

LOCATION: Red Hill

TANK NO.: 1

PRODUCT: JP-5

STRUCTURE NO.: 328

SHELL CAPACITY: 285,742 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,429,239

DIMENSIONS: Diameter: 100' Height: 238'-1-0"

TYPE OF CONSTRUCTION: Underground concrete lined with welded steel

<u>DATE</u>	<u>REMARKS</u>
1/16/47	First leak developed. Tell-tale leaked Diesel Oil at liquid level of 219'-2-3/8". Ullage 26'-5-11/16".
1/16-1/19/47	Transferred oil to Surface Tanks #47 and #54. Oil level in tank at 50'-0-0" was leaking 5 gals in 8 minutes.
1/20/47	Cleaned. New jumper pipes installed on collector rings. Labor \$1855 Material: \$460
1/22-2/20/47	Cleaned and washed tank; test and repairs in tank.
2/21/47	Tank back in commission. Oil level at 52'-11-1/4". No leaks.
4/30/47	Filled diesel oil in tank to 129'-9-13/16". No leaks
8/14/53	Second leak developed. #7 Telltale leaking diesel at 219'-1-3/8". Transferred oil to Tanks #47 and 53. Telltale stopped leaking at 47'-1-1/2".
8/20/53	Tank emptied and readied for testing and repairs.
8/21/53	Cleaned and washed. Filling and testing tank with water. Leak found on #7 telltale, crack in tank.
9/15/53	Cleaned. Labor \$1920.50 Material \$285.90
9/17/53	Tested tank. Hydrostatic with 5 gal. dye. Labor \$149.90 Matl \$23.60
1/8/54	Renewed 14 telltales. Labor \$1495. Matl \$135.
5/12/54	Tank back in commission. Topped off tank 230'-8-1/16". Ullage: 14'-11-7/8" O.K. No leaks.
10/11/63	Calibrated gauge.
8/1/64	Telltale #2 started leaking 1 qt. in 15 minutes.

Continue

DATEREMARKS

10/64	Tank #1 cleaned to find leakage which showed up in several telltale pipes but not in collector ring. Collector ring was found to be plugged and leaked in 5 places. Apparently, leakage backed up through jumper pipes and was finally released through other telltale piping. Collector ring was cleaned out and repaired. Inspection of portion of collector ring removed indicated replacement was not necessary. All other telltale pipes go to lower tunnel through the tank bottom. (pictures were taken and are on file). All telltale piping at tank bottom was air-tested and coated with Devron. Labor \$1500 Matl \$75.00
1/3/70	Emptied and cleaned for conversion.
1/16-1/22/70	Cleaned tank. (72 hours) Labor cost \$235.44 Matl None
2/4/70	Converted to JP5
3/20/73	Emptied for renovation
3/21/73	Welded 10" flange and stub on 10" waterline.
3/29-4/3/73	Hose down tank #1 Labor cost \$360.00
4/73	Cleaned tank
4/13/73	Removed 6" valve and installed reconditioned valve. Labor \$80
4/18/73	Checked for leak in telltale piping. 19 Apr 73 repaired piping and installed 6" standard valve.
9/12/73	Telemeter system installed
11/7/73	Refilled tank
5/1/75	Started to leak at 189'-11-7/8"
5/7/75	Drop liquid drain to 184'-750
10/23/81	Tank was removed from service and turned over to the contractor for initial repairs and lining.
7/19/82	Tank was inspected and approved.

LOCATION: Red Hill

TANK NO.: 2

PRODUCT: JP-5

STRUCTURE NO.: 329

SHELL CAPACITY: 285,387 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,429,239

DIMENSIONS: Diameter: 100' Height: 238'-1-0"

TYPE OF CONSTRUCTION: U.G. concrete lined with welded steel

DATE

REMARKS

10/28/47	First leak developed. #9 Telltale started leaking at liquid level of 231'-2-3/4". Ullage 14'-11-1/16" (leaking oil).
10/29/47	Started transferring oil to Surface tank #54 and issues to ships.
2/26/48	Tank emptied via 18" line to #3 surge tank (#6 pump).
3/48-4/48	Cleaned and washed tank. Filled and tested tank with water. Telltale still leaking. Emptied water.
5/3/48	Filled water in tank. #2 Telltale started leaking at liquid level 21'-2-3/4". Emptied tank again. Leak found.
5/4/48	Filled water in tank. Stopped at about 230'-0-0". No leaks on telltales
5/18/48	Emptied water in tank to Halawa Stream.
5/24/48	Tank back in commission. Started filling with diesel oil.
6/15/48	Tank topped off. Ullage: 15'-5-3/8". No leaks.
5/17/54	Second leak developed. #9 telltale started leaking water at 198'-6-3/8" Ullage: 47'-7-5/16". 3 pints in 2 hours.
5/18/54	#1 telltale started leaking water at 189'-2-1/2" (10 gals. in 7 hrs)
5/20/54	Secured all valves on issue line. Sounding: 180'-4-5/8". #9 telltale stopped leaking. #1 telltale dripping water only.
7/9/54	Topped off tank 228'-0-7/8". Ullage 18'-0-7/8". Leaking water on #1 telltale about 1 qt. in 8 hrs.
7/13/54	Put 1 can of green dye into tank to determine tank leak. Took sample from #1 telltale for analysis.
8/17/54	Opened tank for issues. Telltale still dripping water.

Red Hill Tank #2

continue

DATE	REMARKS
4/28/58	Telltale leaking one drop per second.
5/12/58	Telltale stopped leaking.
9/59	Repaired leak on 16" Diesel Oil line. Cost: \$22.77.
6/60	Cleaned tank
7/60	pictures on file
8/60	Changed collector ring and 1-1/4" pipe. Renewed all 3/4" jumper and telltale pipes up to tank crest. All lines were painted with Devron. One coat of paint primer, two coats of green, and one coat each of orange and white. Labor: \$1952.40 Matl: \$168.
9/7/60	Replaced all rusted drip cups on telltale systems on tank #2. Labor: \$44.80 Matl \$6.10
10/11/63	Calibrate gauge
10/24/67	Installed new housing on motor valve at tank #2.
11/9/67	Reset and tested limit torque switch on tank #2.
3/5/73	Welded flat bars on catwalk Labor cost \$80
3/8/73	Welded 6" Stub and flange on 10" waterline.
3/9/73	Completed cleaning botoom of tank \$280 labor cost
4/73	Cleaned tank
12/28/81	Tank was removed from service for initial repairs and lining.
9/27/82	Final inspection of tank was held and tank was accepted.
4/1/83	Tank still being tested for leaks. If necessary, the contractor will return in August or September of 1983 for a final rework.

