



DEFENSE ENERGY SUPPORT CENTER



**FINAL- 2009 - BIENNIAL TANK  
INTEGRITY TESTING REPORT  
(CDRL A001)  
BFCUST #18 (RPI#: PRL-345)  
at  
FISC RED HILL /  
PEARL HARBOR, HI**

*Prepared for:*  
**Defense Energy Support Center  
Ft. Belvoir, Virginia**

*Prepared under:*  
**NAVFAC Contract N62470-07-D-0502**

*Submitted by:*  
**Michael Baker Jr., Inc.  
Virginia Beach, VA**

*Date:*  
**8 JUNE 2009**

**FINAL 2009 BIENNIAL INTEGRITY TESTING REPORT**

**(CDRL A001)**

**OF**

**BFCUST #18**

**(RPI#: PRL-345)**

**FISC RED HILL – PEARL HARBOR, HI**

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Task Order # 0029**

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## TABLE OF CONTENTS

<u>Section</u>	<u>Page</u>
<b>PROFESSIONAL ENGINEER CERTIFICATION:</b> .....	<b>ii</b>
<b>EXECUTIVE SUMMARY</b> .....	<b>iii</b>
<b>1.0 INTRODUCTION</b> .....	<b>1</b>
1.1 Purpose of Project.....	1
1.2 Project Scope .....	1
1.3 Project Team .....	2
1.4 Qualifications of Testing Procedures Used.....	2
<b>2.0 INTEGRITY TESTING AND RESULTS</b> .....	<b>3</b>
<b>3.0 CONCLUSIONS AND RECOMMENDATIONS</b> .....	<b>3</b>
3.1 Conclusions.....	3
3.2 Recommendations.....	3

### TABLES

Table 1 – System Details .....	1
Table 2 – Integrity Test Results .....	3

### FIGURES

Figure 1: RED HILL – BFCUST SYSTEM – BFCUST #18.....	1
Figure 2: Typical Tank Bottom Access.....	2
Figure 3: Typical Tank Top Access.....	2

### APPENDICES

APPENDIX A: Mass Technology Corporation Test Report

**PROFESSIONAL ENGINEER CERTIFICATION:**

**FINAL 2009 BIENNIAL INTEGRITY TESTING REPORT**

**(CDRL A001)**

**OF**

**BFCUST #18**

**(RPI#: PRL-345)**

**FISC RED HILL – PEARL HARBOR, HI**

This report has been reviewed by a professional engineer and has been prepared in accordance with good engineering practices. Laboratory results, field notes, and supporting data have been reviewed and referenced correctly.

I hereby certify that I have examined this report and attest that it has been prepared in accordance with good engineering practices.

Engineer: Christopher D. Caputi, P.E.

Registration Number: 032382

State: Virginia

Date: **8 June 2009**



## EXECUTIVE SUMMARY

The scope of this project is to perform biennial integrity testing of Bulk Field Constructed Underground Storage Tank (BFCUST) #18 at the FISC Red Hill / Bulk Fuel Storage Facility, Pearl Harbor, HI. BFCUST #18 has a capacity of 12,600,000 gallons and contains JP-5. Testing is being conducted as best management practice.

BFCUST #18 was integrity tested from 22 May to 29 May 2009 with a linear regression of the recorded fluid mass data resulted in a calculated volume change rate that is below the threshold of detection for a tank of this diameter and therefore is interpreted as *tight*. BFCUST #18 has *passed* biennial integrity testing.

FISC Red Hill / Bulk Fuel Storage Facility, Pearl Harbor, Hawaii should continue to operate BFCUST #18 in accordance with all Federal, State, and local regulations.

BFCUST #18 should be retested on or before the biennial anniversary date of May 2011.

## 1.0 INTRODUCTION

### 1.1 Purpose of Project

The Navel Facilities Engineering Command (NAVFAC) – Atlantic Division contracted Michael Baker Jr., Inc. (Baker) through NAVFAC Contract N62470-07-D-0502, Task # 0029 to perform biennial integrity testing of sixteen (16) BFCUST systems at FISC Red Hill – Bulk Fuel Storage, Pearl Harbor, HI. Testing is being performed as a best management practice.

### 1.2 Project Scope

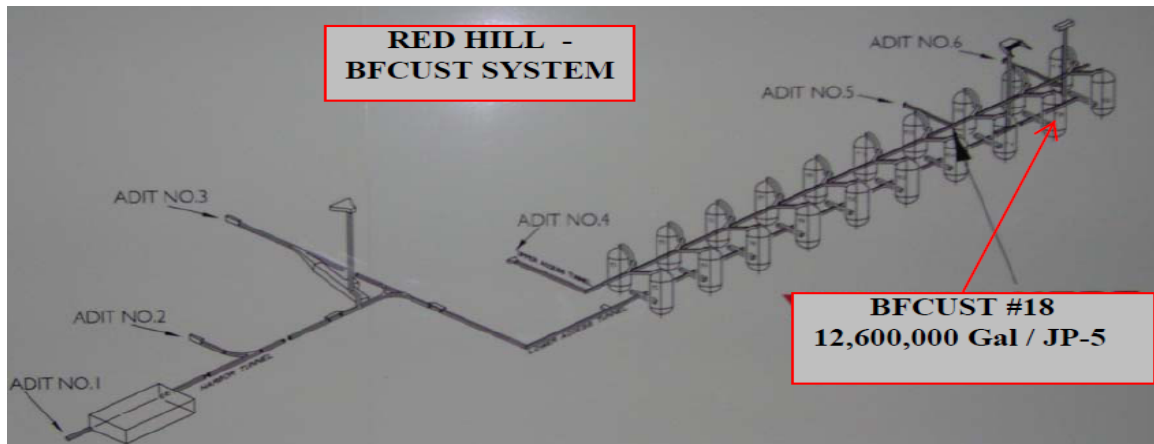
A Mass Technology Corporation (MTC) integrity test on BFCUST #18 was performed from 22 May to 29 May 2009. Table 1 provides a description of the systems tested.

