

FAC 1241 Aircraft Operating Fuel Storage

RUC: \$4.35 GA

Source: Special study for DLA/DESC in 2008/2009
Based upon PACES estimate and calculated per unit as follows.

SUC: \$2.07 GA

Source: Special study for DLA/DESC in 2008/2009 and calculated per unit as follows.

RUC FAC 1241 Aircraft Operating Fuel Storage

Parametric Cost Engineering System (PACES) Project Detail Report

Project DESC - FAC 1241 Aircraft Operating Fuel Storage

Location: ARLINGTON, VIRGINIA

Description:

Comments:

Estimate Date: 12/08/2008

Estimate By: R&K fjk

Agency: Air Force

Report Date: 02/25/2009
08:58 AM

Construction Start Date: 04/01/2009

Construction Midpoint: 11/01/2009

Construction End Date: 07/01/2010

Escalation Rate: 7.96% Based on Project Construction Midpoint

Database Version: Jan 2006 Cost Book

PACES Version: 7.0.11

Project Detail Report

Facility: 10,000 BL Tank**Type** Supporting**Model:** Installation Pipe Line

| <u>Assembly</u> | <u>Description</u> | <u>Qty</u> | <u>UOM</u> | <u>Mtrl</u> | <u>Labor</u> | <u>Equip</u> | <u>Unit Cost</u> | <u>Total</u> |
|-----------------|--|------------|------------|-------------|--------------|--------------|------------------|--------------|
| 19004026 | 8" Exterior Coated Carbon Steel Pipe, SCH 40 | 500 | LF | \$17.03 | \$2.65 | \$0.34 | \$20.02 | \$10,010 |
| 19094007 | 8" Carbon Steel Pipe, SCH 40 C&W | 2000 | LF | \$60.16 | \$32.92 | \$2.04 | \$95.12 | \$190,234 |
| 19094118 | Earthwork/Conc, 8" Pipe | 2500 | LF | \$4.81 | \$15.27 | \$6.54 | \$26.63 | \$66,564 |
| 19094123 | High Point Drain | 2 | EA | \$26,862.05 | \$1,344.44 | \$792.28 | \$28,998.78 | \$57,998 |
| 19094124 | Low Point Drain | 2 | EA | \$26,862.05 | \$1,344.44 | \$792.28 | \$28,998.78 | \$57,998 |
| 19094216 | Pipe Cathodic Protection | 2500 | LF | \$0.63 | \$0.80 | \$0.00 | \$1.43 | \$3,578 |
| 19094301 | Isolation Valve | 6 | EA | \$72,250.49 | \$6,240.53 | \$0.00 | \$78,491.02 | \$470,946 |
| 19094401 | Below Ground Pipe Seismic Reinforcing | 2500 | LF | \$16.18 | \$5.05 | \$0.15 | \$21.38 | \$53,454 |

Model Installation Pipe Line **\$910,781****Model:** Storage Tank

| <u>Assembly</u> | <u>Description</u> | <u>Qty</u> | <u>UOM</u> | <u>Mtrl</u> | <u>Labor</u> | <u>Equip</u> | <u>Unit Cost</u> | <u>Total</u> |
|-----------------|--|------------|------------|--------------|--------------|--------------|------------------|--------------|
| 19092001 | Earthwork, Vertical Abv Grd Tank | 1704 | CY | \$8.98 | \$6.77 | \$0.15 | \$15.89 | \$27,072 |
| 19092101 | Concrete, Vertical Abv Grd Tank | 50 | CY | \$215.89 | \$159.41 | \$1.16 | \$376.46 | \$18,823 |
| 19092201 | Pipes And Fittings, Vertical Abv Grd Tank | 389 | LF | \$17.50 | \$20.67 | \$0.15 | \$38.31 | \$14,903 |
| 19092301 | Electrical, Vertical Abv Grd Tank | 2364 | LF | \$7.81 | \$5.44 | \$1.33 | \$14.58 | \$34,476 |
| 19092401 | Controls, Vertical Abv Grd Tank | 21 | EA | \$442.06 | \$75.50 | \$9.89 | \$527.45 | \$11,076 |
| 19092503 | Tank, 1192400 L (10000 bbl), Vertical Abv Grd Tank | 1 | EA | \$185,024.62 | \$125,426.60 | \$16,622.19 | \$327,073.41 | \$327,073 |
| 19092701 | Concrete Covered Berm | 406 | LF | \$48.70 | \$87.72 | \$24.61 | \$161.03 | \$65,349 |
| 19092703 | Concrete Covered Basin | 7720 | SF | \$3.58 | \$4.49 | \$0.83 | \$8.90 | \$68,674 |
| 19092902 | Tank Reinforcing | 2.00 | TON | \$1,652.43 | \$498.56 | \$182.00 | \$2,332.99 | \$4,666 |

