

**FAC 3181     Propulsion RDT&E Facility**

RUC:             \$240.43 SF

Source:          USACE PAX Newsletter 3.2.2 dated 20 Mar 09  
CC 13010 Chemistry Lab  
Deflated to FY-09 using Appendix C of newsletter  
In V12, Tri-Service and USACE PAX Newsletter values were updated while all  
other values were inflated only.

SUC:             \$2.73 SF

Source:          CostWorks model in \$FY-08, inflated to \$FY-09 using Green Book Table 5-6,  
O&M less DHP  
In V12, values were inflated only.

Model follows:

Chart:           A chart showing relative annual sustainment requirements follows:

**FAC 3181-Propulsion RDT&E Facility**  
**CostWorks 2008 Quarter 2**

Design Life= 55  
Average S.F= 8,024

C.S.F=100 S.F; MSF=1000 S.F  
Sq=100 S.F; M.L.F=1000 L.F

This spreadsheet was  
exported from R.S Means  
CostWorks

Terminal Cutoff is the removal of a single task occurrence if that task occurs  
within 10% of the end of the design life and if the frequency of the task exceeds  
20% of the design life. This prevents scheduling major work near the end of the  
design life

Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in Design Life	Adjusted Occurrences	Terminal Cutoff
Repair brick wall - 1st floor	25	1 Bric	526.100	S.F.	19,465.70	23,653.46	2008 Qtr 2	2	1	\$ 23,653.46
Repair 2'-0" x 3'-0" aluminum window - 1st floor	20	1 Carp	6.000	Ea.	689.76	817.20	2008 Qtr 2	2	2	\$ 1,634.40
Replace 2'-0" x 3'-0" aluminum window - 1st floor	50	1 Carp	60.000	Ea.	26,316.00	30,779.40	2008 Qtr 2	1	0	\$ -
Replace glass - 1st floor (1% of glass)	1	1 Carp	3.600	S.F.	32.58	38.23	2008 Qtr 2	55	55	\$ 2,102.76
Repair 3'-9" x 5'-5" steel frame window - 1st flr.	20	1 Carp	6.900	Ea.	1,814.77	2,119.75	2008 Qtr 2	2	2	\$ 4,239.50
Refinish 3'-9" x 5'-5" st. frame window - 1st flr.	5	1 Pord	69.000	Ea.	4,643.70	5,731.83	2008 Qtr 2	11	11	\$ 63,050.13
Replace 3'-9" x 5'-5" st. frame window - 1st flr.	45	1 Carp	69.000	Ea.	107,130.09	123,260.22	2008 Qtr 2	1	1	\$ 123,260.22
Finish new 3'-9" x 5'-5" st. fr. window - 1st flr.	45	1 Pord	69.000	Ea.	4,034.43	4,974.21	2008 Qtr 2	1	1	\$ 4,974.21
Replace glass - 1st floor (1% of glass)	1	1 Carp	16.680	S.F.	150.95	177.14	2008 Qtr 2	55	55	\$ 9,742.79
Repair 12' x 12' steel roll-up door	10	1 Carp	0.200	Ea.	166.52	192.91	2008 Qtr 2	5	5	\$ 964.54
Refinish 12' x 12' steel roll-up door	5	1 Pord	2.000	Ea.	337.66	411.08	2008 Qtr 2	11	11	\$ 4,521.88
Replace 12' x 12' steel roll-up door	35	2 Carp	2.000	Ea.	6,650.54	7,699.10	2008 Qtr 2	1	1	\$ 7,699.10
