:** The heading of the far right column reads "Suspected Anomaly/material encountered". The heading should be called "Materials Encountered". There is the possibility in some instances that metal objects lying deeper than the bottoms of the test pits might have caused the bulk of the MTADS anomaly.

**Response:** In Table 5-1 Test Pit Location Summary, the heading in the far right column has been changed to Material Encountered/ Suspected Anomaly.

The table presents the total depth of the test pit and the target depth of the anomaly. There are only two instances (TP-4, TP-17) where the MTADS anomaly depth was deeper than the depth of the test pits. At TP-4 the depth difference was 0.8', while at TP-17 the depth difference was 2.2'.

**Comment:** Please indicate to which test pit(s) Note 2 applies.

**Response:** Note 2 on Table 5-1 Test Pit Location Summary has been changed to the following:

Test Pits 7 through 14 were located in areas of the uncapped landfill where the Navy believes drums may have been buried during the time period 1945 to 1965."

21. **Comment:** Section 6.2, The Parking Area, p. 6-3:

A statement is needed saying that no drums were found, as this is the central element of the investigation.

**Response:** The following sentence has been added to Section 5.2 The Parking Area.

Drums were not encountered in the parking area.

22. **Comment:** Section 6.4, Building H27 Lawn, p. 6-3 and 6-4:

According to table 6-2, most of the drums contained "oily material". Drum 24 was noted as partially full. There are no statements as to how much oily material was present in the other 39 drums. DEP assumes that the 13 drums noted as "intact" in the table were full of the oily material. Please provide more information in the text.

**Response:** The following note has been added to Table 5-2 Buried Drum/Container Removal Inventory Log:

(2) Drums labeled as intact appeared to be full. Crushed and partial drums were approximately 75% full of the tar substance.

