

QUALITY VALIDATION (QV) REPORT										
Red Hill Bulk Fuel Storage Facility Closure										
Validation Firm		HDR Environmental, Operations and Construction, Inc.					Repair No.	NCTF - 023		
Address		9781 S. Meridian Blvd., Suite 400, Englewood, CO 80112					Repair ID	Leak Detection		
Contract No.		FA890315D0007, D.O. FA8903-19-F-0027					Report Date	15 JUL 2025		
QV Engineer		(b) (6)		Phone	(b) (6)		Email	(b) (6)		
VALIDATION										
Source		PDF Page No.		Facility Geographic Area			Location Reference			
DLA		N/A		FOR System: TK 311 to Sump			FOR Line Tank S311 to Sump Valve R11RA; Main Sump FOR tank			
Repair Description		Perform annual Leak Detection test of FOR Line and Main Sump FOR tank in support of tank cleaning ops.					Source Contract Reference	N6247022D0007, N6247025F4000		
Description of Contractor QC Method(s) Used		Multiple "Pressure Step" tests conducted on FOR piping. Differing volumes of "Simulated Leak" tests completed for data comparison. 48-hour precision mass measurement test for Main Sump FOR tank.					Contractor QC Records Reviewed	Report Sheets attached		
Description of QA Validation and Observations		FOR line: observed line pack, air content evaluations, line flushing, and witnessed "Pressure Step" testing with simulated leak testing. Reviewed and verified field test procedure to written methodology. Main Sump FOR tank: witnessed precision mass measurement test at points throughout 48-hour duration. Final acceptance by government. Date: 07 JUL 2025								
Rework Needed				Photo Record Attached			Repair Work Validated as Complete			
<input type="radio"/>	Yes	<input checked="" type="radio"/>	No	See Page 2-4.			<input checked="" type="radio"/>	Yes	<input type="radio"/>	No
Comments										
The packed line was flushed with 1.5 pipe volumes into Tank S-311 with flow rates up to 250 GPM to entrain air. A jumper line was deployed across the check valve to equalize pressure in the line. Contractor performed a leak detection test between Tank S-311 and Adit targeting a Minimum Leak Detection Rate of 0.5 gallons per hour. A series of discrete "Pressure Step" tests were completed. The line was continually inspected throughout the test with no visible leaks.  At Main Sump FOR tank, The tank was filled to ~95% fill height with water. A pressure probe was deployed to the tank, collecting precision mass measurements of the water column over a 48-hour duration. No leak indications noted.										
CERTIFICATION										
I hereby certify that repair work validated in this report was personally substantiated and this report is true.				QV ENGINEER SIGNATURE			(b) (6)			
				DATE			15 JUL 2025			

## QUALITY ASSURANCE VALIDATION REPORT

### Red Hill Bulk Fuel Storage Facility Closure



FOR line packed via fire protection water supply line at Main Sump.



Pump and test tree assembly outside Tank S311 for pressure step leak detection testing.



## QUALITY ASSURANCE VALIDATION REPORT

### Red Hill Bulk Fuel Storage Facility Closure



Precision mass measurements being collected across a 48-hour test duration at Main Sump FOR tank.



Containment staged at each hose connection for leak detection testing.



## QUALITY ASSURANCE VALIDATION REPORT

### Red Hill Bulk Fuel Storage Facility Closure



Orifice plate utilized for simulated leak testing.



Simulated leak testing performed as part of leak detection testing.