Repair steel, painted, door	14	1 Carp	0.300	Ea.	174.73	205.91	2008 Qtr 2	3	3	\$ 617.72
Refinish 3'-0" x 7'-0" steel, painted, door	4	1 Pord	3.000	Ea.	98.73	120.93	2008 Qtr 2	13	13	\$ 1,572.09
Replace 3'-0" x 7'-0" steel, painted, door	45	1 Carp	3.000	Ea.	1,596.24	1,860.12	2008 Qtr 2	1	1	\$ 1,860.12
Replace tempered glass - (3% of glass)	1	1 Carp	1.890	S.F.	36.48	43.39	2008 Qtr 2	55	55	\$ 2,386.69
Debris removal and visual inspection built-up roofing	0.5	2 Rofc	8.024	M.S.F.	235.42	283.65	2008 Qtr 2	110	110	\$ 31,201.32
Non-destructive moisture inspection built-up roofing	5	2 Rofc	8.024	M.S.F.	728.42	881.04	2008 Qtr 2	11	11	\$ 9,691.39
Total roof replacement built-up roofing	28	G1	80.240	Sq.	45,799.39	54,238.23	2008 Qtr 2	1	1	\$ 54,238.23
Minor membrane repairs - (2% of roof area) built-up roofing	5	G5	1.604	Sq.	552.61	652.89	2008 Qtr 2	11	11	\$ 7,181.81
Flashing repairs - (2 S.F. per sq. repaired) built-up roofing	5	2 Rofc	3.200	S.F.	10.75	12.80	2008 Qtr 2	11	11	\$ 140.80
Minor membrane replacement - (25% of roof area) built-up roofing	15	G5	20.060	Sq.	11,924.27	14,224.14	2008 Qtr 2	3	3	\$ 42,672.43
Repair steel painted interior door	14	1 Carp	0.300	Ea.	50.33	59.44	2008 Qtr 2	3	3	\$ 178.33
Refinish 3'-0" x 7'-0" steel painted interior door	4	1 Pord	3.000	Ea.	148.20	182.46	2008 Qtr 2	13	13	\$ 2,371.98
Replace 3'-0" x 7'-0" steel painted interior door	60	1 Carp	3.000	Ea.	2,812.62	3,269.88	2008 Qtr 2	0	0	\$ -
Safety glass repl., (3% of glass) steel painted interior door	1	1 Carp	1.890	S.F.	32.00	38.05	2008 Qtr 2	55	55	\$ 2,092.51
Repair solid core wood door interior	11	1 Carp	0.500	Ea.	83.88	99.07	2008 Qtr 2	5	5	\$ 495.35
Refinish 3'-0" x 7'-0" solid core wood door interior	4	1 Pord	5.000	Ea.	211.10	259.90	2008 Qtr 2	13	13	\$ 3,378.70
Replace 3'-0" x 7'-0" solid core wood door interior	40	1 Carp	5.000	Ea.	1,833.50	2,125.60	2008 Qtr 2	1	1	\$ 2,125.60
Refinish drywall	12	1 Pord	1,378.000	S.F.	826.80	1,019.72	2008 Qtr 2	4	4	\$ 4,078.88
Replace 5/8" drywall	75	2 Carp	1,378.000	S.F.	3,072.94	3,706.82	2008 Qtr 2	0	0	\$ -
Repair 5/8" drywall - (2% of walls)	20	1 Carp	27.560	S.F.	43.82	52.64	2008 Qtr 2	2	2	\$ 105.28
Replace carpet	12	2 Tilf	79.222	S.Y.	3,575.29	4,130.64	2008 Qtr 2	4	4	\$ 16,522.54
Replace vinyl floor	18	1 Tilf	0.346	S.Y.	16.52	20.17	2008 Qtr 2	3	2	\$ 40.34
Replace acoustic tile ceiling, fire-rated	20	1 Carp	10.250	C.S.F.	4,132.29	4,909.75	2008 Qtr 2	2	2	\$ 9,819.50
Check / minor repairs drinking fountain	1	1 Plum	3.000	Ea.	112.74	142.02	2008 Qtr 2	55	55	\$ 7,811.10

