

## Tank History for Tank 16, Red Hill

RED HILL TANK NO. 16 PRODUCT:  
DFM

<u>DATE</u>	<u>REMARKS</u>
7/21/48	First leak developed. Leak at 242'-5-5/16"
7/27-8/4/48	Transferred oil and emptied tank.
8/48-4/49	Cleaned and washed tank. Filled and tested tank with water. Leak found on telltale pipe in tank.
6/13-22/49	Shop 72 sandblasted inside tank bottom.
6/24-30/49	Shop 08 painted inside tank bottom.
7/15/49	Tank back in commission. Started to fill tank with oil; stopped at 10'-0-3/4". No leaks at this height for three days.
7/24-8/30/49	Filled oil in tank up to 167'-7-1/2". Telltale started leaking again. Lost 2-1/4" in 11 days.
9/12-10/3/49	Lowered oil down to 47'-0-0" and leak stopped.
12/10/49	Topped off tank at 242'-1-13/16". Lost 3-5/8" in four days. Tank still leaking.
12/49-1/50	Checking and testing for leak. Tank leaking. Oil transferred and tank emptied.
2/28/50	Started cleaning and washing interior of tank.

3/50 Filling and testing tank with water.

1/51 Leak determined to be cracked weld on jumper pipe in  
lower dome. Weld would open up after 150'+ head imposed.

1/17/51 Tank back in commission. Started filling tank with oil.

1/24/51 Tank topped off at 242'-2-5/8". Okay. No leaks.

10/11/63 Calibrated gauge. Installed on 11/15/63.

7/22/64 Tank cleaned by PHNSYD.

2/14/68 Replaced defective switch for tank's light circuit on  
top of tank (2 hours).

7/5/72 Emptied and cleaned for conversion.

7/21-31/72 Cleaned tank to convert from NSFO to Navy Distillate.

9/13/72 Telemeter system installed.

10/10-11/1/72 Repaired two holes in 3/4" telltale pipe #11 at tank  
bottom. Tested all telltales to 20 psi. Telltale numbers 6 and 10 leaking in concrete block. Cut off and blanked 6 and 10 inside tank at point where they leave tank to go to lower tunnel. Cross connected #6 to #7 and cross connected #10 to #11. Retested to 20 psi. (See Exhibit 1.)

11/10/72 Converted to Navy Distillate.

5/23/73 Telltale started leaking. 1 drop 20 seconds.

1/8/75 Emptied tank due to leakage.

1/13/75 Secured vent, installed blower and opened manhole covers.

1/28/75 Cleaned tank.

1/30/75 Pumped water into tank. Emptied tank. PWC working in

tank.

2/3/75 Started filling water. Finished 26 Feb. 160'0-0".

4/24/75 Started draining water into Halawa Stream.

5/19/75 Repaired collector ring. Repaired telemeter system.

5/22/75 Leak located on collector ring. Repaired seams.

5/23/75 Leak located on telltale #8--bottom of tank. Repaired seam. Renewed approximately 10'-0-0 length.

6/11/75 Bolted manhole. Tank vent opened.

6/75 Tank repairs completed by PWC.

6/11/75 Filled oil from Tank 18.

6/15/75 Refilled with DFM.

10/16/75 PWC personnel inspected bottom of tank.

12/75 PWC cut out 8' manhole to install flange.

Jan-May PWC magnafluxed bottom of tank. Found large pits approximately 1/2". Removed collector ring and related system.

2/81 Tank was removed from service and turned over to the contractor for initial repairs and lining.

10/19/81 Deputy Director made final inspection of interior repairs and lining to tank. Tank was very clean. A few minor repairs were noted for rework. Tank was conditionally accepted.

10/23/81	Tank was refilled to 242 feet and was found to leak badly.
11/10/81	Tank was removed from service and turned over to the contractor for rework.
12/28/81	Tank was returned to service for leak testing after contractor rework.

<u>Date</u>	<u>Remarks</u>
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Unless otherwise noted, all work in the following entries was done by Morrison Knudsen Company, Inc. and their subcontractors under Pacific Naval Air Base Contractors Contracts NOy 3550 and NOy 4173 (Project Nos. 16, 45, 224, 225, 535, 690, and 691).

7/22/41	Started excavation of 4' x 6' centerline shaft from top of Red Hill to top of upper dome.
8/27/41	<ol style="list-style-type: none"> <li>1. Finished excavation of 4' x 6' centerline shaft.</li> <li>2. Started excavation of 12' x 12' centerline shaft from top of dome to lower access tunnel.</li> </ol>
10/30/41	Started ring tunnel.
12/5/41	Finished ring tunnel.

