Appendix D.6
Internal Combustion Sources

Table H
INSIGNIFICANT ACTIVITIES
SUMMARY OF INTERNAL COMBUSTION ENGINES CY 2005

Building	Shop	Emission Source	Fuel	Power Rating	Power Rating Units	IDAPA 58.01.01.
264	AF LIGHTING	IC0264	Diesel	230	kW	317.b.i.(14)
1317	POL BULK STORG	IC1317	Diesel	230	kW	317.b.i.(14)
3600	CONTROL TOWER	IC3600	Diesel	100	kW	317.b.i.(14)
259	OPS / WEATHER	IC0259	Diesel	50	kW	317.b.i.(14)
1501	COMMAND POST	IC1501	Diesel	80	kW	317.b.i.(14)
1014	SP/LE DESK	IC1014	Diesel	25	kW	317.b.i.(14)
1302	CE CONTRL/DCC	IC1302	Diesel	100	kW	317.b.i.(14)
3510	TACAN	IC3510	Diesel	35	kW	317.b.i.(14)
900	RAPCON #1	IC0900.1	Diesel	100	kW	317.b.i.(14)
3522	ASR	IC3522	Diesel	50	kW	317.b.i.(14)
3504	12 GLIDESLOPE	IC3504	Diesel	25	kW	317.b.i.(14)
3509	RECVR/TRNSMTR	IC3509	Diesel	25	kW	317.b.i.(14)
3525	30 LOCALIZER	IC3525	Diesel	25	kW	317.b.i.(14)
3535	30 GLIDESLOPE	IC3535	Diesel	25	kW	317.b.i.(14)
3539	12 LOCALIZER	IC3539	Diesel	25	kW	317.b.i.(14)
610	TELE SWITCHING	IC0610	Diesel	175	kW	317.b.i.(14)
206	FIRE STATION #1	IC0206	Diesel	100	kW	317.b.i.(14)
6300	FIRE STN #2 ANX	IC6300	Diesel	15	kW	317.b.i.(14)
1403	WATER PLANT	IC1403.1	Diesel	175	kW	317.b.i.(14)
4798	WELL#6	IC4798	Diesel	150	kW	317.b.i.(14)
8077	1M GALLON TANK	IC8077	Diesel	150	kW	317.b.i.(14)
5250	500K WATER TOWER	IC5250	Diesel	35	kW	317.b.i.(14)
4799	N MELLON BOOSTER	IC4799	Diesel	25	kW	317.b.i.(14)
1413	Sewage Lift #2	IC1413	Diesel	25	kW	317.b.i.(14)
1298	LIFT STATION 3	IC1298	Diesel	25	kW	317.b.i.(14)
2708	LIFT STATION 4	IC2708	Diesel	25	kW	317.b.i.(14)
1819	Sewage Lift #6	IC1819	Diesel	25	kW	317.b.i.(14)
196	MOC	IC0196	Diesel	60	kW	317.b.i.(14)
1402	WELL #4	IC1402	Diesel	350	kW	317.b.i.(14)
508	DATA AUTOMATN	IC0508	Diesel	300	kW	317.b.i.(14)
1319	POL DISPATCH	IC1319	Diesel	6	kW	317.b.i.(14)
265	POL HOT PITS	IC0265	Diesel	175	kW	317.b.i.(14)
2316	DINNING FACILITY	IC2316	Diesel	275	kW	317.b.i.(14)
1351	POWER PRO	IC1351	Diesel	25	kW	317.b.i.(14)
1008	CSC/SP ADMIN	IC1008	Diesel	20	kW	317.b.i.(14)
2103	WELL #2	IC2103	Diesel	150	kW	317.b.i.(14)
517	Sewage Lift #1	IC0517	Diesel	25	kW	317.b.i.(14)
211	Hanger	IC0211	Diesel	60	kW	317.b.i.(14)
Subtotal Generators <450 kW Using Diesel						
46011	Well #11	ICWELL11	Diesel	563	kW	317.b.i(30)
46012	Well #12	ICWELL12	Diesel	563	kW	317.b.i(30)
Subtotal Generators >450 kW Using Diesel						
197	FIRESTATION	IC0197.1	Diesel	305	hp	317.b.i.(14)
197	FIRESTATION	IC0197.2	Diesel	305	hp	317.b.i.(14)
197	FIRESTATION	IC0197.3	Diesel	305	hp	317.b.i.(14)
197	FIRESTATION	IC0197.4	Diesel	305	hp	317.b.i.(14)
1347	AFFF	IC1347.1	Diesel	305	hp	317.b.i.(14)
1347	AFFF	IC1347.2	Diesel	305	hp	317.b.i.(14)
1347	AFFF	IC1347.3	Diesel	305	hp	317.b.i.(14)
1347	AFFF	IC1347.4	Diesel	305	hp	317.b.i.(14)
Subtotal Fire Pumps Using Diesel						
2706	COMMISARY	IC2706	Nat. gas	40	kW	317.b.i.(14)
Subtotal Generators Using Natural Gas						

Table D-12.2.2.1-6-2
Insignificant Activities
Internal Combustion Criteria Pollutant PTE