Figures 1-3 show details of the Red Hill system and typical tank access points.

**Table 1 – System Details**

Tank #	RPI#	Volume (gal)	Diameter (ft)	Height (ft)	Product
18	PRL-345	12,600,000	100	250	JP-5

**Figure 1: RED HILL – BFCUST SYSTEM – BFCUST #18**



**Figure 2: Typical Tank Bottom Access**



**Figure 3: Typical Tank Top Access**



### **1.3 Project Team**

Baker subcontracted MTC to perform the integrity testing. Field-testing oversight, coordination with facility fuels representatives, quality assurance/quality control (QA/QC), and final report preparation and submission was provided by Baker personnel.

### **1.4 Qualifications of Testing Procedures Used**

The testing procedures used were those defined as the MTC leak detection method. Determination of leakage is based on the criteria established in the Ken Wilcox Associates third party evaluation.

The MTC Precision Mass Measurement System – SIM 1000, 144 hour test is certified with a calculated minimum detection level (MDL) of 0.7 gallons per hour, a probability of detection (PD) of 95%, and probability of a false alarm (PFA) of 5%.

## 2.0 INTEGRITY TESTING AND RESULTS

The MTC test report is provided in Appendix A. BFCUST #18 was integrity tested with a linear regression of the recorded fluid mass data resulted in a calculated volume change rate that is below the threshold of detection for a tank of this diameter and therefore is interpreted as *No Leak*.

**Table 2 – Integrity Test Results**

<b>Tank #</b>	<b>Volume (gal)</b>	<b>Diameter (ft)</b>	<b>Height (ft)</b>	<b>Product</b>	<b>Test Date(s)</b>	<b>Results</b>
18 PRL-345	12,600,000	100	250	JP-5	5/22-29/09	PASS

## 3.0 CONCLUSIONS AND RECOMMENDATIONS

### 3.1 Conclusions

BFCUST #18 *passed* biennial integrity testing.

### 3.2 Recommendations

FISC Red Hill, Pearl Harbor, Hawaii should continue to operate BFCUST #18 in accordance with all Federal, State, and local regulations. BFCUST #18 should be retested on or before the biennial anniversary date of May 2011.



**APPENDIX A: Mass Technology Corporation Test Report**



Precision Leak Measurement Report  
P.O. Box 1578  
Kilgore, Texas 75662

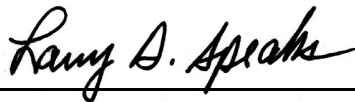
FISC Red Hill  
Pearl Harbor, HI

Project Manager – Mr. Mark Caldon

Site Supervisor – Alfred Thyrring

Scope of Work: Furnish all required management, labor, services, materials and equipment to perform the required annual tightness testing of Tank # 18 an underground fuel storage tank located at FISC Red Hill, Pearl Harbor, HI.

Report compiled by:

  
Larry D. Speaks

Date: 06-04-2009

### Summary

Testing of Tank # 18 a 12,600,000 gal underground storage tank located at FISC Red Hill, Pearl Harbor, Hawaii commenced May 22, 2009 and was completed May 29, 2009. The tank was filled with JP-5 and a precision leak test was conducted. The result of that testing is that the tank system is determined to be tight to isolation. All tank valves were adequately secured such that no unusual readings were noted. Testing was performed using the Mass Technology Corporation protocols set out in the third party evaluations. All tank valves were adequately secured such that any fluid loss was isolated to leakage. Therefore, the containment integrity of the tank was not compromised and the test is considered conclusive.

Tank # 18: After 168 hours of testing the tank is certified to be tight.

## Tank Data Tank # 18

Diameter: 100 ft. Height: 250 ft.  
Tank Type: Vertical UST Contents: JP-5  
Properties: 0.80 Specific Gravity Product Level: 208 ft.

Start Date: 05-22-2009 Completion Date: 05-29-2009  
Unit Operator: Alfred Thyrring Test Results: Certified Tight

### Results

The fluid mass data was recorded over a 168-hour period. A linear regression of the recorded fluid mass data resulted in a leak rate detected below the minimum detection level of 0.7 gallons per hour. All tank valves were adequately secured such that any fluid loss was isolated to leakage. Therefore, the containment integrity of the tank was not compromised and the test is considered conclusive.

Tank # 18 is certified to be tight.