3/30/42 Started upper dome excavation.

3/9/42 Finished excavation of 12' x 12' centerline shaft.

5/16/42 Finished upper dome excavation.

6/7/42 Started upper dome structural steel erection.

7/5/42 Finished upper dome structural steel erection.

7/10/42 Started upper dome steel liner plate.

8/17/42 Finished upper dome steel liner plate.

8/24/42 Started upper dome concrete.

8/28/42 Finished upper dome concrete.

8/29/42 Started upper dome grouting.

9/6/42 Finished upper dome grouting.

9/7/42 Started ring blasting to enlarge 12' x 12' shaft to 30' dia.

- 9/14/42      1. Finished ring blasting.  
                 2. Started excavation of barrel and lower dome.
- 10/22/42      Started guniting side walls.
- 12/31/42      Finished guniting side walls.
- 1/6/43          Finished excavation of barrel and lower dome.
- 1/6/43          Started erection of steel tower.
- 1/7/43          Finished erection of steel tower.
- 1/11/43        Started steel liner plate and concreting lower dome.
- 1/24/43        Finished steel liner plate and concreting lower dome.
- 1/26/43        Started steel liner plate and concreting side walls.
- 2/14/43        Finished steel liner plate and concreting side walls.
- 2/26/43        Started grouting lower dome.
- 3/8/43          1. Finished grouting lower dome.  
                 2. Started pre-stress grouting lower dome and barrel.

- 3/9/43 Finished pre-stress grouting lower dome and barrel.
- 3/11/43 Started bottom plate and piping connections.
- 3/14/43 Finished bottom plate and piping connections.
- 3/18/43 Started leak testing with water.
- 4/19/43 Started and finished installing gauges and steam coils.
- 5/4/43 1. Finished leak testing.  
2. Started to drain and clean tank.
- 5/8/43 1. Finished draining and cleaning tank.  
2. Tank turned over to Navy for operation.

Unless otherwise noted, all work in the following entries was done by Hawaiian Dredging and Construction (Dillingham Corp.) and their subcontractors under FY-78 NAVFAC MILCON Project P-060, Contract No. N62471-77-C-1316 entitled Modernization of Red Hill POL Facility. Project awarded 15 May 1978 and administered by ROICC Pearl Harbor.

2/12/81 Fuel Ops completed emptying tank for turnover to contractor  
for basic repairs.

10/23/81 Contractor completed basic repairs. Warranty on basic

repairs commenced this date. Fuel Ops commenced refilling tank for leak test.

12/31/81 Tank filled to \_\_' level.

11/10/81 Fuel Ops completed emptying tank for return to contractor for leak search and repair.

11/12/81 Contractor started leak search and repair. Tank searched twice for leaks. One leak found at 188' level.

12/23/81 Leak search and repair completed. Warranty on leak search and repair commenced this date.

12/28/81 Fuel Ops commenced refilling tank with DFM for leak test following leak search and repair.

12/31/81 Tank filled to 154' level. Telemeter drop negligible.

1/13/82 Tank level raised to 242'. Initial telemeter loss under 10 gpd.

1/14-2/3/82 Telemeter loss rate approx. 1 gpd.

2/10/82 Tank declared "leak free" by ROICC.



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Unless otherwise noted, all work in the following entries was done by AMAN Environmental Construction, Inc. and their subcontractors under DFSC M&R Project PRL93-17 (M1-93), Contract No. N62755-94-D-2802 entitled Clean Underground Fuel Storage Tanks, Red Hill Fuel Storage Facility. The project was administered by PWC Contracts Dept.

2/8/96 From 0800 to 0930 R. Krouse and S. Ito (FUEL MAINT) assisted by D. Tippy (AMAN) removed the telemeter tape, counterweight, and high level alarm. Telemeter float remained at the bottom of the tank. Telemeter tape requires replacement.

4/2/96 From 0810 to 0917 N. Kawamoto (FISC LAB) and R. Koyama (PWC CONREP) inspected tank for cleanliness. Tank passed.