Em. Source ID	Location	Facility ID	Power Rating	Power Rating Units	Fuel	NOx tpy	CO tpy	SOx tpy	PM_{10} tpy	VOC tpy
IC0264	BLDG 264	AF LIGHTING	230	kW	Diesel	1.77	0.38	0.12	0.13	0.14
IC1317	BLDG 1317	POL BULK STORG	230	kW	Diesel	1.77	0.38	0.12	0.13	0.14
IC3600	BLDG 3600	CONTROL TOWER	100	kW	Diesel	0.77	0.17	0.05	0.05	0.06
IC0259	BLDG 259	OPS / WEATHER	50	kW	Diesel	0.38	0.08	0.03	0.03	0.03
IC1501	BLDG 1501	COMMAND POST	80	kW	Diesel	0.62	0.13	0.04	0.04	0.05
IC1014	BLDG 1014	SP/LE DESK	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC1302	BLDG 1302	CE CONTRL/DCC	100	kW	Diesel	0.77	0.17	0.05	0.05	0.06
IC3510	BLDG 3510	TACAN	35	kW	Diesel	0.27	0.06	0.02	0.02	0.02
IC0900.1	BLDG 900	RAPCON #1	100	kW	Diesel	0.77	0.17	0.05	0.05	0.06
IC3522	BLDG 3522	ASR	50	kW	Diesel	0.38	0.08	0.03	0.03	0.03
IC3504	BLDG 3504	12 GLIDESLOPE	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC3509	BLDG 3509	RECVR/TRNSMTR	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC3525	BLDG 3525	30 LOCALIZER	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC3535	BLDG 3535	30 GLIDESLOPE	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC3539	BLDG 3539	12 LOCALIZER	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC0610	BLDG 610	TELE SWITCHING	175	kW	Diesel	1.35	0.29	0.09	0.10	0.11
IC0206	BLDG 206	FIRE STATION #1	100	kW	Diesel	0.77	0.17	0.05	0.05	0.06
IC6300	BLDG 6300	FIRE STN #2 ANX	15	kW	Diesel	0.12	0.02	0.01	0.01	0.01
IC1403.1	BLDG 1403	WATER PLANT	175	kW	Diesel	1.35	0.29	0.09	0.10	0.11
IC4798	BLDG 4798	WELL#6	150	kW	Diesel	1.15	0.25	0.08	0.08	0.09
IC5250	BLDG 5250	500K WATER TOWER	35	kW	Diesel	0.27	0.06	0.02	0.02	0.02
IC4799	BLDG 4799	N MELLON BOOSTER	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC0517	BLDG 517	LIFT STATION 1	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC1413	BLDG 1413	LIFT STATION 2	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC1298	BLDG 1298	LIFT STATION 3	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC2708	BLDG 2708	LIFT STATION 4	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC1819	BLDG 1819	LIFT STATION 6	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC0196	BLDG 196	MOC	60	kW	Diesel	0.46	0.10	0.03	0.03	0.04
IC1402	BLDG 1402	WELL #4	350	kW	Diesel	2.69	0.58	0.18	0.19	0.22
IC8077	BLDG 8077	1M GALLON TANK	150	kW	Diesel	1.15	0.25	0.08	0.08	0.09
IC0508	BLDG 508	DATA AUTOMATN	300	kW	Diesel	2.31	0.50	0.15	0.16	0.19
IC1319	BLDG 1319	POL DISPATCH	6	kW	Diesel	0.05	0.01	0.003	0.003	0.004
IC0265	BLDG 265	POL HOT PITS	175	kW	Diesel	1.35	0.29	0.09	0.10	0.11
IC2316	BLDG 2316	DINNING FACILITY	275	kW	Diesel	2.12	0.46	0.14	0.15	0.17
IC1351	BLDG 1351	POWER PRO	25	kW	Diesel	0.19	0.04	0.01	0.01	0.02
IC1008	BLDG 1008	CSC/SP ADMIN	20	kW	Diesel	0.15	0.03	0.01	0.01	0.01
IC2103	BLDG 2103	WELL #2	150	kW	Diesel	1.2	0.2	0.08	0.08	0.09
IC0211	BLDG 211	HANGAR	60	kW	Diesel	0.5	0.1	0.03	0.03	0.04
IC3495	BLDG 3495	SEWAGE TMT PLANT	1200	kW	Diesel	7.15	1.64	0.12	0.21	2.10
ICWELL11	46011	WELL#11	563	kW	Diesel	3.35	0.77	0.06	0.10	0.98
ICWELL12	46012	WELL #12	563	kW	Diesel	3.35	0.77	0.06	0.10	0.98
IC0197.1	BLDG 197	FIRESTATION	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC0197.2	BLDG 197	FIRESTATION	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC0197.3	BLDG 197	FIRESTATION	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC0197.4	BLDG 197	FIRESTATION	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC1347.1	BLDG 1347	AFFF	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC1347.2	BLDG 1347	AFFF	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC1347.3	BLDG 1347	AFFF	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC1347.4	BLDG 1347	AFFF	305	hp	Diesel	1.75	0.38	0.12	0.12	0.14
IC2706	BLDG 2706	COMMISARY	40	kW	Nat. gas	0.18	0.07	0.0002	0.00	0.01
Total						54.9	12.1	2.9	3.3	7.4

Notes:
Diesel Fire Pumps rated in horsepower (hp)
Assumptions:
Annual Hours of Operation per unit: 500
Average Percent Load: 0.74