May 22, 2025

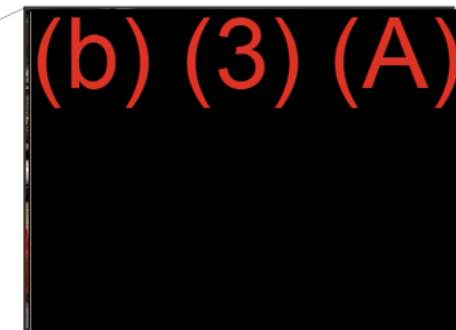
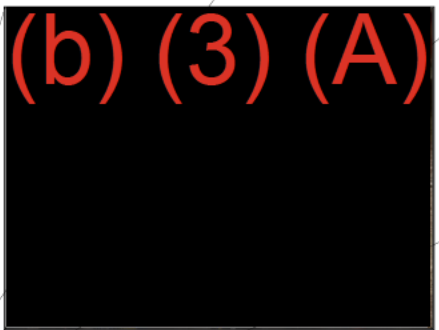
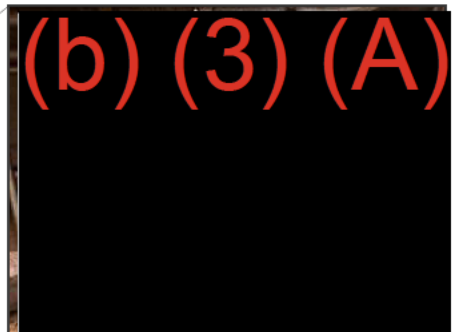
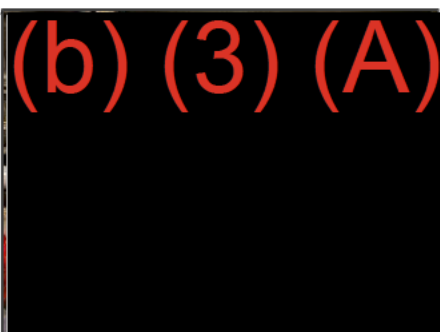
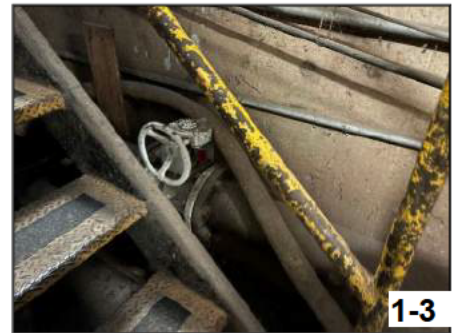
(b) (4) 25-2718

Appendix B

(b) (4)

PEARL HARBOR - SECTION 1: TANK S311 TO SUMP VALVE RI1RA

ISOLATION	OPEN	CLOSED	LOCATION/COMMENTS	FIGURE
(b) (3) (A) DBBV TT1RF		X	Tank S311 Outside Tank Dike	1-1
BV	X		Outside Tank Dike S311 (Connection Point)	1-2
BV T13RG	X		Inside ADIT (b) (3) (A)	1-3
BV		X	Inside ADIT (b) (3) (A)	1-4
BV T13RB	X		Inside ADIT (b) (3) (A)	1-5
BV RI1RA		X	Inside ADIT (b) (3) (A) before Sump	1-6
Flushing Connections			Inside ADIT (b) (3) (A) by Main Sump	1-6 & 1-7
Jumper around Check valve			Inside ADIT (b) (3) (A) T13RB	1-8 & 1-9
TEST CONNECTION				FIGURE
1-1/2" Cam to 1/2 QD after TT1RF				1-2



May 22, 2025

(b) (4) 25-2718

Appendix B

**May 20, 2025:**

(b) (4) arrived at the Navy Closure Task Force office at Pearl Harbor, signed the appropriate NDA and were issued ADIT badges. An in-briefing was conducted with (b) (4) and (b) (6) of NAVFAC. (b) (4) proceeded to ADIT 5 and were issued a work authorization form (WAF). (b) (4) then established the test connection and setup to test the FOR line from Tank S311 while (b) (4) configured at the Main Sump and installed a test jumper around the check valve in (b) (3) (A). The section was then packed using the fire suppression system at the main sump while air was vented at high points. During packing, TT1RF was slightly closed while air was vented at the high point outside (b) (3) (A). Once the section was packed the isolation valves were closed and pressure was observed for stabilization. Leak detection testing commenced while the entire section was visually inspected. (b) (4) performed multiple leak detection tests and leak simulations with satisfactory results. Testing complete, the valves were returned to their original configurations, (b) (4) removed the test jumper and (b) (4) removed the test connection. All test equipment was packed up and stored at Pearl Harbor, the site was notified of the completion of testing, and (b) (4) departed the base.