LOCATION: Red Hill

TANK NO.: 3

PRODUCT: JP5

STRUCTURE NO.: 330

SHELL CAPACITY: 285,413 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,429,239

DIMENSIONS: Diameter: 100' Height: 238'-1-0"

TYPE OF CONSTRUCTION: U.G. Concrete lined with welded steel

<u>DATE</u>	<u>REMARKS</u>
3/2/53	Cleaned tank. Labor: \$1896.60 Matl: \$390.20
7/5/53	Repaired leak on collector ring. Labor \$375 Matl \$68.75
3/63	Tank cleaned. Remained open until Aug 1963. Tank reinspected, bottom swept, and refilled on Aug 19, 1963.
10/63	Calibrated gauge
10/63	Worked on selsyn motor at tank #3. No reading on automatic gauge. Defective wiring.
10/63	Completed repairs to wiring of selsyn motor at tank #3. Recalibrated gauge.
8/63	Cleaned tank.
5/27/70	Emptied and cleaned for conversion.
6/1/-6/9/70	Mucking tank #3 for conversion to Navy Distillate Fuel. (160 hrs) Labor \$1,065 Material: \$75
8/27/70	Tank filled with Navy Distillate
9/27/70	Converted to Navy Distillate
4/4/73	Completed hose down of tank Labor cost \$320
4/3/73	Emptied and cleaned for conversion. Converted to Diesel Fuel Marine.
4/27/73	Removed section of 32" pipe. Labor cost \$60
5/73	Cleaned tank
5/73	Changed product Navy Distillate to JP-5

Red Hill tank #3

continue

<u>DATE</u>	<u>REMARKS</u>
5/1/73	Installed 38" steel flange inside tank.
5/22/73	Emptied and cleaned tank for conversion with Diesel Fuel oil Labor cost \$350
5/73	Washed with Navy Distillate from tank #6.
5/24/73	Installed 32" line blank flange at lower tunnel tank #3.
9/11/73	Telemeter system installed.
10/3/73	Installed 16" flanges and blanks inside tank to isolate from NSFO. Tank converted to JP-5
12/14/73	Blind on 18" removed
12/26/73	Filled tank #3 with JP5 from tank #17.
3/5/82	Tank was removed from service and turned over for initial repairs and lining.
12/1/82	Final inspection of tank was held and tank was accepted.

LOCATION: Red Hill

TANK NO.: 4

PRODUCT: JP-5

STRUCTURE NO.: 331

SHELL CAPACITY: 285,246 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,429,239

DIMENSIONS: Diameter: 100' Height: 238'-1-0"

TYPE OF CONSTRUCTION: U.G. Concrete lined with welded steel

<u>DATE</u>	<u>REMARKS</u>
1/28/53	Cleaned tank. Labor \$1940.25; Matl: \$480.50
10/24/59	Leak on drain line. Note: Drain line patched and subsequently renewed following tank cleaning.
3/60	Serviced automatic gauge on tank #4. Labor: \$6.28
3/61	Cleaned tank #4. Replaced collector ring and telltale jumper pipes. Labor: \$525 Matl \$45 (Float guide line repaired also).
10/11/63	Calibrated gauge
11/8/67	Repaired telemetering readout for tank #4 blackout. Replaced defective lamps and checked reading up to 40 ft.
12/29/70	Emptied and cleaned tank for conversion. Labor cost \$1,520
2/17/71	Converted tank to Navy Distillate
4/25/73	Emptied and cleaned for conversion. Converted to Diesel Fuel Marine. Emptied and cleaned for conversion. Telemeter system installed.
4/26-6/5/73	Cleaned tank. Labor cost \$750 Installed 6" gate valve on drain line and removed sections of 32" fill line.
6/4/73	Installed 32" blank flange on 32" fill line.
6/6/73	Installed 32" blind and manhole in lower tunnel tank 4.
10/3/73	Installed 16" flange and blanks inside tank to isolate from NSFO. Tank converted to JP-5 fuel.
1/26/74	Filled JP5 in tank from tank 17. Topped off Falcon Princess.
9/1/81	Tank was removed from service and turned over to the contractor for initial repairs and lining.

Red Hill tank #4

continue

DATE

REMARKS

12/10/82

Tank 4, Red Hill was inspected and okayed for refill. This is the last of the 16 Red Hill to complete basic repairs and lining. All tanks are now in either leak test or leak repair phase of the project.

4/1/83

Tank is still being tested for leaks. If necessary, the contractor will return in August or September of 1983 for a final rework.

LOCATION: Red Hill

TANK NO.: 5

PRODUCT: JP5

STRUCTURE NO.: 332

SHELL CAPACITY: 302,333 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
10/20/52	Cleaned tank Labor \$1950 Matl \$430
10/11/63	Calibrated gauge
5/14/64	Cleaned tank
3/21/65	Telltale #2 started to leak. Rate of leakage one gallon in 1 hour 15 minutes with 14'-10-1/2" ullage. NSFO leakage analyzed. Oil is clean- analysis identical with product in tank. Leak in telltale piping suspected. Tank worked on intermittantly for 6 months--no leak found. Tank filled. Trace amt of leakage in telltale #2. Suspect leak partially rusted over. Est. cost labor \$1800
4/6/70	Emptied and cleaned for conversion Contract N62471-70-C0288 Red Hill Ince I for conversion to Navy Distillate.
2/10/71	Converted to Navy Distillate. Emptied and cleaned for conversion. Telemeter system installed.
12/29/71	Turned back by contractor to NSC and topped off with Navy Distillate.
2/10/72	Telltale leak found, about 2 quarts per day.
8/73	32" line blanked in tank.
8/8/74	Emptied tank
8/19/74	Tank opened and washed down for conversion from Navy Distillate to JP5. Blank installed on 32" line inside tank. Bottom welds (44 plates extending up for approx 6' magnafluxed by shipyd QAR) See report on file.
8/21/74	Inspected tank. ok
10/74	Tank converted from Navy Distillate to JP-5

continue

<u>DATE</u>	<u>REMARKS</u>
12/23/75	Leak on 10' sample tap. Transfer JP5 to tank 55 and PC tank #4 Finished Dec 25, 1975. Started to trans to Red Hill 0950--30 Dec Finished 6 Jan 2030, Dec 29th Maint installed 4-3/4" valves on sample lines. finished Dec 29, 75
1/76	A leak in a sample line on underground JP5 tank 5 required an unusual transfer of JP5 to a cleaned Pearl City JP4 tank 4. Repairs were completed and product returned to underground tank 5.
5/10/81	Tank was removed from service and turned over to the contractor for initial repairs and lining.
4/21/82	The Deputy Director and Distribution Facilities Specialist participated in final inspection of tank. Many discrepancies were noted and tank was not accepted. On 22 April, a reinspection of tank was held at which time the tank passed.
4/1/83	Tank is still being tested for leaks. If necessary, the contractor will return in August or September of 1983 for a final rework.

LOCATION: Red Hill

TANK NO.: 6

PRODUCT: JP-5

STRUCTURE NO.: 333

SHELL CAPACITY: 302,286 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100' Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

DATE

REMARKS

7/23/52	Cleaned welded leak in collector ring. Labor \$2310.80 Matl: \$675.10
6/63	Opened and cleaned tank #6 to check for leaks. Cut collector ring and all telltale pipes. Pressurized tank at 1-1/2# pressure maximum.
10/17/63	Installed smoke tracer system at telltales.
11/18/63	2-1/2 lb. air pressure test made on telltale pipes #3, #4, & #10 at 42' level. Welded fittings of subject telltale pipes checked for leaks. O.K. Air pressure test secured after 1 hour and 15 minutes. Black oil or JP-5 seems to be coming back into the tank from either the 18" line or the 32" line, causing coating of oil on surface of water. Decision made to drain tank down. A check made on 32" line which runs in the lower tunnel up to tank #6 to see if the blank needs to be reversed.
11/19/63	Resumed draining from 0745 to 1725.
11/20/63	5 lgths of hoses were connected to the hydrant line to shoot down the bottom of the tank to remove the black oil of JP-5. Resumed draining; secured.
11/21/63	Unplugged 6" drain on bottom of tank. There was 4" of water left at bottom. Tried clearing drain with 1-1/2" water hose. No results. J. Novit closed valve by sump pit; then opened the valve on tank #10 so that the water would go down, then up to tank #6 drain to release the sludge that is plugged in the 6" drain. Drain was unplugged. 18" line was flushed out. Drain line was closed so that tank could be filled with water.
11/22/63	Gas detertoc tests made by PHNavShipYd Safety Officer on Tank 6. Also checked telltales 3,4, and 10 from top of catwalk. Checked out OK. Also made checks of tank bottom (around water level) and telltale of lower tunnel of tank 6. Recommended blower to utilized during welding operations.
11/26/63	Safety Inspector checked out 40 ft. water level for inspection. OK'd area for drilling holes in telltales but not for hot work. One hole each drilled on telltales #3,4, and 10. Area rechecked by Safety Inspector. Gas test on telltales ok. Welded 3/4" nipples on telltales 3, 4, and 10 at 40 FT. level for testing purposes.