Table D-12.2.2.1-6-3
Insignificant Activities
Internal Combustion HAP PTE

Em. Source ID	Location	Facility ID	Power Rating	Power Rating Units	Fuel	Acetaldehyde tpy	Acrolein tpy	Benzene tpy	1,3-Butadiene tpy	Formaldehyde tpy	Naphthalene tpy	Toluene tpy	Xylenes tpy
IC0264	BLDG 264	AF LIGHTING	230	kW	Diesel	3.06E-04	3.70E-05	3.73E-04	1.56E-05	4.72E-04	3.39E-05	1.63E-04	1.14E-04
IC1317	BLDG 1317	POL BULK STORG	230	kW	Diesel	3.06E-04	3.70E-05	3.73E-04	1.56E-05	4.72E-04	3.39E-05	1.63E-04	1.14E-04
IC3600	BLDG 3600	CONTROL TOWER	100	kW	Diesel	1.33E-04	1.61E-05	1.62E-04	6.79E-06	2.05E-04	1.47E-05	7.10E-05	4.96E-05
IC0259	BLDG 259	OPS / WEATHER	50	kW	Diesel	6.66E-05	8.04E-06	8.10E-05	3.39E-06	1.03E-04	7.36E-06	3.55E-05	2.48E-05
IC1501	BLDG 1501	COMMAND POST	80	kW	Diesel	1.07E-04	1.29E-05	1.30E-04	5.43E-06	1.64E-04	1.18E-05	5.68E-05	3.97E-05
IC1014	BLDG 1014	SP/LE DESK	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC1302	BLDG 1302	CE CONTRL/DCC	100	kW	Diesel	1.33E-04	1.61E-05	1.62E-04	6.79E-06	2.05E-04	1.47E-05	7.10E-05	4.96E-05
IC3510	BLDG 3510	TACAN	35	kW	Diesel	4.66E-05	5.63E-06	5.67E-05	2.38E-06	7.19E-05	5.15E-06	2.49E-05	1.74E-05
IC0900.1	BLDG 900	RAPCON #1	100	kW	Diesel	1.33E-04	1.61E-05	1.62E-04	6.79E-06	2.05E-04	1.47E-05	7.10E-05	4.96E-05
IC3522	BLDG 3522	ASR	50	kW	Diesel	6.66E-05	8.04E-06	8.10E-05	3.39E-06	1.03E-04	7.36E-06	3.55E-05	2.48E-05
IC3504	BLDG 3504	12 GLIDESLOPE	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC3509	BLDG 3509	RECVR/TRNSMTR	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC3525	BLDG 3525	30 LOCALIZER	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC3535	BLDG 3535	30 GLIDESLOPE	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC3539	BLDG 3539	12 LOCALIZER	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC0610	BLDG 610	TELE SWITCHING	175	kW	Diesel	2.33E-04	2.81E-05	2.84E-04	1.19E-05	3.59E-04	2.58E-05	1.24E-04	8.68E-05
IC0206	BLDG 206	FIRE STATION #1	100	kW	Diesel	1.33E-04	1.61E-05	1.62E-04	6.79E-06	2.05E-04	1.47E-05	7.10E-05	4.96E-05
IC6300	BLDG 6300	FIRE STN #2 ANX	15	kW	Diesel	2.00E-05	2.41E-06	2.43E-05	1.02E-06	3.08E-05	2.21E-06	1.07E-05	7.44E-06
IC1403.1	BLDG 1403	WATER PLANT	175	kW	Diesel	2.33E-04	2.81E-05	2.84E-04	1.19E-05	3.59E-04	2.58E-05	1.24E-04	8.68E-05
IC4798	BLDG 4798	WELL#6	150	kW	Diesel	2.00E-04	2.41E-05	2.43E-04	1.02E-05	3.08E-04	2.21E-05	1.07E-04	7.44E-05
IC5250	BLDG 5250	500K WATER TOWER	35	kW	Diesel	4.66E-05	5.63E-06	5.67E-05	2.38E-06	7.19E-05	5.15E-06	2.49E-05	1.74E-05
IC4799	BLDG 4799	N MELLON BOOSTER	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC0517	BLDG 517	LIFT STATION 1	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC1413	BLDG 1413	LIFT STATION 2	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC1298	BLDG 1298	LIFT STATION 3	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC2708	BLDG 2708	LIFT STATION 4	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC1819	BLDG 1819	LIFT STATION 6	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC0196	BLDG 196	MOC	60	kW	Diesel	7.99E-05	9.65E-06	9.72E-05	4.07E-06	1.23E-04	8.84E-06	4.26E-05	2.97E-05
IC1402	BLDG 1402	WELL #4	350	kW	Diesel	4.66E-04	5.63E-05	5.67E-04	2.38E-05	7.19E-04	5.15E-05	2.49E-04	1.74E-04
IC8077	BLDG 8077	1M GALLON TANK	150	kW	Diesel	2.00E-04	2.41E-05	2.43E-04	1.02E-05	3.08E-04	2.21E-05	1.07E-04	7.44E-05
IC0508	BLDG 508	DATA AUTOMATN	300	kW	Diesel	4.00E-04	4.82E-05	4.86E-04	2.04E-05	6.16E-04	4.42E-05	2.13E-04	1.49E-04
IC1319	BLDG 1319	POL DISPATCH	6	kW	Diesel	7.99E-06	9.65E-07	9.72E-06	4.07E-07	1.23E-05	8.84E-07	4.26E-06	2.97E-06
IC0265	BLDG 265	POL HOT PITS	175	kW	Diesel	2.33E-04	2.81E-05	2.84E-04	1.19E-05	3.59E-04	2.58E-05	1.24E-04	8.68E-05
IC2316	BLDG 2316	DINNING FACILITY	275	kW	Diesel	3.66E-04	4.42E-05	4.46E-04	1.87E-05	5.65E-04	4.05E-05	1.95E-04	1.36E-04
IC1351	BLDG 1351	POWER PRO	25	kW	Diesel	3.33E-05	4.02E-06	4.05E-05	1.70E-06	5.13E-05	3.68E-06	1.78E-05	1.24E-05
IC1008	BLDG 1008	CSC/SP ADMIN	20	kW	Diesel	2.66E-05	3.22E-06	3.24E-05	1.36E-06	4.11E-05	2.95E-06	1.42E-05	9.92E-06
IC2103	BLDG 2103	WELL #2	150	kW	Diesel	2.00E-04	2.41E-05	2.43E-04	1.02E-05	3.08E-04	2.21E-05	1.07E-04	7.44E-05
IC0211	BLDG 211	HANGAR	60	kW	Diesel	7.99E-05	9.65E-06	9.72E-05	4.07E-06	1.23E-04	8.84E-06	4.26E-05	2.97E-05
IC3495	BLDG 3495	SEWAGE TMT PLANT	1200	kW	Diesel	5.26E-05	1.64E-05	1.62E-03	0.00E+00	1.65E-04	0.00E+00	5.86E-04	4.02E-04
ICWELL11	46011	WELL#11	563	kW	Diesel	2.47E-05	7.71E-06	7.59E-04	0.00E+00	7.72E-05	0.00E+00	2.75E-04	1.89E-04
ICWELL12	46012	WELL #12	563	kW	Diesel	2.47E-05	7.71E-06	7.59E-04	0.00E+00	7.72E-05	0.00E+00	2.75E-04	1.89E-04
IC0197.1	BLDG 197	FIRESTATION	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC0197.2	BLDG 197	FIRESTATION	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC0197.3	BLDG 197	FIRESTATION	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC0197.4	BLDG 197	FIRESTATION	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC1347.1	BLDG 1347	AFFF	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC1347.2	BLDG 1347	AFFF	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC1347.3	BLDG 1347	AFFF	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC1347.4	BLDG 1347	AFFF	305	hp	Diesel	3.03E-04	3.66E-05	3.68E-04	1.55E-05	4.67E-04	3.35E-05	1.61E-04	1.13E-04
IC2706	BLDG 2706	COMMISARY	40	kW	Nat. gas	5.81E-04	3.57E-04	3.06E-05	1.86E-05	3.67E-03	5.17E-06	2.83E-05	1.28E-05
Total						0.008	0.001	0.012	0.0004	0.015	0.001	0.005	0.003

Notes:
Diesel Fire Pumps rated in horsepower (hp)
Assumptions:
Annual Hours of Operation per unit: 500
Average Percent Load: 0.74

Appendix D.7
Surface Coating Activities

K.1 Background

K.1.1 General

Number of Surface Coating Source Groups Identified: 10

Emission Source Type: Stationary

Emission Source ID: SC

This category includes painting operations conducted in spray booths, within the open-air environment in buildings, and outdoors. Base personnel provided the type and amounts of surface coatings for the permitted paint booths. Spray coating usage was also derived from the EMIS database for the following buildings: 3016, 3018, 3023, 1359, and basewide architectural/structural operations.

Surface coating usage are summarized in Appendices AAA-6.1 through AAA-6.7. Surface coating was classified according to the following categories:

- Primers: coatings that are designed for application to a surface to provide a firm bond between the substrate and subsequent coatings;
- Polyurethane coatings: topcoats that are commonly used due to their high resistance to corrosion. Polyurethane coatings contain a resin (base) component and a catalyst (hardener) component that are mixed together – normally 3 parts of resin to 1 part of catalyst;
- Enamels: topcoats that are characterized by their ability to form a smooth surface;
- Lacquers: coating with composition based on synthetic thermoplastic film-forming materials dissolved in organic solvent;
- Thinners: volatile liquids added to a coating to reduce its viscosity.