(b) (4)



(b) (4)

(b) (4)

(b) (4)

## Leak Detection Certification

Location: JBPHH Red Hill

Date: May 30, 2025

Customer: (b) (4)

Project No.: 25-2718

Project: (b) (4) Mobile Trailer Pipeline Testing  
DLA Energy Leak Detection Centrally Managed Program

### GENERAL PIPELINE CONFIGURATION DATA:

SECTION No.	DESIGNATION	PIPELINE MATERIAL	PIPELINE SCHEDULE	PIPELINE LENGTH [ft]						TOTAL LENGTH [ft]
				1"	4"	6"	8"	10"	12"	
1	Tank S311 – Sump Valve Ri1RA	CS	STD.	(b) (3) (A)						
TOTAL:				(b) (3) (A)						

Table 1: General Pipeline Configuration Data of Tested Fuel System @ JBPHH Red Hill

#### Legend:

SS: Stainless Steel  
CS: Carbon Steel  
FG: Fiberglass  
AL: Aluminum  
STD: Standard Schedule

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...25-2718-JBPHH Red Hill Certification May 2025.docx

(b) (4)

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## Leak Detection Certification

### CERTIFICATION TEST DATA:

SECTION No.	DESIGNATION	TOTAL LENGTH [ft]	SECTION VOLUME [gal]	REFERENCE PRESSURE [psi]	EPA MALDR <sup>1</sup> [GAL/H] <sup>2</sup>	HCNA LDS [VERSION]	TEST DATE	RESULT
1	Tank S311 – Sump Valve R11RA	(b) (3) (A)	5,234	68	0.50	V2.0	20-MAY-25	PASS

Table 2: Leak Detection Section's Results of Tested Fuel System @ JBPHH Red Hill

### RESULT CRITERIA:

PASS: Test results were within the stated EPA MALDR.

FAIL: Test results exceed the stated EPA MALDR and/or unsatisfactory result was observed.

(b) (4) certifies that the piping listed in the above table has been tested by means of the (b) (4) Leak Detection System, which meets the criteria set forth in U.S. EPA/530/UST-90/010 for precision leak test.

The (b) (4) Leak Detection System method is capable of detecting leaks of 0.068 gallons per hour or 0.00078% of line volume contingent upon segment size and at a reference pressure of 145 psi, with a probability of detection ( $P_D$ ) > 95% and a probability of false alarm ( $P_{FA}$ ) < 5%; as per (b) (4) Third Party Certifications. Additionally, these methods were successfully evaluated at leak rates identified in 40 CFR 280.252 2015 EPA UST regulations.

In accordance with the above stated "Result Criteria for Classification of Tightness", statement of work requirements, and client direction, (b) (4) hereby certifies that this piping was tested on the date(s) and with the result(s) stated in the above table.

(b) (4)

May 30, 2025

(b) (6)

Principal

<sup>1</sup> EPA 40 CFR 280 Subpart K - Maximum Allowable Leak Detection Rate (MALDR) Per Test Section Volume.

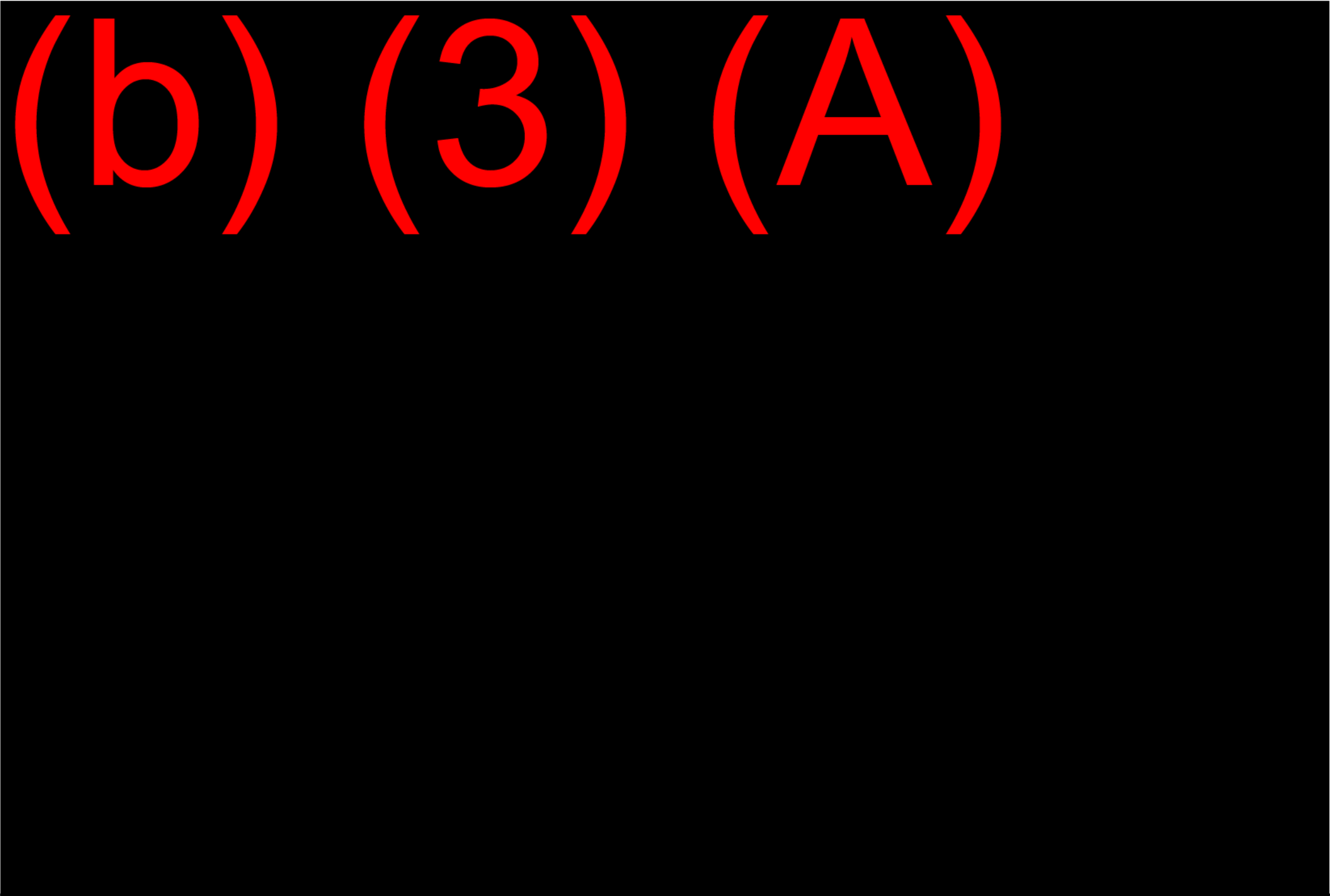
<sup>2</sup> Annual test - leak detection rate not to exceed - (EPA Maximum Allowable Leak Detection Rate) (b) (4) third-party certified).