continue

DATEREMARKS

11/27/63

Connected water hose and welding leads to telltale #10 to weld 3/4" nipple to 3/4" telltale line at bottom of 40 ft. level. Welding completed 7-1/2# air pressure test made for 1 hr on telltale #10 to check all area around 10 ft. level. Rechecked telltale #10 an hour later; when opened, water and air came shooting out for about 10 minutes. Valve was closed. Temporarily secured. When 7-1/2 lbs. air pressure was applied to telltale #10 from inside at bottom of 40 ft. level, the pressure did not indicate any reading at the telltale pipe which extends to the catwalk. Conclusion: 3/4" telltale is plugged in between. (cleared on 12/2/63) Switched over from telltale #10 to telltale #4. Air pressure of 8-1/2 lbs. was put into telltale #4 for about 1 hr. Telltale #4 in lower tunnel is clear and the air pressure coming out is at 7 lbs. All other telltales--no air. Telltale #4 air pressure at bottom is 8-1/2 lbs; top of catwalk is 1-1/2 lbs. Shut off air pressure. 8 lbs air pressure turned on into telltale #3 for 1 hr. from 40 ft. level. Telltale #3 at top of catwalk shows 3 lbs.

12/2/63

Safety Inspector ok'd telltales 3, 4, and 10 at bottom for hot work. Welded 3" nipple on telltale #3 at 43-1/2 ft. level for testing purposes. 7-1/2 lbs pressure on telltale #3 for 1/2 hour. Pressure ok after 10 minutes. Pressurized telltale #3 with 8 lbs of air. There was 1-3/4# of pressure on telltale #3 showing from top of catwalk. With pressure on, telltale #3 checked around fittings & joints for leaks. Negative. 10# air put into telltale #4. From top of catwalk telltale #4 read 1-3/4#. Check telltale #4 at lower tunnel; line clear and ok. Fittings and joints around telltale #4 check for leak. Ok. Ten lbs. air pressure put in telltale #10 from bottom of 43-1/2 ft. level. Air pressure at top of catwalk from telltale #10 is 6-1/4#. Plugged at first but 10# air pressure cleared it. Air pressure on telltale #10 at lower tunnel good; but 1/2 gallon of oil and water came out before it was cleared. Checked for leaks at 43-1/2 ft. level. Negative.

12/3/63

Tank #6 was filled from 43'-5" to 50'-7". Air pressure put into telltale #10 from top of catwalk to determine whether any water or oil left in back of walls or shell. Checked water level. All ok. Went down to bottom of 50'-7" level to drill 5/8" holes in telltales #3, 4 and 10. 3" nipple welded over holes for testing purposes.

12/4/63

Air pressure test on telltale #10 for 1 hr (50'-7" level). Telltale #10 is clear, and reading at bottom of 50'-7" level is 10# and the reading at top of catwalk is 7#. Telltale at lower tunnel is clear. (no water). Checked around 50'-7" level for leaks on welds and joints, using liquid soap around all these areas. (No leaks reported) Ten lbs. air pressure put into telltale #4. Will be held for 40 minutes. At bottom of telltale #4, 10 lbs. air is being used. At catwalk, there's 3 lbs., and bottom of lower tunnel telltale #4 is clear. (No water). Air pressure was turned on telltale #3. Air pressure reading at bottom of 50'-7" level was 10 lbs.; air pressure reading at Catwalk for telltale #3 was 4 lbs. Telltale #3 at lower tunnel is clear, however, when valve was opened, water & oil came out and filled 1/2 qrt. Three manifolds made of black pipe (12' long with 3 nipples on each one).

continue

<u>DATE</u>	<u>REMARKS</u>
12/4/63 (cont)	will be threaded on the nipple that extends out from telltale #3, #4, and #10 so that tests may be made without welding any nipples. This manifold is good up to the 60' level.
1/7/64	Started calibrating sounding equipment.
2/24/64	Started checking tank for leak. Tank appears to be leaking at 85' level.
3/1/64	Cleaned tank
4/13/64	Removed 2 manifolds at 60' level.
6/25/69	Manhold cover removed from Red Hill tank #6. Ven closed.
1/20/70	Emptied and cleaned for conversion.
1/21-2/3/70	Cleaned tank. Washed down sludge from tank and also elevator. (224 hrs) Labor cost: \$732.48
2/2/72	Topped off with Navy Distillate. Converted to Navy Distillate. Emptied and cleaned for conversion. Telemeter system installed.
7/8/74	Started transferring to tank 16. Emptied tank.
7/22/74	Tank washed down for conversion to JP-5 from Navy Distillate. Blank installed on 32" line inside tank.
7/23/74	Welded flange to maninline. 32" line blanked inside of tank. Drain-line slightly plugged. Tank buttoned. Manhole cover removed.
10/74	Tank converted from Navy Distillate to JP-5 storage.
4/78	Manhole cover removed
4/11/78	Removed 6" valve on drain line.
4/12/78	Cleaned tank
3/23/81	Tank was removed from service and turned over to the contractor for initial repairs and lining.
1/15/82	Tank inspected and accepted. Began refilling tank for leak test.
3/16/83	NSC Pearl formally accepted tank in a letter to ROICC Pearl.

LOCATION: Red Hill

TANK NO.: 7

PRODUCT: DFM

STRUCTURE NO.: 334

SHELL CAPACITY: 302,460 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: Underground concrete lined with welded steel.

DATE

REMARKS

5/22/52	Cleaned tank. Labor \$1898.30 Matl \$398.60
10/11/63	Calibrated gauge
4/64	Completed cleaning tank. Tank inspected. No corrosion. Good shape.
3/18/71	Emptied and cleaned for conversion.
4/20-5/3/71	Cleaned tank for Navy Distillate conversion. Installed flat steel bars around elevator shaft and catwalk inside of tank. (256 hrs) Labor cost: \$1,024
5/4/71	Topped off with Navy Distillate
6/22/73	Emptied and cleaned for conversion.
6/23/73	Emptied and cleaned by Asteroid-Grise ^{co.} for installation of gauging equipment.
7/13/73	Removed and installed new 6" valve on drainline.
9/11/73	Telemeter system installed. Converted to DFM.
11/14/73	Telltale #1 collector ring started to leak. Alarm sounded sump pit. Transferred Navy Distillate to tank 10.
11/26/73	Started to clean tank (Drain line plugged. Welded collector ring)
12/73	Tank cleaned to repair leak #1 telltale (collector ring) found corroded jumper pipe into collector ring. Bad section of jumper pipe removed and new section welded in. Tank buttoned up 5 Dec 73.
7/74	Telemeter out
5/22/78	Red Hill tank 7 experienced significant telltale leakage during weekend of 20/21 May, requiring immediate transfer of DFM inventory to other tankage.
6/9/78	Tank emptied and washed for contractors.

continue

<u>DATE</u>	<u>REMARKS</u>
6/9/78	Completed fuel removal for turnover to contractor for MILCON P-060.
10/24/78	Contractor began work. Removed motorized valves and installed blanks.
2/15/80	Contractor notified ROICC that tank ready to be returned to service.
2/11/80	Final inspection of Red Hill tank 7 was held on this date. As there were some discrepancies that needed to be corrected by the contractor, the tank was not accepted. The tank was accepted on 29 February and filled. This is the first tank to be completed under MILCON Project P-060.
2/20/80	Began refilling tank for leak test.