Below are brief descriptions of major MHAFB painting shops and operations. The summary of surface coating amounts used by facility, pollution control equipment efficiency, and painting transfer efficiency is presented in Table K-1.

K.1.2 Permit Summary – Building 1330 (Aircraft and Air craft Parts Paint Booth)

Two spray paint booths are permitted for fighter aircraft and aircraft parts to control particulate matter and VOCs. A revised IDEQ Permit to Construct (PTC) No. 039-00001 was issued on May 30, 2002. Air pollution control equipment is summarized for

the aircraft and aircraft parts paint booth in Sections K.1.2.1 and K.1.2.2, respectively.

Permit to Construct
Aircraft and Aircraft Parts Surface-coating Spray Booths – Hangar 1330
Date Issued: January 17, 2001
Date Revised: May 30, 2002.
Brief Technical Summary:

Aircraft Paint Booth
Throughput Limits: Daily usage = 684 gal/day; annual usage = 1,250 gal/yr

Parts Paint Booth
Throughput Limits: Daily usage = 140 gal/day; annual usage = 350 gal/yr

K.1.2.1 Aircraft Paint Booth (Building 1330)

The aircraft paint booth contains fiber filters for controlling particulates (97 percent efficiency) and activated carbon filters for controlling VOCs (90 percent efficiency). Specifications for all coatings applied in this facility in CY 2005 are presented in Table K-2. CY 2005 coating usage was derived from the database containing daily coating usage (Appendix AAA-6.1).

K.1.2.2 Parts Paint Booth (Building 1330)

The aircraft parts paint booth contains fiber filters for controlling particulates (97 percent efficiency). Specifications for all coatings applied in this facility in CY 2005 are presented in Table K-3. CY 2005 coating usage was derived from the database containing daily coating usage (Appendix AAA-6.2).

K.1.3 Munitions Area (Buildings 3016 and 3018)

Specifications for all coatings applied in this area in CY 2005 are presented in Table K-4. Coating usage was derived from the EMIS database (Appendix AAA-6.3).

K.1.4 Buildings 3023 and 1359

Specifications for all touch-up coatings applied in these buildings in CY 2005 are presented in Table K-5. CY 2005 coating usage was derived from the EMIS database (Appendix AAA-6.3).

K.1.5 Flightline Area Spray Painting

These operations include small repair jobs on the flightline, in hangers 1329 and 1335, outside the paint booths in Hangars 1330 and 198, and on aircraft on static display. A revised IDEQ PTC No. 039-00001 was issued on May 30, 2002. Throughput limits were not changed from the March 30, 2000, PTC to the May 30, 2002, PTC. PM and PM-10 permit limits were removed.

Permit to Construct
Flightline Area Spray Painting
Date Issued: March 30, 2000
Date Revised: May 30, 2002
Brief Technical Summary:

Emission limits: Annual VOC = 1.5 tpy

Usage limit: Hourly usage = 16.1 gal/day; annual usage = 300 gal/yr

Specifications for all coatings applied in these facilities in CY 2005 are presented in Table K-6. CY 2005 coating usage was derived from the database containing daily coating usage (Appendix AAA-6.4).

K.1.6 Vehicle Maintenance Paint Booth (Building 1100)

A revised IDEQ PTC No. 039-00001 was issued on May 30, 2002. PM and PM-10 permit limits were removed and replaced by Process Weight Rule.

Permit to Construct
Vehicle Spray Paint Booth – Building 1100
Date Issued: September 15, 1999
Date Revised: May 30, 2002
Brief Technical Summary:

Emission limits: Annual VOC = 4 tpy

Usage limit: Annual usage = 300 gal/yr

Specifications for representative coatings applied in this facility are presented in Table K-7. CY 2005 coating usage was derived from the database containing daily coating usage (Appendix AAA-6.5).

K.1.7 Arts and Crafts Center (Building 2806)

Specifications for representative coatings applied to the Arts and Crafts Center are presented in Table K-8. CY 2005 coating usage was derived from facility logs containing daily coating usage (Appendix AAA-6.6).

K.1.8 Hand-wipe Cleaning Operations

These operations include the removal of contaminants such as dirt, grease, oil, and coatings from aircraft by physically rubbing with a material such as a rag, tack rag, or rag moistened with a cleaning solvent. Emissions from these operations are accounted for in the category "Miscellaneous Chemical Usage."

K.2 Emission Calculation Method

The APIMS standard algorithm codes SURF-02, SURF-04, and SURF-05 were identified to calculate PM_{10}, VOC, and HAP emissions. Three assumptions were also made to calculate emissions: (1) Actual air emissions were calculated based on MSDS information. (2) A material balance approach (quantity of paint issued is equal to quantity applied with no waste assumed). (3) All VOCs evaporate and are emitted to the atmosphere, unless a control device reduces the emission concentration.

K.3 Sample Calculations

K.3.1 Aircraft Paint Booth (Em. Source ID SC1330.1)

The following data are used in the calculations:

- SCC: 4-02-999-95 (Surface Coating Operations/Surface Coating - Miscellaneous).
- Paint type = Green Polyurethane Coating (NSN 8010-01-305-5555).
- CY 2005 usage = 1.8 gal/yr.
- Fiber filter control efficiency (particulates) = 97%.
- Activated carbon filters control efficiency (VOCs) = 90%.
- High volume/low pressure (HVLP) spray gun transfer efficiency = 45% (manufacturer's information).
- Density = 9.04 lb/gal.
- VOC content = 36% by weight of total product.

- Solids content = 64% by weight of total product.
- Xylene content = 1% by weight of total VOC.

K.3.1.1 VOC Calculation

VOC (uncontrolled) = (Volume Used) * (Density) * (VOC wt%)

VOC (controlled) = VOC (uncontrolled) * (1- VOC control efficiency)

$$\text{VOC (controlled)} = \left(1.80\frac{\text{gal}}{\text{yr}}\right)\left(9.04\frac{\text{lb}}{\text{gal}}\right)(0.36)\left(1-\frac{90}{100}\right) = 0.59\frac{\text{lbs}}{\text{yr}}$$

K.3.1.2 Particulates (PM_{10}) Calculation

PM_{10} (uncontrolled) = (Volume Used) (Density) (Solid wt %) (1 - Transfer Efficiency)

PM_{10} (controlled) = PM_{10}(uncontrolled) (1 – PM_{10} Control Efficiency)

$$PM_{10}\text{ (controlled)} = \left(1.80\frac{\text{gal}}{\text{yr}}\right)\left(9.04\frac{\text{lb}}{\text{gal}}\right)(0.64)(1-0.45)\left(1-\frac{97}{100}\right) = 0.17\frac{\text{lbs}}{\text{yr}}$$

K.3.1.3 HAP Calculation

Xylene (uncontrolled) = (Volume Used) (Density) (HAP wt%)

Xylene (controlled) = Xylene (uncontrolled) (1 – VOC control efficiency)

$$\text{Xylene (controlled)} = \left(1.80\frac{\text{gal}}{\text{yr}}\right)\left(9.04\frac{\text{lb}}{\text{gal}}\right)(0.01)\left(1-\frac{90}{100}\right) = 0.016\frac{\text{lb}}{\text{yr}}$$

K.4 Actual Emissions Summary

The APIMS Process ID and actual annual Criteria pollutants for surface coating sources are presented in Table K-9. The actual annual HAPS for surface coating sources are presented in Table K-10.