**FAC 3181-Propulsion RDT&E Facility**  
**CostWorks 2008 Quarter 2**

Design Life= 55  
Average S.F= 8,024

C.S.F=100 S.F; MSF=1000 S.F  
Sq=100 S.F; M.L.F=1000 L.F

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Terminal Cutoff is the removal of a single task occurrence if that task occurs  
within 10% of the end of the design life and if the frequency of the task exceeds  
20% of the design life. This prevents scheduling major work near the end of the  
design life

Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in	Adjusted	Terminal
		Design Life	Occurrences	Cutoff						
Repair internal leaks drinking fountain	4	1 Plum	3.000	Ea.	105.42	130.29 2008 Qtr 2		13	13 \$	1,693.77
Correct water pressure drinking fountain	2	1 Plum	3.000	Ea.	96.63	121.50 2008 Qtr 2		27	27 \$	3,280.50
Replace refrigerant drinking fountain	2	1 Plum	3.000	Ea.	47.52	56.58 2008 Qtr 2		27	27 \$	1,527.66
Repair drain leak drinking fountain	4	1 Plum	3.000	Ea.	67.89	81.09 2008 Qtr 2		13	13 \$	1,054.17
Replace fountain drinking fountain	10	2 Plum	3.000	Ea.	3,017.52	3,580.71 2008 Qtr 2		5	5 \$	17,903.55
Inspect and clean spray heads, emergency eye wash	3	1 Plum	1.000	Ea.	37.80	47.44 2008 Qtr 2		18	18 \$	853.92
Replace eye wash station, emergency eye wash	25	2 Plum	1.000	Ea.	573.92	695.88 2008 Qtr 2		2	1 \$	695.88
Inspect and clean shower head emergency shower station	3	1 Plum	1.000	Ea.	37.80	47.44 2008 Qtr 2		18	18 \$	853.92
Replace shower emergency shower station	25	2 Plum	1.000	Ea.	726.39	873.58 2008 Qtr 2		2	1 \$	873.58
Replace washer in spud connection lavatory, vitreous china	7	1 Plum	13.000	Ea.	312.13	368.29 2008 Qtr 2		7	7 \$	2,578.03
Replace washer in faucet lavatory, vitreous china	2	1 Plum	13.000	Ea.	128.05	159.77 2008 Qtr 2		27	27 \$	4,313.79
Replace faucets lavatory, vitreous china	10	1 Plum	13.000	Ea.	1,605.37	1,937.78 2008 Qtr 2		5	5 \$	9,688.90
Clean out strainer and P trap lavatory, vitreous china	2	1 Plum	13.000	Ea.	351.52	436.41 2008 Qtr 2		27	27 \$	11,783.07
Replace lavatory, vitreous china	35	2 Plum	13.000	Ea.	6,892.47	8,264.10 2008 Qtr 2		1	1 \$	8,264.10
Replace faucet washer sink, iron enamel	2	1 Plum	1.000	Ea.	9.79	12.19 2008 Qtr 2		27	27 \$	329.13
Clean trap sink, iron enamel	3	1 Plum	1.000	Ea.	6.60	8.25 2008 Qtr 2		18	18 \$	148.50
Replace faucets sink, iron enamel	10	1 Plum	1.000	Ea.	123.49	149.06 2008 Qtr 2		5	5 \$	745.30
Unstop sink sink, iron enamel	2	1 Plum	1.000	Ea.	32.21	40.50 2008 Qtr 2		27	27 \$	1,093.50
Replace sink, P.E.C.I. sink, iron enamel	35	2 Plum	1.000	Ea.	552.72	657.69 2008 Qtr 2		1	1 \$	657.69
Replace flush valve diaphragm tankless water closet	10	1 Plum	7.000	Ea.	495.18	581.42 2008 Qtr 2		5	5 \$	2,907.10
Rebuild flush valve tankless water closet	20	1 Plum	7.000	Ea.	923.86	1,120.07 2008 Qtr 2		2	2 \$	2,240.14
Unplug clogged line tankless water closet	5	1 Plum	7.000	Ea.	1,177.82	1,471.26 2008 Qtr 2		11	11 \$	16,183.86
Replace tankless water closet	35	2 Plum	7.000	Ea.	3,836.00	4,538.52 2008 Qtr 2		1	1 \$	4,538.52
Replace tankless flush valve	25	1 Plum	7.000	Ea.	1,466.50	1,717.59 2008 Qtr 2		2	1 \$	1,717.59
Replace wax ring gasket tankless water closet	5	1 Plum	7.000	Ea.	766.99	960.40 2008 Qtr 2		11	11 \$	10,564.40
Replace flush valve diaphragm urinal	7	1 Plum	3.000	Ea.	212.22	249.18 2008 Qtr 2		7	7 \$	1,744.26
Rebuild flush valve urinal	20	1 Plum	3.000	Ea.	395.94	480.03 2008 Qtr 2		2	2 \$	960.06
Unplug line urinal	5	1 Plum	3.000	Ea.	336.42	419.73 2008 Qtr 2		11	11 \$	4,617.03
Replace wall-hung urinal	35	2 Plum	3.000	Ea.	2,524.89	3,019.71 2008 Qtr 2		1	1 \$	3,019.71
Inspect / check pump / motor operation, lub. circulation pump, 1/12 HP	0.5	1 Plum	1.000	Ea.	6.19	7.72 2008 Qtr 2		110	110 \$	849.20
Replace pump / motor assembly circulation pump, 1/12 HP	10	2 Plum	1.000	Ea.	736.33	863.29 2008 Qtr 2		5	5 \$	4,316.45
Resolder joint pipe & fittings, copper	10	1 Plum	2.000	Ea.	65.70	80.90 2008 Qtr 2		5	5 \$	404.50
Replace pipe and fittings, copper 3/4"	20	2 Plum	16.000	L.F.	283.52	343.68 2008 Qtr 2		2	2 \$	687.36
Replace pipe and fittings, copper 2"	25	2 Plum	8.000	L.F.	326.48	392.88 2008 Qtr 2		2	1 \$	392.88
Remove old insulation & replace with new, pipe 3/4", wall 1"	15	1 Plum	16.000	L.F.	112.16	136.64 2008 Qtr 2		3	3 \$	409.92
Drain and flush water heater, electric, 120 gallon	7	1 Plum	1.000	Ea.	226.43	283.04 2008 Qtr 2		7	7 \$	1,981.28