LEAK TEST DATA

(Note: Leak rate is based on data from telemetering)

<u>DATES</u>	<u>FILL LEVEL</u>	<u>LEAK RATE (GAL/DAY)</u>
2/20-7/20	Various 171-235	Bad data due to leaking skin valve
7/21-7/25	235.0	609
7/26-7/31	214.8	334
8/1-8/7	209.9	208
8/9-9/10	207.0	12.7
9/10-10/4	207.0	12.0
10/22-11/12	206.9	2.6
11/13-1/8/81	206.9	3.1

8/7/80	Tank fill level dropped to 207.0 ft. Leak subsided. Tank max fill capacity temporarily reduced by 31.3 Mbbls to 265.4 Mbbls.
1/8/81	Stopped leak test. Began use as receiving tank.
4/9/81	Tank was removed from service for leak repairs under MCON Project P-06
5/3/81	Tank was returned to service for leak testing following completion of leak repairs.

LOCATION: Red Hill

TANK NO.: 8

PRODUCT: DFM

STRUCTURE NO.: 335

SHELL CAPACITY: 301,928 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

DATE

REMARKS

3/2/52	Cleaned tank. Labor \$1986.60 Matl: \$313.20
10/11/63	Calibrated gauge
10/15/63	Repaired selsyn motor on automatic gauge at tank 8.
5/5/64	Cleaned tank.
4/28/71	Emptied and cleaned for conversion.
5/7-5/18/71	Cleaned tank (140 hrs) Labor cost \$560 Converted from NSFO to Navy Distillate.
5/21/71	Topped-off with Navy Distillate.
8/3/73	Emptied and cleaned for conversion.
8/16/73	Installed 6" valve on drain line. Gravitated Navy Distillate from tank 10 to tank 8.
9/12/73	Telemeter system installed. Converted to DFM.
4/17/81	Tank was turned over to the contractor for initial repairs and lining under MCON P-060.
12/16/81	Director and Deputy Director inspected tank upon completion of work under MILCON P-060. Tank was accepted pending correction of minor deficiencies. Tank was returned to service for leak testing on 21 December.
4/1/83	Tank is still being tested for leaks. If necessary, the contractor will return in August or September of 1983 for a final rework.

LOCATION: Red Hill

TANK NO.: 9

PRODUCT: DFM

STRUCTURE NO.: 336

SHELL CAPACITY: 302,450 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

DATE

REMARKS

4/1/51	Cleaned tank. Labor \$1930.45 Matl \$468.20
3/4/52	Cleaned tank Labor: \$1968.15 Matl: \$431.35
4/28/58	Telltale leaking 1 gal. every 13 minutes.
5/12/58	Telltale stopped leaking.
6/63	Opened & cleaned tank for leaking check. Cut collector ring and blew out all telltale pipes. Pressurized at 1-1/2 lbs. psi maximum.
10/7/63	Replaced piping at telltale #4. Tested at 2-1/2# psi.
10/11/63	Calibrated gauge
3/8/72	Emptied and cleaned for conversion.
3/21/72	Cleaned tank (348 hrs) Labor cost \$1392 Converted from NSF0 to Navy Distillate.
6/23/72	Topped off with Navy Distillate
2/24/73	Emptied and cleaned for conversion.
3/7-3/15/73	Hose down tank Labor cost \$420
9/13/73	Telemeter system installed. Converted to DFM
7/24/78	Tank emptied and washed down for contractors.
7/25/78	Completed fuel removal for turn over to contractor for MILCON P-060.
10/25/78	Contractor began work. Removed motorized valves and installed blanks.
5/23/80	Contractor notified ROICC that tank ready to be returned to service. Began refilling tank for leak test.

LEAK TEST DATA CONTINUED ON NEX PAGE.....

continue

LEAK TEST DATA: Note that leak rate is based on data from telemetering.

<u>DATE</u>	<u>FILL LEVEL</u>	<u>LEAK RATE (GAL/DAY)</u>
5/23-7/22/80	Various 102-235	Bad data due to leaking skin valves.
7/24-9/6	235.0	16.4
9/6-10/4	235.0	17.9
10/4-11/12	235.0	7.9
11/12-1/9/81	235.0	6.9
1/9-2/5/81	242.1	4.5

<u>DATE</u>	<u>REMARKS</u>
1/9/81	Fill level raised from 235.0 Ft. to 242.1 Ft. to test upper dome. No significant additional leakage found.

LOCATION: Red Hill

TANK NO.: 10

PRODUCT: DFM

STRUCTURE NO.: 337

SHELL CAPACITY: 302,350 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
10/2/63	Put in floats and welding brackets to secure 3/4" pipe from telltale #4 to catwalk entrance. Telltales plugged. following inspection after cleaning.
10/3/63	Completed piping telltale #4 in tank #10. Ready for testing.
10/7/63	Made air test of 2½ psi on telltale #4.
10/11/63	Calibrated gauge
4/21/64	Repaired broken tape.
3/3/67	Replaced 6" standard 150# steel valve (new). Old valve frozen and valve stem bent. Labor \$22.00 Matl: \$185.00
3/3-3/21/67	Fished float from tank bottom and installed new float. Labor \$174 Matl \$65
3/67	Installed turn buckles at top of guide wires for float.
3/3/67	Removed all gear from tank to Shop and cleaned.
3/6/67	Machined new man hole cover for tank.
3/9/67	Checked and found counter weight required an additional 1-1/2 lbs. (Machined additional weight to be installed)
3/10/67	While attempting to install additional weight to counter weight, in removing cover, chain cable jumped, causing counter weight to drop to bottom of tank and breaking cable. (tank gear was set up immediately to start washing down cat walk and elevator shaft.)
3/15/67	Tested elevator with 920 lbs. Washed side wall of tank using elevator.
3/17/67	Washed, checked and inspected tank bottom, (No signs of any new dents or splits.) Machined cracked 52 lbs. counter weight.
3/20/67	Cleared and tested plugged collector ring.

continue

<u>DATE</u>	<u>REMARKS</u>
3/21/67	Wire brushed bad pits on tank bottom and painted same with tarsol. Hung back counter weight and checked operation of float.
3/10/72	Emptied and cleaned for conversion.
3/22-4/10/72	Cleaned tank (252 hrs) Labor \$1,174.32 Converted from NSF0 TO Navy Distillate.
6/29/72	Topped-off with Navy Distillate
1/73	Started to empty tank suspected leak. No sign of oil from Telltale.
8/22/73	Empty tank 10 into mainline. Started cleaning.
9/1/73	Emptied and cleaned for conversion. Telemeter system installed. Converted to DFM.
9/4/73	Installed 6" valve on drainline.
11/14/73	Started receiving Navy Distillate from tank 7. Due to leak.
4/20/76	Telltale #1 started to leak - 60 drop per minute.
4/23/76	Started to drain pits tank 13.
5/5/76	Emptied and cleaned tank for repairs
5/28/76	Leak found on collector ring
5/4/76	Tank removed from service due to leakage.
9/21/76	PWC working in tank. Tank emptied and washed down for contractors.
12/15/77	PWC Pearl commenced repairs to tank.
10/25/78	Contractor began work. Removed motorized valves and installed blanks.
4/9/80	Contractor notified ROICC that tank ready to be returned to service.
4/11/80	Began refilling tank for leak test.