K.5 Potential Emissions Summary

Potential usages of surface coatings were based on permit information and Kp/a values (Table K-11).

The APIMS Process ID and potential annual Criteria pollutants for surface coating sources are presented in Table K-12. The potential annual HAPS for surface coating sources are presented in Table K-13.

Table K-1
SUMMARY OF ACTUAL SURFACE COATING OPERATIONS FOR CY 2005

Facility ID	Location	Source ID	Quantity Used, gal	Pollution Control	Controlled Pollutant	Control Efficiency %	Transfer Efficiency %	Reference Tables
MUNITIONS AREA	BLDG 3016	SC3016	7.6	-	-	0%	90%	K4
	BLDG 3023	SC3023	12.4	Fiber Filters	Particulate	95%	45%	K5
Munitions Inspection	BLDG 3018	SC3018	3.9	-	-	0%	90%	K4
Munitions Support	BLDG 1340	SC1340	0.0	-	-	0%	90%	K5
AGE	BLDG 1359	SC1359	3.9	-	-	0%	90%	K5
Auto Skills Center Paintbooth	BLDG 2209	SC2209	0	Fiber Filters	Particulate	95%	45%	
Arts & Crafts Center Paintbooth	BLDG 2806	SC2806	51.0	Fiber Filters	Particulate	95%	45%	K8

Table K-4
CY 2005 MUNITIONS AREA COATING SPECIFICATIONS AND USAGE INFORMATION

Paint Description	Product Number	Manufacturer	Usage (gal/yr)	Specific Gravity	Density (lb/gal)
BUILDING 3016					
ENAMEL TOPCOATS					
Enamel, Olive Drab	8010-00-848-9272	LHB Industries	1.25	0.95	7.92
Enamel, White	8010-01-331-6106	LHB Industries	1.25	0.95	7.92
Enamel, Flat Black	8010-01-331-6108	LHB Industries	0.86	0.98	8.15
Enamel	8010-01-331-6110	LHB Industries	1.13	0.95	7.92
Enamel, Yellow	8010-01-331-6115	LHB Industries	0.77	0.76	6.38
Enamel, Orange	8010-01-336-3981	LHB Industries	1.13	0.75	6.25
Brown, Compound	8010-00-582-4743	LHB Industries	1.25	1.07	8.91
Total			7.63		
BUILDING 3018					
ENAMEL TOPCOATS					
Enamel	8010-01-331-6110	LHB Industries	1.13	0.95	7.92
Enamel, Olive Aerosol	8010-01-331-6113	LHB Industries	1.25	1.01	8.42
Brown, Compound	8010-00-582-4743	LHB Industries	1.25	1.07	8.91
Enamel, Blue	8010-01-331-6118	LHB Industries	0.25	0.75	6.24
Subtotal			3.88		
Total			11.5		

Table K-5
CY 2005 TOUCH-UP COATING SPECIFICATIONS AND USAGE INFORMATION (BUILDINGS 3023, 1359)

Paint Description	Product Number	Manufacturer	Usage (gal/yr)	Specific Gravity	Density (lb/gal)
		BUILDING 3023			
	ENAMEL TOPCOATS				
Enamel, Gray Aerosol	8010-01-167-1139	LHB Industries	0.875	0.95	7.89
Brown, Compound	8010-00-582-4743	LHB Industries	1.25	1.07	8.91
Enamel, Olive Drab	8010-00-848-9272	LHB Industries	1.25	0.95	7.92
Enamel, Clear	8010-01-331-6122	LHB Industries	1.13	1.00	8.33
	8010-01-397-3979	Deft	7.00	1.25	10.40
	LACQUER TOPCOATS				
Primer, Activator	8010-01-441-6030	Desoto Internationl, Inc	0.04	1.51	12.61
Primer All PU Gray	8010-00-616-9181	LHB Industries	0.875	1.04	8.67
Subtotal			12.41		
		BUILDING 1359			
	ENAMEL TOPCOATS				
Enamel, Red	8010-01-331-6109	LHB Industries	1.13	1.06	8.85
Enamel, Black	8010-01-331-6108	LHB Industries	0.86	0.82	6.83
Enamel, Yellow	8010-01-331-6115	LHB Industries	0.77	0.81	6.76
Enamel, Blue	8010-013-31-6119	LHB Industries	1.13	1.00	8.35
Coating, Green	8010-01-441-6006	Desoto Internationl, Inc	0.02	1.20	10.05
	LACQUER TOPCOATS				
Primer, Activator	8010-01-441-6030	Desoto Internationl, Inc	0.04	1.51	12.61
Subtotal			3.94		
Total			16.4		

Table K-8
CY 2005 SPECIFICATIONS AND COATING USAGE (BUILDING 2806)

Paint Description	Product Number	Manufacturer	Usage (gal/yr)	Specific Gravity	Density (lb/gal)
ARTS & CRAFTS CENTER PAINTBOOTH (BLDG 2806)					
Lacquer, Semi Gloss	571-0135-60	Lacquer	47.00	0.69	5.78
Laquer, Thinner	Woodhob2	Lacquer	4.00	1.00	8.34
Total			51.0		

2005 Actual Emissions

Table K-9

Calculation Name: SURFACE COATING

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	PM10	PARTICULATE MATTER <10UM (PM10)	0.3862	0.000193
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	PM10	PARTICULATE MATTER <10UM (PM10)	0.1605	0.00008
ICP1202149---SC3023	PAINTING OPERATIONS	149	PM10	PARTICULATE MATTER <10UM (PM10)	2.7193	0.001359
ICP1202133---SC1359	STENCILING	133	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	PM10	PARTICULATE MATTER <10UM (PM10)	1.3518	0.000676
ICP1192354---SC2806	211A: WOOD FINISHING	354	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP12011168--SC1100	PAINTING	1168	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	PM10	PARTICULATE MATTER <10UM (PM10)	21.1106	0.010554
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	PM10	PARTICULATE MATTER <10UM (PM10)	37.2007	0.0186
				Sum CAS: PM10	**62.9291**	**0.031462**
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	16.9799	0.008491
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	6.6108	0.003306
ICP1202149---SC3023	PAINTING OPERATIONS	149	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	24.9108	0.012457
ICP1202133---SC1359	STENCILING	133	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	2.361	0.001181
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	70.2471	0.035124
ICP1192354---SC2806	211A: WOOD FINISHING	354	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	18.4923	0.009246
ICP12011168--SC1100	PAINTING	1168	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	8.3426	0.004172
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	4.1938	0.002098
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	7.2646	0.003632
				Sum CAS: VOC	**159.4029**	**0.079707**