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LOCATION/COMMENTS - JBPHH Red Hill

Configuration Drawing



(b) (4)

(b) (4)

## Precision Leak Measurement Report

(b) (4)

SUMP

**Scope of Work:** Furnish required management, labor, services, materials and equipment to perform the required annual tightness testing.

**Project Title:** Tank Leak Detection Testing of RH\_SUMP at Red Hill, Hawaii.

**Task Order / Task Number:** (b) (4)

**Client Task Manager:** (b) (6)

**Date of Submittal:** Friday, June 13, 2025

**Prepared by:** (b) (6)

### Tank Details:

<b>Product / SG:</b>	H2O / 1.00	
<b>Tank Construction:</b>	Underground Field Constructed Tank	
<b>Dimensions</b>	34" x 34" x 8' 3"	Source: Direct Measurements
<b>Product Surface Area:</b>	8.03 Sq. Ft.	Source: Historical Testing Data
<b>Tank Capacity:</b>	425 gallons	Source: Historical Testing Data
<b>Tank Height:</b>	8' 3" 00	Source: Historical Testing Data
<b>Product Level:</b>	7' 0" 00	Source: Manual Gauge

**Test Method:** Precision Mass Measurement System SIM-1000

**Statistical Averaging (if used):**

Below are the supporting calculations for statistical averaging:

1. CALCULATION  
OF PSA

*PSA, in square feet =*

8.03 SF

2. CALCULATION  
OF LEAK RATE  
FOR ONE 24-  
HOUR TEST

*Leak Rate (one 24 hour test), in gph =  $\frac{PSA, \text{ in square feet}}{1,257 \text{ feet}^2} * 0.078 \text{ gph}$*

0.01 GPH

3. CALCULATION  
OF LEAK RATE  
FOR MULTIPLE  
24-HOUR  
TESTS

*Leak Rate (total number [n] of 24 hour tests), in gph*  
$$= \frac{\text{Leak Rate (one 24 hour test)}}{\sqrt{(n \text{ of 24 hour tests})}}$$

0.01 GPH

(b) (4)



(b) (4)

SUMP

**Testing Configuration:**

**Tank Isolation:** (b) (3) (A) DBB Valve, Issue/Receipt line at Tank Shell.  
(b) (3) (A) DBB Valve, Low-suction/Slop line at Tank Shell.