LEAK TEST DATA CONTINUED ON NEXT PAGE.....

continued

LEAK TEST DATA. Note that leak rate is based on data from telemetering.

<u>DATES</u>	<u>FILL LEVEL</u>	<u>LEAK RATE (GAL/DAY)</u>
4/11-7/22/80	Various 188-235	Bad data due to leaking skin valves
7/22-8/21	235.0	13.3
9/10-10/4	235.0	12.8
10/4-11/12	235.0	2.4
11/12-1/9/81	235.0	4.7
1/9-1/10	242.1	1206
1/10-1/12	195.4	NIL
1/12-1/15	235.1	NIL
1/15-1/19	236.1	NIL
1/19-1/22	237.1	NIL
1/22-1/26	238.0	NIL
1/26-1/29	238.0	NIL
1/29-1/30	240.0	693
1/30-2/10	239.0	15.0

<u>DATE</u>	<u>REMARKS</u>
1/9/81	Fill level raised from 235.0 ft. to 242.1 ft. to test upper dome. Severe leak somewhere between 235.0 ft and 242.1 ft. Fuel ran out of concrete near first platform on stairway to top of dome.
1/29/81	Leak located between 239 ft. and 240 ft level.
10/9/81	Completed draining DFM from tank
10/14/81	Flushed with JP-5 and drained.
10/19/81	Started refilling tank with JP-5
4/1/83	Tank is still being tested for leaks. If necessary, the contractor will return in August or September of 1983 for a final rework.

LOCATION: Red Hill

TANK NO.: 11

PRODUCT: DFM

STRUCTURE NO.: 338

SHELL CAPACITY: 302,761 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
11/28/51	Cleaned tank Labor \$1892.65 Matl: \$350.20
10/11/63	Calibrated gauge.
1/29/64	Tank cleaned by PHNAVSHIPYD. Inspected by NSC; tank in good condition. No evident of liner plate corrosion in bottom section.
3/10/72	Emptied and cleaned for conversion
6/29/72	Converted to Navy Distillate
8/10/72	Completed installation and testing of motor valve control circuit.
5/2/73	Emptied tank
6/1/73	Cleaned tank
6/7/73	Finished cleaning tank
6/14/73	Removed & installed new 6" valve.
9/1/73	Emptied and cleaned for conversion. Telemeter system installed.
10/3/73	Installed 16" flanges and blanks.
10/3/73	Welded flanges to mainline.
7/10/73	Tank completely emptied.
7/10/78	Completed fuel removal for turnover to contractor for MILCON P-060.
10/25/78	Contractor began work. Removed motorized valves and installed blanks.
6/1/80	Tank 11 Red Hill final inspection. Problems were noted with large sections of the coating of tank 11. Coating appeared not to be in conformance with specifications. ROICC advised dull areas of coating ^{have} been carefully inspected and met specification requirements. ROICC accepted tank 11.
7/15/78	Took Mr. Garber, SUBASE Photo Lab to document in pictures the condition of the lining in tank 11 which was accepted as satisfactory by ROICC.

continue

<u>DATE</u>	<u>REMARKS</u>
7/28/80	Contractor notified ROICC that tank ready to be returned to service. Began refilling tank for leak test.
8/8/80	Tank was returned from the contractor and filled to capacity with DFM on for leak testing. Due to an observed leakage rate of 1,000 to 1,500 gallons per day, the tank level was immediately dropped in stages to attempt to determine the leak location. As of the end of August, it appears that the leak is between the current level of 51 feet and bottom of the tank. As soon as ullage is available, the tank will be completely drained. Tank is now leaking at a rate of 20 gallons per hour.

LEAK TEST DATA AFTER INITIAL REPAIR AND LINING. Note that leak rate is based on data from telemetering.

<u>DATES</u>	<u>FILL LEVEL</u>	<u>LEAK RATE (GAL/DAY)</u>
8/8-8/11/80	235.0	1497
8/12-8/13	214.0	2412
8/13-8/15	202.0	1614
8/16-8/18	182.0	1380
8/18-8/21	149.0	1070
8/23-8/25	100.0	785
8/26-9/8	51.0	487
9/8-9/11	44.2	377
9/12-9/15	25.0	165

<u>DATE</u>	<u>REMARKS</u>
9/18/80	Completed fuel removal for turnover to contractor for leak repair.
9/23/80	Contractor began work.
1/9/81	Contractor notified ROICC that tank ready to be returned to service. Began refilling tank for leak test.

LOCATION: Red Hill

TANK NO.: 12

PRODUCT: DFM

STRUCTURE NO.: 339

SHELL CAPACITY: 302,250 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
10/22/51	Cleaned tank Labor \$1915.55 Matl: \$42.10
6/59	Repaired automatic gauge Labor \$50 Matl \$10.60
10/11/63	Calibrated gauge
1/15/64	Tank cleaned by PHNAVSHIPYD. Inspected by NSC--condition of steel appeared very good. No evidence of corrosion on bottom plates or piping. Fuel Dept. Maintenance renewed 20 ft. of 3 x 4 wooden elevator guide. Also made welding repairs to damaged catwalk. Inspection of dome made from catwalk with spotlight. No evident break in liner plate. However, known leak exists in dome section. Finding and repair of this leak will be deferred for accomplishment under contract tank rehabilitation.
10/27/67	Changed oil seals on tank #12 valves.
4/28/70	Emptied and cleaned for conversion.
5/20/72	Telemeter system installed. Converted to DFM
12/14-12/21/72	Hosed and cleaned tank. (178 hours)
12/26/72-2/6/73	Drilled and tapped 3/8" pipe connections on telltale pipe at bottom of tank to test collector ring. Connected 2" pipe air line in lower tunnel to tank 12. Tested collector ring for leaks at 2½# air pressure. Tested tank for leak.(343 man hours)
3/73	tank emptied suspected leak between 15'-0-0 & 20'-0-0. Filled water to 20'-0-0. no leak.
7/16/73	Drained water.
8/1/73	Removed all hoses and installed 1/4" plugs on collector rings at bottom of tank.

Red Hill tank #12

continue

<u>DATE</u>	<u>REMARKS</u>
9/24/73	Removed and installed new 6" gate valve on drain line.
10/3/73	Installed 16" glange and blank.
10/3/73	Cut 16" line and welded flange connector to mainline. Filled Navy Distillate to 40'-0-0. Leaked .3 perday. Drianed- filled Navy Distillate to 20'-0-0--no leak.
7/8/74	Continued to fill tank 76'-479. Sounding ok
2/27/80	Completed fuel removal for turnover to contractor for MILCON P-060. Contractor began work. Removed motorized valves and installed blanks.
1/15/81	The Deputy Director, Fuel Department. Engineering Technician, Facilities Division, ROICC Pearl and contractor representatives inspected Red Hill tank 12. Tank was accepted for leak testing.
1/29/81	Contractor notified ROICC that tank was ready for return to service. Began refilling tank for leak test. Tank filled to 100 ft. level for observation.
2/3/81	Gauge loss shows leak rate at 100 ft. to be approximately 1440 gl/day. Dropped tank to 60 ft level.
2/5/81	Leak rate continued. Dropped tank to 30 ft level. Leak appeared to stop.
2/10/81	Complete fuel removal for turnover to contractor for leak repair. Contractor began work. Tank was refilled to 100' level and leaked at a rate of 1400 gallons per day.
2/27/81	Tank was returned to service for leak testing after rework and repairs were completed.
5/5/81	Tank was removed from service for the second time for leak repairs.