2005 HAP Actual Emissions

Table K-10

Calculation Name: SURFACE COATING

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	100414	ETHYLBENZENE	0.0173	0.000009
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	100414	ETHYLBENZENE	0	0
ICP1202149---SC3023	PAINTING OPERATIONS	149	100414	ETHYLBENZENE	0.1621	0.000081
ICP1202133---SC1359	STENCILING	133	100414	ETHYLBENZENE	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	100414	ETHYLBENZENE	0.1505	0.000075
ICP1192354---SC2806	211A: WOOD FINISHING	354	100414	ETHYLBENZENE	0	0
ICP12011168--SC1100	PAINTING	1168	100414	ETHYLBENZENE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	100414	ETHYLBENZENE	0.1619	0.00008
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	100414	ETHYLBENZENE	0.6493	0.000326
				Sum CAS: 100414	1.1411	0.000571
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	108883	TOLUENE	0.4159	0.000208
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	108883	TOLUENE	0.1944	0.000097
ICP1202149---SC3023	PAINTING OPERATIONS	149	108883	TOLUENE	2.1212	0.001061
ICP1202133---SC1359	STENCILING	133	108883	TOLUENE	0.0222	0.000011
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	108883	TOLUENE	0.0138	0.000007
ICP1192354---SC2806	211A: WOOD FINISHING	354	108883	TOLUENE	0	0
ICP12011168--SC1100	PAINTING	1168	108883	TOLUENE	0.0871	0.000044
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	108883	TOLUENE	0.2043	0.000103
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	108883	TOLUENE	0.0523	0.000026
				Sum CAS: 108883	3.1112	0.001557
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	1330207	XYLENE (MIXED)	0.7007	0.000352
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	1330207	XYLENE (MIXED)	0.08	0.00004
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	1330207	XYLENE (MIXED)	0.0275	0.000014
ICP1202149---SC3023	PAINTING OPERATIONS	149	1330207	XYLENE (MIXED)	1.8107	0.000906
ICP1202133---SC1359	STENCILING	133	1330207	XYLENE (MIXED)	0.2376	0.000118
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	1330207	XYLENE (MIXED)	0.4966	0.000249
ICP1192354---SC2806	211A: WOOD FINISHING	354	1330207	XYLENE (MIXED)	0	0
ICP12011168--SC1100	PAINTING	1168	1330207	XYLENE (MIXED)	0.0912	0.000046
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	1330207	XYLENE (MIXED)	0.235	0.000118
				Sum CAS: 1330207	3.6793	0.001843

ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	123319	HYDROQUINONE	0	0
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	123319	HYDROQUINONE	0	0
ICP1202149---SC3023	PAINTING OPERATIONS	149	123319	HYDROQUINONE	0	0
ICP1202133---SC1359	STENCILING	133	123319	HYDROQUINONE	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	123319	HYDROQUINONE	0	0
ICP1192354---SC2806	211A: WOOD FINISHING	354	123319	HYDROQUINONE	0	0
ICP12011168--SC1100	PAINTING	1168	123319	HYDROQUINONE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	123319	HYDROQUINONE	0	0
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	123319	HYDROQUINONE	0	0
				Sum CAS: 123319	0	0
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	108101	METHYL ISOBUTYL KETONE	0.0453	0.000023
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	108101	METHYL ISOBUTYL KETONE	0.0275	0.000014
ICP1202149---SC3023	PAINTING OPERATIONS	149	108101	METHYL ISOBUTYL KETONE	0.1664	0.000083
ICP1202133---SC1359	STENCILING	133	108101	METHYL ISOBUTYL KETONE	0.0399	0.000019
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	108101	METHYL ISOBUTYL KETONE	0.6967	0.000349
ICP1192354---SC2806	211A: WOOD FINISHING	354	108101	METHYL ISOBUTYL KETONE	0	0
ICP12011168--SC1100	PAINTING	1168	108101	METHYL ISOBUTYL KETONE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	108101	METHYL ISOBUTYL KETONE	11.1705	0.005586
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	108101	METHYL ISOBUTYL KETONE	9.8163	0.004908
				Sum CAS: 108101	21.9626	0.010982

Table K-11 CY 2005 PTE ASSUMPTIONS FROM SURFACE COATING OPERATIONS			
APIMS PROCESS ID	Source ID	Assumptions for PTE Criteria emissions	Assumptions for PTE HAP emissions
PC-10071167--SC2209	SC2209	Kp/a=1.5	Kp/a=1.5
PC-1007354---SC2806	SC2806	Kp/a=1.5	Kp/a=1.5
PC-1005149---SC3023	SC3023	Kp/a=1.5	Kp/a=1.5
PC-1005421---SC3016	SC3016	Kp/a=1.5	Kp/a=1.5
PC-10051231--SC3018	SC3018	Kp/a=1.5	Kp/a=1.5
PC-1005146---SC1340	SC1340	Kp/a=1.5	Kp/a=1.5
PC-1030133---SC1359	SC1359	Kp/a=1.5	Kp/a=1.5

Key:
PTC = Permit To Construct

2005 Potential Emissions

Table K-12

Calculation Name: SURFACE COATING

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	PM10	PARTICULATE MATTER <10UM (PM10)	0.5793	0.0002895
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	PM10	PARTICULATE MATTER <10UM (PM10)	0.24075	0.00012
ICP1202149---SC3023	PAINTING OPERATIONS	149	PM10	PARTICULATE MATTER <10UM (PM10)	4.07895	0.0020385
ICP1202133---SC1359	STENCILING	133	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	PM10	PARTICULATE MATTER <10UM (PM10)	5.691078	0.00284596
ICP1192354---SC2806	211A: WOOD FINISHING	354	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP12011168--SC1100	PAINTING	1168	PM10	PARTICULATE MATTER <10UM (PM10)	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	PM10	PARTICULATE MATTER <10UM (PM10)	88.875626	0.04443234
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	PM10	PARTICULATE MATTER <10UM (PM10)	156.614947	0.078306
				Sum CAS: PM10	**256.080651**	**0.1280323**
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	25.46985	0.0127365
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	9.9162	0.004959
ICP1202149---SC3023	PAINTING OPERATIONS	149	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	37.3662	0.0186855
ICP1202133---SC1359	STENCILING	133	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	3.5415	0.0017715
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	295.740291	0.14787204
ICP1192354---SC2806	211A: WOOD FINISHING	354	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	27.73845	0.013869
ICP12011168--SC1100	PAINTING	1168	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	35.122346	0.01756412
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	17.655898	0.00883258
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	VOC	VOLATILE ORGANIC COMPOUNDS (VOC)	30.583966	0.01529072
				Sum CAS: VOC	**483.134701**	**0.24158096**