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Description	Frequency	Crew	Qty	Unit	Total In-House	Total Incl. O&P	Release	Occurrences in Design Life	Adjusted Occurrences	Terminal Cutoff
Check operation water heater, electric, 120 gallon	3	1 Plum	1.000	Ea.	1.98	2.48	2008 Qtr 2	18	18	\$ 44.64
Replace water heater, electric, 120 gallon	15	2 Plum	1.000	Ea.	9,192.45	10,543.79	2008 Qtr 2	3	3	\$ 31,631.37
Unclog main drain pipe & fittings, cast iron	10	1 Plum	1.000	Ea.	35.62	44.41	2008 Qtr 2	5	5	\$ 222.05
Replace pipe & fittings, cast iron	40	2 Plum	8.000	L.F.	335.20	405.60	2008 Qtr 2	1	1	\$ 405.60
Unclog floor drain, PVC	20	1 Plum	1.000	Ea.	37.09	45.87	2008 Qtr 2	2	2	\$ 91.74
Repair joint pipe and fittings, PVC	10	1 Plum	1.000	Ea.	115.94	144.14	2008 Qtr 2	5	5	\$ 720.70
Replace pipe, 4" pipe and fittings, PVC	30	2 Plum	8.000	L.F.	473.60	585.52	2008 Qtr 2	1	1	\$ 585.52
General maintenance & repair drain: roof, scupper, area	1	1 Plum	2.000	Ea.	56.70	71.34	2008 Qtr 2	55	55	\$ 3,923.70
Replace drain: roof, scupper, area	40	1 Plum	2.000	Ea.	796.68	936.28	2008 Qtr 2	1	1	\$ 936.28
Replace fan & motor, propeller exh., 1000 CFM exhaust fan	15	Q20	2.000	Ea.	1,729.08	2,020.66	2008 Qtr 2	3	3	\$ 6,061.98
Repair single zone rooftop unit, 25 ton	10	Q6	0.500	Ea.	12,910.55	14,961.45	2008 Qtr 2	5	5	\$ 74,807.23
Replace single zone rooftop unit, 25 ton	15	Q7	1.000	Ea.	34,098.40	39,677.60	2008 Qtr 2	3	3	\$ 119,032.80
Replace sprinkler head	20	1 Plum	47.000	Ea.	2,992.96	3,687.62	2008 Qtr 2	2	2	\$ 7,375.24
Inspect sprinkler system	1	1 Plum	1.000	Ea.	26.55	32.89	2008 Qtr 2	55	55	\$ 1,808.95
Rebuild double check 3" backflow preventer sprinkler system	5	1 Plum	1.000	Ea.	598.06	715.83	2008 Qtr 2	11	11	\$ 7,874.13
Replace fire alarm bell, 6"	20	1 Elec	2.000	Ea.	284.56	343.02	2008 Qtr 2	2	2	\$ 686.04
Repair failed breaker, 3 pole circuit breaker	10	1 Elec	1.000	Ea.	342.23	400.69	2008 Qtr 2	5	5	\$ 2,003.45
Maintenance and inspection C.B., 3 pole circuit breaker	0.33	1 Elec	1.000	Ea.	22.91	28.50	2008 Qtr 2	166	166	\$ 4,731.00
Replace C.B. molded case, 600 V, 3 pole circuit breaker	50	1 Elec	1.000	Ea.	3,157.74	3,611.55	2008 Qtr 2	1	0	\$ -
Maintenance and inspection lighting panel, indoor	3	1 Elec	1.000	Ea.	28.50	35.63	2008 Qtr 2	18	18	\$ 641.34
Replace lamp emergency lighting fixture	2	1 Elec	6.000	Ea.	324.00	384.84	2008 Qtr 2	27	27	\$ 10,390.68
Replace emergency lighting fixture	20	1 Elec	6.000	Ea.	5,059.50	5,829.60	2008 Qtr 2	2	2	\$ 11,659.20
Maintenance and repair exit light	20	1 Elec	6.000	Ea.	196.98	239.22	2008 Qtr 2	2	2	\$ 478.44
Replace lamp exit light	5	1 Elec	6.000	Ea.	74.10	87.72	2008 Qtr 2	11	11	\$ 964.92
Replace fluor. ballast for fluorescent lighting fixture, 80 W	10	1 Elec	107.000	Ea.	10,655.06	12,848.56	2008 Qtr 2	5	5	\$ 64,242.80
Replace lamps (2 lamps) fluorescent lighting fixture, 80 W	10	1 Elec	107.000	Ea.	2,722.08	3,336.26	2008 Qtr 2	5	5	\$ 16,681.30
Maintenance and repair receptacles and plugs	20	1 Elec	101.000	Ea.	3,140.09	3,911.73	2008 Qtr 2	2	2	\$ 7,823.46
Replace receptacle/plug receptacles and plugs	20	1 Elec	101.000	Ea.	5,328.76	6,506.42	2008 Qtr 2	2	2	\$ 13,012.84
Maintenance and repair wiring devices, switches	10	1 Elec	25.000	Ea.	777.25	968.25	2008 Qtr 2	5	5	\$ 4,841.25
Replace switch wiring devices, switches	15	1 Elec	25.000	Ea.	1,280.25	1,558.75	2008 Qtr 2	3	3	\$ 4,676.25
Check and repair manual pull station	10	1 Elec	2.000	Ea.	138.42	169.74	2008 Qtr 2	5	5	\$ 848.70
Replace manual pull station	15	1 Elec	2.000	Ea.	251.48	303.78	2008 Qtr 2	3	3	\$ 911.34
Repair smoke detector	10	1 Elec	29.000	Ea.	1,107.51	1,363.00	2008 Qtr 2	5	5	\$ 6,815.00
Check operation smoke detector	1	1 Elec	29.000	Ea.	330.60	414.70	2008 Qtr 2	55	55	\$ 22,808.50
Replace smoke detector	15	1 Elec	29.000	Ea.	5,496.95	6,582.71	2008 Qtr 2	3	3	\$ 19,748.13
					<b>\$382,279.45</b>	<b>\$449,528.54</b>				