**Test Unit Operator:** (b) (6)

**Stabilization:** None

**Test equipment:** MTC SIM-1000 was utilized to conduct a 48-hour test.

**Start date:** 5/20/25

**End date:** 5/22/25

The MTC standard operating procedures includes, requesting that any isolation valve(s) are properly seated (via closing, reopening, and reclosing) and that the bleed ports of double-block and bleed isolation valves are checked for the presence of product if there are testing anomalies.

**Results:**

*Note: This test is certifying the portions of the tank that are in contact with fuel during the test to the product level indicated.*

After two 24-hour test periods, the tank is certified to be tight to .5 gph. Utilizing statistical averaging of non-overlapping tests per test unit. Refer to the result summary graphic below, per test unit, with the Y-axis indicating mass level and the X-axis indicating testing hours. Note that the mass indicated on the Y-axis differs from the product level. Mass is indicated in feet of water column.

**Summary:**

The result of this test 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. This meets the required minimum detection level of 0.5 GPH.

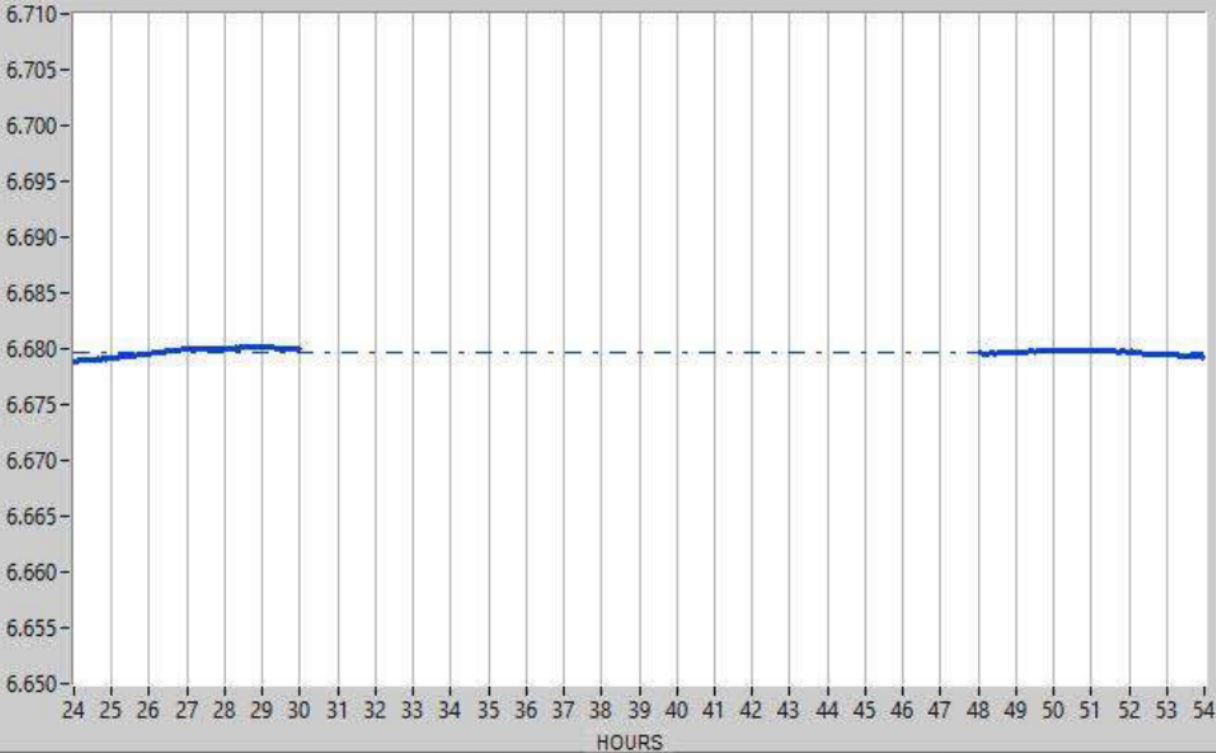
**RH\_SUMP :** After 48 hours of testing the tank is certified to be tight.

(b) (4)

Tank Test Results Summary

(b) (4)

Mass (ft H<sub>2</sub>O)



Tank:	Red Hill 2025
Test No.:	Main Sump
Start Date:	5/20/25
End Date:	5/22/25

Test Results
The linear regression performed on data for the 2-night period indicates a volumetric change rate that is below the MDLR of this test and is interpreted as "NO LEAK".

Linear Regression	
Compensated Data	



(b) (4)

**Figure 1-3: Main Product Reclaim Sump Detail**