2005 HAP Potential Emissions

Table K-13

Calculation Name: SURFACE COATING

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	100414	ETHYLBENZENE	0.02595	0.0000135
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	100414	ETHYLBENZENE	0	0
ICP1202149---SC3023	PAINTING OPERATIONS	149	100414	ETHYLBENZENE	0.24315	0.0001215
ICP1202133---SC1359	STENCILING	133	100414	ETHYLBENZENE	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	100414	ETHYLBENZENE	0.633605	0.00031575
ICP1192354---SC2806	211A: WOOD FINISHING	354	100414	ETHYLBENZENE	0	0
ICP12011168--SC1100	PAINTING	1168	100414	ETHYLBENZENE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	100414	ETHYLBENZENE	0.681599	0.0003368
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	100414	ETHYLBENZENE	2.733553	0.00137246
				Sum CAS: 100414	**4.317857**	**0.00216001**
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	108883	TOLUENE	0.62385	0.000312
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	108883	TOLUENE	0.2916	0.0001455
ICP1202149---SC3023	PAINTING OPERATIONS	149	108883	TOLUENE	3.1818	0.0015915
ICP1202133---SC1359	STENCILING	133	108883	TOLUENE	0.0333	0.0000165
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	108883	TOLUENE	0.058098	0.00002947
ICP1192354---SC2806	211A: WOOD FINISHING	354	108883	TOLUENE	0	0
ICP12011168--SC1100	PAINTING	1168	108883	TOLUENE	0.366691	0.00018524
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	108883	TOLUENE	0.860103	0.00043363
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	108883	TOLUENE	0.220183	0.00010946
				Sum CAS: 108883	**5.635625**	**0.0028233**
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	1330207	XYLENE (MIXED)	1.05105	0.000528
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	1330207	XYLENE (MIXED)	0.12	0.00006
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	1330207	XYLENE (MIXED)	0.04125	0.000021
ICP1202149---SC3023	PAINTING OPERATIONS	149	1330207	XYLENE (MIXED)	2.71605	0.001359
ICP1202133---SC1359	STENCILING	133	1330207	XYLENE (MIXED)	1.000296	0.00049678
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	1330207	XYLENE (MIXED)	0.7449	0.0003735
ICP1192354---SC2806	211A: WOOD FINISHING	354	1330207	XYLENE (MIXED)	0	0
ICP12011168--SC1100	PAINTING	1168	1330207	XYLENE (MIXED)	0.383952	0.00019366
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	1330207	XYLENE (MIXED)	0.98935	0.00049678
				Sum CAS: 1330207	**7.046848**	**0.00352872**

2005 HAP Potential Emissions

Table K-13

Calculation Name: SURFACE COATING

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	123319	HYDROQUINONE	0	0
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	123319	HYDROQUINONE	0	0
ICP1202149---SC3023	PAINTING OPERATIONS	149	123319	HYDROQUINONE	0	0
ICP1202133---SC1359	STENCILING	133	123319	HYDROQUINONE	0	0
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	123319	HYDROQUINONE	0	0
ICP1192354---SC2806	211A: WOOD FINISHING	354	123319	HYDROQUINONE	0	0
ICP12011168--SC1100	PAINTING	1168	123319	HYDROQUINONE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	123319	HYDROQUINONE	0	0
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	123319	HYDROQUINONE	0	0
				Sum CAS: 123319	0	0
ICP1202421---SC3016	STENCILING AND SPRAY PAINTING	421	108101	METHYL ISOBUTYL KETONE	0.06795	0.0000345
ICP12021231--SC3018	TOUCH-UP INSPECTION - BLDG 3018	1231	108101	METHYL ISOBUTYL KETONE	0.04125	0.000021
ICP1202149---SC3023	PAINTING OPERATIONS	149	108101	METHYL ISOBUTYL KETONE	0.2496	0.0001245
ICP1202133---SC1359	STENCILING	133	108101	METHYL ISOBUTYL KETONE	0.05985	0.0000285
ICP11921172--SCFLIGH	SURFACE COATING OPERATIONS FOR FLIGHTLINE BASEWIDE	1172	108101	METHYL ISOBUTYL KETONE	2.933107	0.00146929
ICP1192354---SC2806	211A: WOOD FINISHING	354	108101	METHYL ISOBUTYL KETONE	0	0
ICP12011168--SC1100	PAINTING	1168	108101	METHYL ISOBUTYL KETONE	0	0
ICP12021173--SC1330	460A: SC1330.2 - SURF - PARTS BOOTH BLDG 1330	1173	108101	METHYL ISOBUTYL KETONE	47.027805	0.02351706
ICP12021174--SC1330	460A: SC1330.1 - SURF - AIRCRAFT BOOTH BLDG 1330	1174	108101	METHYL ISOBUTYL KETONE	41.326623	0.02066268
				Sum CAS: 108101	**91.706185**	**0.04585753**

Appendix D.8
Explosive Ordinance Disposa

N.1 Background

Number of EOD categories: 16

Emission Source Type: Fugitive

Emission Source ID: DET

EOD is an event source that occurs as needed to destroy old, highly unstable chemicals and partially armed munitions. Training and demonstrations are also given throughout the year. The type of EOD, quantity, used, and explosive per unit are summarized in Table N-1. The EOD actual event summary for on-base, Juniper Butte, and Saylor Creek Site are presented in Appendix AAA-9.

N.2 Emission Calculation Method

The APIMS standard algorithm code OBOD-01 was identified to calculate criteria and HAP emissions. EPA approved AP-42, Fifth Edition, Volume I Chapter 13 – Explosives Detonation emission factors were utilized to estimate emissions. Note that AP-42, Chapter 15 – Ordinance Detonation were not utilized because the emission factors in this Chapter are under DRAFT review by EPA. Emission factors are presented in Table N-2.

- All munitions with identical National Stock Numbers (NSN) were reviewed for nomenclature (descriptions) consistency and summarized.
- All munitions with identical nomenclature but different NSNs were summarized.
- All munitions of the same caliber (e.g., 7.62, 5.56, 9 mm, 40 mm) and "type" (NATO, blank, link, round, etc.) were grouped and combined.
- All munitions of the same "style" (i.e., smoke grenades, illumination devices, etc.) were grouped together.
- The final listings of munitions were grouped according to their explosive compositions (RDX, TNT, black powder, and smokeless powder), and summarized within these groups.