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Unless otherwise noted, all work in the following entries was done under a series of contracts and subcontracts awarded by NFESC Port Hueneme through a GSA contract with Anteon Inc. (formerly Ogden Government Services, Inc.) for the Red Hill tank leak detection project (LEADS) funded by NAVFAC. Key personnel for the project are as follows:

- a. NFESC Port Hueneme - Leslie Karr, project manager; Bill Majors, field engineer; John Norbutus, engineer; George Warren, engineer.
- b. Anteon - Tanwir Chaudry, engineer
- c. Vista Research - Jim Starr, engineer

- d. Asteroid - Mike Wegmann, field coordination engineer
- e. Industrial Mechanical Corp. (IMC) - Glenn Shimabukuro

6/25-27/96 M. Wegmann and J. Starr vacuum test abandoned 2-inch dia. steam condensate return pipe and abandoned 6-inch dia. steam condensate casing pipe from Lower Access Tunnel to tank bottom to check for leaks. Pipes passed the test.

7/1-10/96 Install lights, ventilation, and spider basket in tank.

7/11-19/96 Install reference tube (leak test pipe) along the length of the center tower. Install data cable and pressure sensing tubing from bottom of reference tube to Lower Access Tunnel via the 2-inch dia. steam condensate return pipe.

7/19-\_/96 Hydrostatic test of reference tube and vacuum test of new fittings on 2-inch line for data cable and pressure sensing tubing.

7/27/96 Power secured and lights and ventilation removed. Work completed.

5/30/97 M. Wegmann (Asteroid) and R. Krouse (Fuel Maint) install communications cable in the shaft of elevator no. 72.

5/31/97 M. Wegmann install "pressure devices" on tank.

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Unless otherwise noted, all work in the following entries was done by Dames & Moore and their subcontractors under DESC M&R Project PRL96-21, Contract No. N62742-96-C-1356 entitled Emergency Repairs to Red Hill Tanks. The contract was administered by ROICC Pearl Harbor.

Under DESC M&R Project PRL96-21, FISCPH Contract No. N00604-97-R-0013, FISC contracted with Mid Atlantic Environmental, Inc. to provide API-653 inspection services in support of the tank repair by Dames & Moore. Work was done by Thomas G. Kitchen, API-653 Certification No. 1891. Report submitted.

12/5/97-1/19/98 Inspect upper dome, cylinder, and lower dome.

1/21/98 Inspect tank bottom.

1/22-2/9/98 Inspect and test upper dome.

3/17/98 Inspect tank bottom.

3/18-19/98 Vacuum box test tank bottom.

3/23/98 UT test tank bottom.

3/24/98 Test tank bottom for chlorides and remaining flame sprayed aluminum.

10/1-6/98 Fill with JP-5 in stages to 109.099' by gravity from Tanks 4 and 1.

10/6-27/98 Tank level drops from 109.099' to 109.074' for a loss of 1468.7 gal (71.1 gal/day) over 30.67 days.

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Unless otherwise noted, all work in the following entries was done by Ogden Environmental and Energy Services Co., Inc. and their subcontractor for drilling, Salisbury and Associates, Inc. (SAI) under PACDIV's CLEAN Contract No. N62742-90-D-0019, CTO No. 0229. The purpose of the work was to do core borings (three for each tank) from the Lower Access Tunnel under the base of Tanks 9 and 16 to check for the presence of petroleum that may have leaked from the tank.

10/21/98 At 1140 Fermin Esquibel (Ogden), Larry Demoss (Ogden), Travis Gleason (SAI), and Robert Shelton (SAI) start Boring 16A under the center of Tank 16. Last core removed today was Pull No. 8 (52'-4" - 62'-6") at 1712.

10/22/98 At 1041 Pull No. 11 (77'-6" - 87'-3") was removed from Boring 16A. Core had an oily sludge-like material in it. At 1330 Mark Garrett (FISC) took a sample from the 83'-9" mark of Pull No. 11 to be tested. At 1450 completed Boring 16A with removal of Pull No. 14 (99'-0" - 104'-8"). At 1600 started Boring 16B. Last core removed today was Pull No. 2 (3'-6" - 8'-6") at 1640. Noted fuel odor on core.

10/23/98 At 1108 completed Boring 16B with removal of Pull No. 10 (67'-8" - 77'-10").

At 1335 started Boring 16C. Last core removed today was Pull No. 8 (52'-9" - 55'-10") at 1631. No odor or visible petroleum in cores.

10/26/98 At 0825 noted a strong odor at the 65'-10" mark on core from Pull No. 9 (55'-10" - 65'-10"). At 0858 completed Boring 16C with removal of Pull No. 10 (65'-10" - 75'-11"). Noted strong odor at the 75'-11" mark.

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10/27-11/4/98 Draw down to empty by gravity to Tank 3 and via Surge Tank 1 to Tank 3. Tank emptied due to concern over tank level drop and petroleum found under base of tank.