LOCATION: Red Hill

TANK NO.: 13

PRODUCT: DFM

STRUCTURE NO.: 340

SHELL CAPACITY: 302,724 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
12/3/51	Cleaned tank. Labor \$1938.20 matl: \$483.15
10/31/58	Repaired switch Labor \$36 Matl \$6
10/11/63	Calibrated gauge
4/64	Cleaned and inspected. Tank condition good
10/27/67	Changed oil seals on tank #13 valves.
11/27/72	Emptied and cleaned for renovation.
11/28/72	Hosed and cleaned tank in preparation for locating leak (164 hrs)
12/11/72	Found leak in collector ring. Welded collector ring.
3/13/73	Installed 6" standard flanges on water line.
9/10/73	Telemeter system installed. Refilled with NSF0 Labor \$80
1/2/76	Transfer to surface tank 47. finished 1-12 swing shift.
1/14/76	Transfer bottom of tank into surge tank #1. T. Yang checking oil.
1/14/76	Emptied and cleaned for conversion. Converted to DFM
1/26/76	Maintenance started to clean and wash down catwalks.
4/16/76	Buttoned up tank.
4/21/76	Received Diesel Oil from tank 46.
5/6/76	Received Diesel Oil from tank 10
5/20/76	A leak in Red Hill Underground tank 13, which had been placed in diesel service after conversion from NSF0, will require a transfer of product from UG tank 13 to UG tank 16, following completion of repairs to tank 16 in June. Tank 13 will be placed out of service pending evaluation and repairs.

continued

<u>DATE</u>	<u>REMARKS</u>
5/30/80	Completed fuel removal for turnover to contracot for MILCON P-060. Contractor began work.
6/15/80	Tank was removed from service and turned over to the contractor for initial repairs and lining.
7/7/81	Tank was returned to service for leak testing.
9/3/81	Tank was returned to service following rework of leak repairs. Tank was filled and leaks above 188 foot level.
1/8/82	Tank was removed from service for leak repair.
2/12/82	Tank was returned to service after leak repairs.

LOCATION: Red Hill

TANK NO.: 14

PRODUCT: DFM

STRUCTURE NO.: 341

SHELL CAPACITY: 302,846 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
3/23/49	Cleaned tank Labor \$1905.80 Matl \$393.05
10/11/63	Calibrated gauge
10/27/67	Changed oil seals on tank #14 valves.
1/5/68	Patched three holes and repaired two hangers from vent pipe. (4½ hrs)
2/12/72	Emptied and cleaned for conversion.
2/8/73	Hose down tank with emulsifier. Labor \$1615
3/1/73	Welded 6" standard flange on 10" waterline. Labor \$80
3/13/73	Converted to Navy Distillate. Emptied and cleaned for conversion.
10/24/73	Emptied Navy Distillate
10/25/73	Converted to Navy Special
10/73	Drained 18" line and blanked
5/28/75	Emptied and cleaned for conversion.
9/14/73	Telemeter system installed. Reconverted to NSF0.
6/75	Emptied tank
6/75	Welded "T" to tank 16" line.
7/28/75	Cleaned tank and finished 8/15/78
8/26/75	filled tank with Navy Distillate
8/26/75	Converted to DFM
4/17/80	Completed fuel removal for turnover to contractor MILCON P-060. Contractor began work.
3/27/80	A final inspection of tank was conducted. Tank bottom had numerous holidays. Contractor was informed to correct discrepancies.

Red Hill tank #14

continued

DATE

REMARKS

4/12/81

Tank was returned to service for leak testing under MCON Project P-060.

2/11/82

Tank was removed from service for leak repairs.

LOCATION: Red Hill

TANK NO.: 15

PRODUCT: DFM

STRUCTURE NO.: 342

SHELL CAPACITY: 302,536 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
8/27/51	Cleaned tank Labor \$2150 Matl: \$420.65
10/11/63	Calibrated gauge.
9/64	Cleaned by PHNAVSHIPYD. Condition of tank good. cost \$3,960.00
10/30/67	Changed oil seals on tank #15 valves.
9/20/72	Emptied and cleaned for conversion.
9/22/70 to 10/5/72	Cleaned tank in preparation for conversion to Navy Distillate Labor cost \$1,250.00
10/27/72	Converted to Navy Distillate. Emptied and cleaned for conversion.
9/14/73	Telemeter system installed. Converted to DFM
6/75	Emptied tank.
6/75	Welded "T" to mainline 16"
8/1/80	Completed fuel removal for turnover to contractor.
8/4/80	Contractor began work.
7/14/81	The Deputy Director inspected tank. Tank was found to be in good condition and suitable for return to service.
7/19/81	Tank was returned to service. Tank leaked badly and fuel level in tank was dropped to try and isolate leak.
8/30/81	Tank was removed from service for leak repairs.
10/2/81	Tank was refilled after first rework to repair leaks tankfilled to 185' level and showed leakage.
1/6/82	Tank was refilled for leak testing.

LOCATION: Red Hill

TANK NO.: 16

PRODUCT: DFM

STRUCTURE NO.: 343

SHELL CAPACITY: 302,450 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,492,239

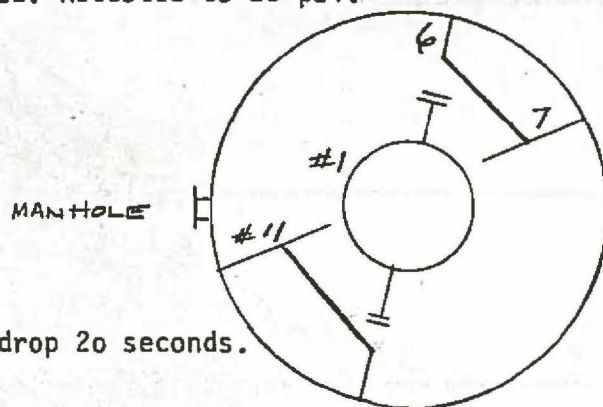
DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<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 testing tank with water. Leak found on telltale pipe in tank.
6/13-6/22/49	Shop 72 sandblasted inside tank bottom.
6/24-6/30/49	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 3 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 eleven 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.
3/50-1/51	Filling and testing tank with water. 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". OK No leaks.
10/11/63	Calibrated gauge. Installed on 11/15/63

continued

<u>DATE</u>	<u>REMARKS</u>
7/22/64	Tank cleaned by PHNSY
2/14/68	Replaced defective switch for tank #16 light circuit on top of tank. (2 hours)
7/5/72	Emptied and cleaned for conversion.
7/21-7/31/72	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. Telltales numbers 6 & 10 leaking in concrete block. Cut off and blanked 6 & 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.