N.3 Sample Calculations

The following is an example of EOD emission calculations for MHAFB:

- Amount of smokeless powder contained in all ordnance subject to EOD = 0.97 lb/yr.
- CO EF = 0.0385 lb/lb
- Pb EF = 0.0006 lb/lb

N.3.1 CO Calculation

$$\text{CO} = (COEF)(Amountofsmokelesspowder)$$

$$\text{CO} = \left(0.97\frac{lb}{yr}\right)\left(0.0385\frac{lb}{lb}\right) = 0.037\frac{lb}{yr}$$

N.3.2 Pb Calculation

$$\text{Pb} = (PbEF)(Amountofsmokelesspowder)$$

$$\text{CO} = \left(0.97\frac{lb}{yr}\right)\left(0.0006\frac{lb}{lb}\right) = 0.00058\frac{lb}{yr}$$

N.4 Actual Emissions Summary

The APIMS Process ID and actual annual CO and HAP emissions are presented in Tables N-3 and N-4, respectively.

N.5 Potential Emissions Summary

Potential emissions are based on the Base's explosive allocation allowance ($K_{p/a}$=10). The APIMS Process ID and potential annual CO and HAP emissions are summarized in Tables N-5 and N-6, respectively.

Table N-1 SUMMARY OF ACTUAL EOD FOR CY 2005				
NSN	Item	Quantity	Explosive per unit, lb	Total explosive, lb
1305-00-028-6574	.50 Cal Ball Linked	9	0.0342	0.31
1305-01-232-8339	12 GA 7-1/2	5	7.92E-03	0.04
1305-01-486-3731	Avon	0	7.92E-03	0.00
1305-01-486-3732	Popper MK276	0	7.92E-03	0.00
1375-00-028-5192	M5 Firing Device	0	7.73E-07	0.00
1375-00-028-5246	Blasting Time Fuse	600	0.35/50ft	4.20
1375-00-180-9356	Detonating Cord Assy	315	.007/ft	2.21
1375-00-691-1671	M60 Igniters	30	0.0001	0.00
1375-00-088-6691	Chg Demo Shpd M2A3	0	40.0	0.00
1375-00-926-3939	Chg Demo Shpd M2A4	0	30.0	0.00
1375-01-445-9546	Cord Detonating, 200 GPF	19	0.007/ft	0.13
1375-01-037-5428	MK 23 EXROD	0	0.2855	0.00
1375-01-037-5429	MK 24 EXROD	0	1.2	0.00
1375-01-057-6439	Blasting Cap Non-electric M7	30	0.0027	0.08
1375-01-192-9174	M6 Caps	16	0.003	0.05
1375-01-485-0651	Shock Tube	1,031	9.90E-03	16.62
1375-01-389-3854	C-4	4	1.25	5.00
1385-00-605-0253	50 Cal Electric Impulse	23	0.0243	0.56
1305-01-232-8338	CTG 12 Gauge No 00 Buckshot	5	7.92E-03	0.04
1305-01-488-7608	Medium Velocity Blank 12 Gauge	3	7.92E-03	0.02
1330-00-219-8557	Grenade, Hand Incendary AM M14	16	2	32.00
1375-00-621-8373	Cord Assembly, Detonating, Dummy (ft)	250	0.007/ft	1.75
1375-01-486-9430	Charge Demo 1/2 lb Semtrex A	10	0.5	5.00
1385-01-486-3717	UHV	0	7.92E-03	0.00
Subtotal	**Smokeless Powder**			**0.97**
Subtotal	**Black Powder**			**13.29**
Subtotal	**TNT**			**37.00**
Subtotal	**RDX**			**16.75**

Table N-2 EOD EMISSION FACTORS				
Type	Amount used (lb)	Emission Factors (lb/LB)		
		CO	H_2S	Pb
Smokeless Powder	2.00	0.0385	0.0105	0.0006
Black Powder	8.90	0.085	0.012	-
TNT	3.50	0.398	-	-
RDX	27.00	0.098	-	-

Note: Emission factors were obtained from APIMS and reference AP-42, Section 13.3, Table 13.3-1

2005 Actual Emissions

Table N-3

Calculation Name: EOD

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
IWP14331896--	EOD ON-BASE ACTIVITIES - RDX BASED ORDNANCE	1896	630080	CARBON MONOXIDE	1.5032	0.000751
IWP14331980--	EOD ON-BASE ACTIVITIES - TNT BASED ORDNANCE	1980	630080	CARBON MONOXIDE	14.726	0.007363
IWP14331981--	EOD ON-BASE ACTIVITIES - BLACK POWDER ORDNANCE	1981	630080	CARBON MONOXIDE	0.7045	0.000353
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	630080	CARBON MONOXIDE	0.0373	0.000019
				Sum CAS: CO	16.971	0.008486

2005 HAP Actual Emissions

Table N-4

Calculation Name: EOD

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	7439921	LEAD	0.0005	0
IWP14331981--	EOD ON-BASE ACTIVITIES - BLACK POWDER ORDNANCE	1981	7783064	HYDROGEN SULFIDE	0.0995	0.00005
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	7783064	HYDROGEN SULFIDE	0.0101	0.000005
				Sum CAS: 7783064	0.1096	0.000055

2005 Potential Emissions

Table N-5

Calculation Name: EOD

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
IWP14331896--	EOD ON-BASE ACTIVITIES - RDX BASED ORDNANCE	1896	630080	CARBON MONOXIDE	15.032	0.008
IWP14331980--	EOD ON-BASE ACTIVITIES - TNT BASED ORDNANCE	1980	630080	CARBON MONOXIDE	147.26	0.074
IWP14331981--	EOD ON-BASE ACTIVITIES - BLACK POWDER ORDNANCE	1981	630080	CARBON MONOXIDE	7.045	0.004
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	630080	CARBON MONOXIDE	0.373	0.000
				Sum CAS: CO	169.71	0.085

2005 HAP Potential Emissions

Table N-6

Calculation Name: EOD

Process ID	Process Name	Unique Process ID	CAS No.	Chem. Name	Emissions (LBS)	Emissions (Ton)
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	7439921	LEAD	0.005	0.000
IWP14331981--	EOD ON-BASE ACTIVITIES - BLACK POWDER ORDNANCE	1981	7783064	HYDROGEN SULFIDE	0.995	0.001
IWP14331982--	EOD ON-BASE ACTIVITIES - SMOKELESS POWDER ORDNANCE	1982	7783064	HYDROGEN SULFIDE	0.101	0.000
				Sum CAS: 7783064	1.096	0.001