APPENDIX A

CONTROL EQUIPMENT BREAKDOWN BY POLLUTANT

Appendix A
Control Equipment Breakdown in Databases for CO, CT, FL, IN, and WI

Control Equip-ment Code	Control Equipment Description	Used?	Total Plants	Total Points	Total Pollutants	Breakdown by Pollutant				
						VOC	TSP	SO_2	CO	NO_x
000	No Equipment	No	1070	4473	12473	3743	1765	2280	2304	2381
001	Wet scrubber, high efficiency	Yes	159	313	326	19***	280*	25**	2	0
002	Wet scrubber, medium efficiency	Yes	65	114	123	11***	92*	16**	1	3
003	Wet scrubber, low efficiency	Yes	38	64	70	6***	47*	15**	1	1
004	Gravity collector, high efficiency	Yes	13	17	17	0	17*	0	0	0
005	Gravity collector, medium efficiency	Yes	42	71	71	1	70*	0	0	0
006	Gravity collector, low efficiency	Yes	31	42	43	0	41*	0	1	1
007	Centrifugal collector, high efficiency	Yes	126	211	228	4	211*	5	4	4
008	Centrifugal collector, medium efficiency	Yes	136	197	205	1	196*	2	2	4
009	Centrifugal collector, low efficiency	Yes	42	59	59	0	59*	0	0	0
010	Electrostatic precipitator, high efficiency	Yes	119	252	259	1	252*	3	2	1
011	Electrostatic precipitator, medium efficiency	Yes	12	22	22	0	22*	0	0	0
012	Electrostatic precipitator, low efficiency	Yes	8	16	16	0	16*	0	0	0
013	Gas scrubber, general	Yes	22	31	37	6***	19*	10**	0	2
014	Mist eliminator, high velocity	Yes	20	41	43	4***	38*	1	0	0
015	Mist eliminator, low velocity	Yes	12	19	22	5***	14*	1	1	1
016	Fabric filter, high temperature	Yes	170	270	273	1	268*	4	0	0
017	Fabric filter, medium temperature	Yes	368	1034	1042	3	1029*	8	1	1
018	Fabric filter, low temperature	Yes	552	1388	1402	7	1383*	6	2	4
019	Catalytic afterburner	Yes	74	171	240	162*	22***	16	18*	22
020	Catalytic afterburner heat exchanger	Yes	34	80	80	79*	0	0	0	1
`021	Direct flame afterburner	Yes	164	241	272	171*	66**	2	28*	5

Control Equip-ment Code	Control Equipment Description	Used?	Total Plants	Total Points	Total Pollutants	Breakdown by Pollutant				
						VOC	TSP	SO_2	CO	NO_x
022	Direct flame afterburner	Yes	33	63	67	60*	4**	0	3*	0
023	Flaring	Yes	24	39	42	30*	0	0	12*	0
024	Modified furnace/burner design	No	27	41	48	6	3	1	4	34
025	Staged combustion	No	10	14	15	2	0	0	1	12
026	Flue gas recirculation	No	4	8	12	5	1	1	1	4
027	Reduc combustion air preheat	No	1	3	3	0	0	0	0	3
028	Steam or water injection	Yes	14	21	21	0	0	0	0	21*
029	Low excess air firing	No	7	19	19	1	0	0	2	16
030	Fuel low nitrogen content	No	1	2	2	0	0	0	0	2
031	Air injection	No	0	0	0	0	0	0	0	0
032	Ammonia injection	Yes	1	1	1	0	0	0	0	1*
033	Control of percent O_2 in combustion air	No	4	6	10	4	0	0	6	0
034	Well lord/sodium sulf scrb	No	0	0	0	0	0	0	0	0
035	Magnesium oxide scrubbing	No	0	0	0	0	0	0	0	0
036	Dual alkali scrubbing	Yes	2	5	5	0	0	5*	0	0
037	Citrate process scrubbing	No	0	0	0	0	0	0	0	0
038	Ammonia scrubbing	No	0	0	0	0	0	0	0	0
039	Catalytic oxidation flue gas desulfurization	Yes	1	1	1	0	0	1*	0	0
040	Alkalized alumina vapor space tank	No	0	0	0	0	0	0	0	0
041	Dry limestone injection	Yes	6	12	12	0	0	12*	0	0
042	Wet limestone injection roof tank	Yes	2	5	5	0	3	2*	0	0
043	Sulfuric acid plant contact process	Yes	1	1	1	0	0	1*	0	0
044	Sulfuric acid plant double contact process	Yes	7	16	16	0	0	16*	0	0
045	Sulfuric plant	Yes	4	6	6	0	0	6*	0	0
046	Process change	No	22	54	85	22	28	11	9	16