Model Storage Tank **\$572,113****Facility:** 10,000 BL Tank **\$1,482,894**

Project Detail Report

Facilities Total (Direct Cost): \$1,482,894

Project Direct Cost: \$1,482,894

| | | | |
|---------|------|---|-----------|
| Markups | 34.4 | % | \$509,974 |
|---------|------|---|-----------|

Project Marked Up Cost: \$1,992,868

| | | | |
|-------------|-----|---|----------|
| Contingency | 5.0 | % | \$99,643 |
|-------------|-----|---|----------|

| | | | |
|------|-----|---|-----------|
| SIOH | 5.7 | % | \$119,273 |
|------|-----|---|-----------|

Project Cost: \$2,211,784

| | | | |
|-----------------------|-----|---|-----|
| Design/Indirect Cost: | 0.0 | % | \$0 |
|-----------------------|-----|---|-----|

Total Project Cost: \$2,211,784

Construction Start 04/01/2009

Construction Midpoint: 11/01/2009

Construction End Date: 07/01/2010

Escalation Rate: 7.96% Based on Construction Midpoint

Database Version: Jan 2006 Cost Book

PACES Version: 7.0.11

| DESC RCF Revisions | | | | | | |
|--------------------|--|----|---------------|-------------------|------------|---------------|
| FAC | FACTITLE | UM | V.11 RCF \$09 | PACES Direct Cost | PACES Unit | Unit Cost |
| 1211 | Aircraft Fueling Facility | GM | 337.84 | \$ 5,211,155 | 2400 | \$ 2,171.31 |
| 1212 | Aircraft Defueling Facility | GM | 337.84 | \$ 5,211,155 | 2400 | \$ 2,171.31 |
| 1221 | Marine Fueling Facility | GM | 29.07 | | | \$ 267.42 |
| 1231 | Vehicle Fueling Facility | OL | 13,748.50 | \$ 249,800 | 2 | \$ 124,900.00 |
| 1241 | Aircraft Operating Fuel Storage | GA | 1.96 | \$ 1,992,868 | 420000 | \$ 4.74 |
| 1242 | Marine Operating Fuel Storage | GA | 5.56 | \$ 44,246 | 3000 | \$ 14.75 |
| 1243 | Vehicle Operating Fuel Storage | GA | 5.76 | \$ 86,668 | 25000 | \$ 3.47 |
| 1244 | Other Operating Fuel Storage | GA | 9.39 | \$ 43,968 | 17439 | \$ 2.52 |
| 1251 | POL Pipeline | LF | 148.05 | \$ 438,018 | 1000 | \$ 438.02 |
| 1261 | Liquid Fuel Loading/Unloading Facility | OL | 13,748.50 | \$ 456,159 | 4 | \$ 114,039.75 |
| 1262 | POL Pump Station | SF | 681.19 | \$ 2,022,665 | 1008 | \$ 2,006.61 |
| 4111 | Bulk Liquid Fuel Storage | BL | 53.05 | | | \$ 65.23 |
| | | | | | | |

FAC 1241 Operating Fuel Tank

| | | | | | |
|-------------------------------------|----|-------|-------|--|----|
| Design Life and Representative Size | 31 | Years | 26467 | | GA |
|-------------------------------------|----|-------|-------|--|----|

| Component | Fre- quency | Estimated Cost per Occurrence | occurr- ences in design life | occurr- ences rounded | Design Life Cost |
|--|----------------|-------------------------------------|------------------------------------|-----------------------------|---------------------|
| Tank | | | | | |
| API 653 External Inspection | 5 | \$ 20,000 | 6.2 | 6.0 | \$ 120,000 |
| Spot Painting/Minor Repairs | 10 | \$ 50,000 | 3.1 | 3.0 | \$ 150,000 |
| API 653 Internal Inspection | 10 | \$ 60,000 | 3.1 | 3.0 | \$ 180,000 |
| Repairs found during API 653 External Inspection | 10 | \$ 25,000 | 3.1 | 3.0 | \$ 75,000 |
| External Coating | 15 | \$ 115,000 | 2.1 | 2.0 | \$ 230,000 |
| Clean Tank | 5 | \$ 25,000 | 6.2 | 6.0 | \$ 150,000 |
| | | | | | |
| PM Cathodic Protection System (Impressed voltage) | 1 | \$ 2,000 | 31 | 31.0 | \$ 62,000 |
| Piping | | | | 0.0 | \$ - |
| API 570 Inspection | 3 | \$ 15,000 | 10 | 10.0 | \$ 150,000 |
| | | | | | |
| | | | | 0.0 | \$ - |
| Controls | | | | 0.0 | \$ - |
| Annual Calibration | 1 | \$ 20,000 | 31 | 31.0 | \$ 620,000 |
| | | | S/T | | \$ 1,737,000 |
| | | | Per Year | | \$ 56,032 |
| Operator Maintenance | 1 | 632 | 1 | 1 | \$ 632 |
| | | | | | \$ 56,664 |
| \$FY-08 | | | Per Unit | | \$ 2.14 |
| \$FY-09 | | | | | \$ 2.18 |
| | | | | | |



99%
1%