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									MR Subtotal	\$ 1,021,785.49
									MR Per Year	\$ 18,577.92
									PM Per Year	\$ 4,052.70
									Subtotal	\$ 22,630.62
									Total Per Unit	\$ 2.82

**CostWorks 2009 Quarter 1 - FAC 3181-Propulsion RDT&E Facility**

Qty	Assembly Number	Description	Total In-House	Total Incl. O&P	Zip Code Prefix	Type	Release
2.000	B2035 410 1950	Door, overhead, electric, roll up, to 24' high x 25' w	480.32	580.24	200	FMR	2008 Qtr 2
8.000	B2035 225 1950	Door, emergency egress, swinging, annualized	396.08	460.08	200	FMR	2008 Qtr 2
3.000	C1025 110 1950	Fire doors, swinging, annualized	74.67	89.58	200	FMR	2008 Qtr 2
13.000	D2015 100 4950	Lavatories, annualized	320.84	391.04	200	FMR	2008 Qtr 2
3.000	D2015 100 1950	Urinals, annualized	38.79	48.45	200	FMR	2008 Qtr 2
7.000	D2015 100 2950	Toilet (vacuum breaker type), annualized	90.51	113.05	200	FMR	2008 Qtr 2
3.000	D2015 800 1950	Drink fountain, annualized	148.50	178.08	200	FMR	2008 Qtr 2
6.000	D3045 160 1950	VAV Boxes, annualized	367.86	456.00	200	FMR	2008 Qtr 2
2.000	D3045 210 1950	Fan, axial, up to 5,000 CFM, annualized	141.10	172.40	200	FMR	2008 Qtr 2
1.000	D3055 210 1950	Package unit, air cooled, 3 thru 24 ton, annualized	207.71	251.03	200	FMR	2008 Qtr 2
1.000	D4015 100 1950	Backflow prevention device, up to 4", annualized	18.89	23.42	200	FMR	2008 Qtr 2
1.000	D4015 150 1950	Extinguishing system, wet pipe, annualized	806.79	983.35	200	FMR	2008 Qtr 2
1.000	D5015 260 1950	Panelboard, 225 A and above, annualized	56.96	67.71	200	FMR	2008 Qtr 2
1.000	D5015 220 1950	Circuit breaker, high voltage air, annualized	26.98	33.59	200	FMR	2008 Qtr 2
1.000	D5095 250 1950	Light, emergency, hardwired system, annualized	14.25	17.87	200	FMR	2008 Qtr 2
1.000	E1095 122 1950	Crane, electric bridge, up to 5 ton, annualized	152.92	186.81	200	FMR	2008 Qtr 2
			<b>\$3,343.17</b>	<b>\$4,052.70</b>			

FAC 3181 Sustainment by Year - Terminal Cutoff Applied