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 approx 10'-0-0 length.
6/11/75	Bolted manhold, tank vent opened.
6/75	Completed tank repair by PWC
6/11/75	Filled oil from tank 18
6/15/75	Refilled with DFM

TELL TALE TEST ON K#16 - 20 PSI FOR 10 min. 10-24-72

TELL TALE #1 NO NEED TO TEST - PER. R. AJIFU

TT#2 - 20 PSI FOR 10 min. - OK - E.C.V. - 0810

TT#3 - 20 PSI FOR 10 min. - OK - E.C.V. - 0835

TT#4 - 20 PSI FOR 10 min. - OK - E.C.V. - 0915

TT#5 - 20 PSI FOR 10 min. - OK - E.C.V. - 1250

TT#6 - IS PLUGGED SAME AS TT#10 CANNOT TEST 1330 - E.C.V.

TT#7 - 20 PSI FOR 10 min. - OK - E.C.V. - 1310

TT#8 - 20 PSI FOR 10 min. - OK - E.C.V. - 1340

TT#9 - 20 PSI FOR 10 min. - OK - E.C.V. - 1245

TT#10 - CANNOT BUILD UP PRESS, NO LEAK INSIDE OF R, CONT ON NEXT ONE - E.C.V. - 1125

TT#11/10-20-72 - 20 PSI FOR 10 min. - OK - LLA - 1300

TT#12 - 20 PSI FOR 10 min. - OK - E.C.V. - 1235

continued

DATEREMARKS

10/16/75

PWC Personnel inspected bottom of tank 16.

12/75

PWC Cut out 8' manhole to install flange.

JAN

FEB

MAR

APR

MAY

PWC Maganaflux bottom of tank found large pits approx 1/7".
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 which was leaking badly, 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.

10/7/80

*Tank empty and out of service due to telltale leak
Fuel Maintenance blind, open, clean-tank. Installed
elevator and fixed tell-tale*

11/20/80

Tank returned to service

LOCATION: Red Hill

TANK NO.: 17

PRODUCT: JP-5

STRUCTURE NO.: 344

SHELL CAPACITY: 302,676 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,724,443

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
7/17/51	Cleaned tank Labor \$1890.45 Matl \$470.60
12/19/59	Painted blowers Labor \$40 Matl: \$65
8/60	Started conversion of tank under contract NO NBY2554D Conversion of POL Facilities." Telemetering and high level alarm system installed. converted tank to AvGas storage.
10/2/63	Worked on 30 second timer circuit for fuel and water level telemetering on tank 17.
10/3/63	Checked amplifier circuit trouble at tank 17 fuel gauge. Gauge still inoperative; further checks to be made.
10/4/63	Continued repairs on tank 17 fuel gauge.
10/7/63	Removed and corrected twisted R.F. cable on tank 17 water gauge.
10/23/63	Fabricated valve platform for tank #17. Installed on 11/15/64.
11/15/63	Disconnected and removed amplifier from tank 17 fuel gauge. Sent unit to PHNSYD for repairs.
10/3/66	Installed 100' of 1/2" copper tubing at tank #17 for Air line (32 hrs)
8/16/67	Started repairing worn motor valve gear box.
8/28/67	Coated insulating varnish on R. F. Cable for tank #17 fuel gauge.
8/29/67	Removed and rewired data processor units for tank #17 fuel and water telemetering. Reinstalled and tested readings.
9/12/67	Soap tested and tightened all fittings on tank vent system. Cylinder pressure down to 400 psi.
9/19/67	Installed motor drive unit to motor valve at tank #17.

Red Hill tank #17

continued

DATE	REMARKS
9/20/67	Completed electrical hook-up on motor valve at tank#17 and set limit switch.
9/26/67	Removed existing R.F. Cable from tank 17 fuel gauge and tuned amplifier output. Fuel probe was set at 221.960 ft. Tuned amplifier = water gauge to indicate probe travel to water level.
9/27/67	Connected data processor for tank #17 water gauge.
11/9/67	PM on fuel and water gauges on tank #17. Returned gauge amplifier signal and refinished rotary contacts on digitizer units in gauges. Checked gauges operation and telemetering readouts.
11/20/67	Gear slipping on tank 17., fuel gauge digitizer unit slipping on shaft Removed digitizer unit from gauge and repaired.
2/7/69	Composition of deposits taken from railing inside Red Hill tank #17. Description: Light brown particles from 1/16 inch to approx. unit micron in size. Composition: combustibles 50.8%w iron oxides 39.2%w acid insolubles (compounds of silica) 4.0%w loss and other components (lead present in trace amount) 6.0%w
1/20-2/12/69	Cleaned tank. Converted from storage of AvGas to JP-5 fuel. Installed safety gate for elevator in tank. Tested elevator. Installed 3/4" telltale pipe inside of tank and outside of tank in Zon #6. Repaired tank fuel and water gauges. (348 hours) Labor \$1,392.00 Matl: \$70.00 Abandoned collector ring outlet within 16" pipe made new connection to collector ring to 4" steam line inside tank and in lower tunnel. (See pictures)
6/25/69	Leak reported by Gauger at Red Hill. Telltale #6 on tank #17 leaking at the rate of 1 1/2 min. per gal. Started transferring JP-5 from UG. tank #17 to Surface tank #55 at 1635. Transferred approx. 20' from tank 17 into tank 55.
6/27/69	Continued transferring JP-5 from tank #17 into tank #38 via YON-274. Transferred balance of JP-5 into tank #19.
7/10/69	Tank #17 is empty.
8/1/69	Cleaned tank. Hosed down catwalk, sides and bottom of tank. (7/17/69-8/12/69). Removed 8" drain line valve, washed out all aludge from inside of drain line. Repaired and tested 8" standard valve from tank drain line. Valve was tested at 200 psi, valve ok, but not used for tank. Installed new 8" standard valve on drain line. Tested telltale pipelines in tank #17. Telltale #5, & #6 leaking in 16 drain line. Telltale #8 leaking on 4" coupling inside of tank. Repaired and painted telltale pipes. (7/17/69-8/8/69 234 hours @ \$4.4 Labor \$1,050.66 Matl: \$406.10
8/12/69	Reinstalled manhole cover.

continue

<u>DATE</u>	<u>REMARKS</u>
9/10/69	Installed 3/4" valve on hammer blind at Red Hill tank 17. Labor cost \$36 Matl: \$95.88
9/24-12/16/69	Repaired leak on JP5 tank 17 telltale #7 at Red Hill. Cleaned tank. Removed eight 1/2" telltale pipes from inside of drain line and installed manifold. Fabricated manifold from 1-1/2" pipe. Repaired and calibrated Galbarco amplifier for tank #17 fuel gauge. (512 man hours) Labor \$2,048 Matl \$24.20
9/22/72	Tested and removed defective temperature element. Removed and repaired amplifier unit from water gauge.
3/20/74	Emptied tank.
3/25/74	Clean tank Labor cost \$840.00
4/15/74	Representatives from the Navy Research Lab and NAVFAC inspected the tank coating at Red Hill tank 17. Their final recommendation will be forwarded in June, 1974.
4/24/74	Buttoned up tank.
1/20/75	Telltale #8 started leaking at 237'
2/10/78	Manhole cover removed
3/78	Buttoned tank
3/8/78	Removed 8" valve on drain line.
3/20/78	Cleaned bottom of tank.
3/20/78	Replaced 8" valve on drain line.
3/21/78	Replaced manhole cover.
5/24/79	All sampling taps leaking--wired closed.

LOCATION: Red Hill

TANK NO.: 18

PRODUCT: JP-5

STRUCTURE NO.: 345

SHELL CAPACITY: 302,682 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,724,443

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel

<u>DATE</u>	<u>REMARKS</u>
12/10/50	Cleaned tank. Labor \$1595.30 Matl \$475.15
12/59	Painted blower Labor \$40 Matl \$36
8/60	Started conversion of tank under contract No. NBY25540 "Conversion of POL Facilities" Telemetering and high level alarm system installed. Converted tank to AvGas storage.
6/63	Buckled plates. Opened tank 18 for inspection. Found plates buckled on one side and about 20 ft. above catwalk. Constructed a raft and causeway 50' long.
10/2/63	Worked on 30 second timer circuit for fuel and water level telemetering on tank 18.
10/4/63	Increased weight of R.F. cable counterweight and re-installed in tank 18 water gauge.
10/9/63	Removed and cleaned probe on tank #18 fuel gauge. Replaced pulley shaft on both fuel and water gauges. Tuned gauges to proper voltage settings.
10/14/63	Calibrated water gauge on tank #18. Set level at .008 ft.
10/18/63	Sanded rotary contacts on digitizer in tank 18 fuel gauge. (Gauge was blackint out periodically)
10/22/63	Fabricated valve platform for tank 18. Installed 11/15/63.
11/12/63	Balanced conterweight on tank #18 fuel gauge. Gauge read incorrectly at Receiving Pumphouse due to movement of liquid level probe whenever a telemetering call was made. Adjusted tension on starter bar in digitizer unit to increase friction on tape movement.
6/6/67	Emptied & cleaned for conversion. Telemeter system installed. Converted to AvGas.

Red Hill tank #18

continue

<u>DATE</u>	<u>REMARKS</u>
8/29/67	Removed and rewired data processor units for tank #18 fuel and water telemetering. Reinstalled and tested readings.
11/9/67	PM on fuel and water gauges on tank #18. Returned gauge amplifier sign and refinished rotary contacts on digitizer units in gauges. Checked gauges operation and telemetering readouts.
12/4/67	Worked on tank #18, fuel gauge not corresponding with fuel level. Supervisory console locking in tank gauge, de-energizing relay. Checked circuits in Pearl City Supervisory Console. Replaced two electron tubes 50LC on transmitter unit and calibrated line signal to Pearl City system gauge, OK.
12/12/67	Repacked valves on tank #18, Red Hill.
2/14/68	Replaced leaky solenoid with new solenoid on tank #18 vent system. Checked for leaks and tested vent closure (4 hours)
2/27/68	Repaired tank #18 water telemetering (Blacked out)
3/10-3/17/69	Cleaned tank. Converted from AvGas to JP-5 storage. Removed and cleaned bonnets from 8" drain line valves. Also cleaned area below valve. Repaired fuel and water gauges (195 hours) Labor \$780.00
9/10/69	Installed 3/4" valve on hammer blind at Red Hill tank #18. Labor cost \$36 Matl \$95.88
9/75	Replaced 1" gate valve on drain line.

LOCATION: Red Hill

TANK NO.: 19

PRODUCT: JP-5

STRUCTURE NO.: 346

SHELL CAPACITY: 302,560 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,724,443

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel.

<u>DATE</u>	<u>REMARKS</u>
2/4/51	Cleaned tank. Labor \$1950.20 Matl \$465.80
12/59	Painted blowers \$40 Labor Matl \$18
8/60	Started conversion of tank under contract no. NBY25540 "Conversion of POL Facilities" Telemetry and high level alarm system installed.
10/2/63	Worked on 30-second timer circuit for fuel and water level telemetering for tank #19. Tank Tank digitizer will not pick up. Will be repaired later.
10/8/63	Checked solenoid on tank #19 fuel gauge digitizer. Switched over pulsating 50 volt circuit to spare telephone lines at tank #19.
10/11/63	Completed repairs to 30 second timer setting on tank #19 fuel gauge digitizer.
10/14/63	Removed and cleaned buzzing solenoid on tank 19 vent.
10/22/63	Fabricated valve platform for tank 19. Installed on Nov. 15, 1963.
11/18/63	Blackout of last digit in telemeter on tank 19 fuel gauge. Defective relay in digitizer. New relay ordered.
6/9/64	Discovered leak around weld in tank bottom. Rewelded leaking area.
8/30/67	Disassembled and rewired Data Processor Units for tank #19 fuel and water telemetering. Also worked on units for pressure and temperature telemetering.
11/6/67	Repaired fuel gauge amplifier at tank #19.
11/20/67	Reinstalled and calibrated original fuel gauge amplifier on tank #19.

Red Hill tank #19

continue

<u>DATE</u>	<u>REMARKS</u>
9/10/69	Installed 3/4" valve on hammer blind at Red Hill tank #19. (8 Hrs. @ \$4.50) Labor \$36 Matl \$95.88
12/18/73	Replaced nipple on 10' sample line.
12/19/73	Made repairs on telltale piping. Clean tank.
6/27/74	Emptied tank. Replaced nipple on sample line.
7/74	Received JP-5 with FSH

1/85 : TANK CLEANED +
OUT OF
SERVICE FOR
AFHS PROJECT.
/ ASTEROID SYSTEM ?

LOCATION: Red Hill

TANK NO.: 20

PRODUCT: JP-5

STRUCTURE NO.: 347

SHELL CAPACITY: 302,498 Bbls

YEAR BUILT: 1942

ACQUISITION COST: \$1,724,443

DIMENSIONS: Diameter: 100'-0" Height: 250'-0-7/8"

TYPE OF CONSTRUCTION: U.G. concrete lined with welding steel.

<u>DATE</u>	<u>REMARKS</u>
8/60	Started conversion of tank under contract No. NBY25540 "Conversion of POL Facilities." Telemetering and high level alarm system installed.
10/2/63	Worked on 30-second timer circuit for fuel and water level telemetering on tank 20.
10/4/63	Worked on valve in lower tunnel at tank 20.
10/22/63	Fabricated valve platform for tank 20. Installed on Nov. 15, 1963.
8/30/67	Disassembled and rewired Data Processor Units for tank #20 fuel and water telemetering. Also worked on Units for pressure and temperature telemetering.
9/8/67	Repaired telemeter read out for tank and replaced defective lamp fixture on slave panel in lower section. High fuel tank #20 indicator was out.
9/21/67	Repaired telemeter for tank #20.
10/5/67	Traced low voltage on tank #20 high fuel alarm. Found loose connection on switch terminal in tank 20 fuel gauge. Removed switch housing and tightened terminals, tested alarm system, OK..
11/6/67	Replaced nitrogen cylinder for tank #20 vent system. Soap tested all fittings for leaks.
9/10/69	Installed 3/4" valve on hammer blind at Red Hill tank #20. (8hrs @ \$4.50) Labor \$36.00 Matl \$95.88
12/27/71-1/28/72	Cleaned tank- hosed down catwalk, inside and bottom of tank. Installed steel ladder and catwalk on elevator tower inside of tank. Installed air winch in tank- tested elevator and air winch. Cut and removed 8' section of 3/4" telltale pipe from bottom of tank and 6" drain line. Rerouted 3/4" telltale line to manifold. Fabricated and installed 1 1/2" pipe manifold to interconnect eight 3/4" telltale pipes at bottom of tank. Painted newly installed telltale pipes (674 hours) Labor cost \$3,033 Matl \$140.00

Red Hill tank #20

continue

DATE

REMARKS

11/73

Received JP5 without anti king compound.

11/73

Emptied JP5 without icing to USS Falcon tank 223. Mbb1s.

8/28/74

Received JP-5 with icing.

3/3/79

Sampling tap at 120' level leaking (wire closed)