Control Equip-ment Code	Control Equipment Description	Used?	Total Plants	Total Points	Total Pollutants	Breakdown by Pollutant				
						VOC	TSP	SO_2	CO	NO_x
047	Vapor recovery system	Yes	72	172	172	171*	0	0	0	1
048	Activated carbon adsorption	Yes	38	50	50	48*	1	0	0	1
049	Liquid filtration system	Yes	2	2	2	0	2*	0	0	0
050	Packed gas absorber column	Yes	6	11	12	2	5***	2***	0	3
051	Tray type gas absorb column	Yes	3	3	3	0	2***	1***	0	0
052	Spray tower	Yes	4	4	4	1	3*	0	0	0
053	Venturi scrubber	Yes	49	88	117	16***	73*	22**	1	5
054	Process enclosed	No	72	117	125	10	106	2	4	3
055	Impingement plate scrubber	Yes	3	3	3	0	3*	0	0	0
056	Dynamic separator (dry)	Yes	10	11	11	5***	5*	0	0	1
057	Dynamic separator (wet)	No	0	0	0	0	0	0	0	0
058	Mat or panel filter	Yes	55	82	83	16**	67*	0	0	0
059	Metal fabric filter screen	Yes	10	13	16	3	13	0	0	0
060	Process gas recovery	No	2	4	4	4	0	0	0	0
061	Dust suppression water spray	No	349	475	476	2	474	0	0	0
062	Dust suppr./chemical stabiliers/wet agents	No	48	71	71	0	71	0	0	0
063	Gravel bed filter	Yes	2	2	2	0	2*	0	0	0
064	Annular ring filter	No	0	0	0	0	0	0	0	0
065	Catalytic	Yes	16	53	102	26*	0	0	24*	52*
066	Molecular sieve	No	0	0	0	0	0	0	0	0
067	Wet lime slurry scrubbing	Yes	3	4	4	0	0	4*	0	0
068	Alkaline fly ash scrubbing	Yes	1	1	1	0	0	1*	0	0
069	Sodium carbonate scrubbing	Yes	1	3	3	0	0	3*	0	0
070	Sodium alkali scrubbing	Yes	2	3	3	0	0	3*	0	0
071	Fluid bed dry scrubber	No	0	0	0	0	0	0	0	0

Control Equip-ment Code	Control Equipment Description	Used?	Total Plants	Total Points	Total Pollutants	Breakdown by Pollutant				
						VOC	TSP	SO_2	CO	NO_x
072	Tube and shell condenser	Yes	14	43	44	43*	1	0	0	0
073	Refrigerated condenser	Yes	10	31	31	31*	0	0	0	0
074	Barometric condenser	Yes	2	7	7	6*	1	0	0	0
075	Single cyclone	Yes	45	84	103	5***	82*	6	5	5
076	Multi cyclone without fly ash reinjection	Yes	34	63	67	1***	58*	6	1	1
077	Multi cyclone with fly ash reinjection	Yes	12	19	19	0	19*	0	0	0
078	Baffle	No	10	13	14	2	12	0	0	0
079	Multi cyclone with fly ash reinjection	Yes	2	4	4	0	4*	0	0	0
080	Chemical oxidation	Yes	1	2	2	2*	0	0	0	0
081	Chemical reduction	No	0	0	0	0	0	0	0	0
082	Ozonation	No	0	0	0	0	0	0	0	0
083	Chemical neutralization	Yes	1	1	1	0	1*	0	0	0
084	Activated clay adsorption	No	0	0	0	0	0	0	0	0
085	Wet cyclonic separator	Yes	3	3	3	0	3*	0	0	0
086	Water curtain	Yes	32	41	44	9*	33*	1	1	0
087	Nitrogen blanket	Yes	2	25	25	25*	0	0	0	0
088	Conservation vent	No	3	8	8	8	0	0	0	0
089	Bottom filling	No	1	4	4	4	0	0	0	0
090	Conversion to variable vapor space tank	No	0	0	0	0	0	0	0	0
091	Conversion to floating roof tank	No	17	64	64	64	0	0	0	0
092	Conversion to pressurized tank	No	0	0	0	0	0	0	0	0
093	Submerged filling	No	2	6	6	6	0	0	0	0
094	Underground tank	No	0	0	0	0	0	0	0	0
095	White paint	No	6	40	40	40	0	0	0	0
096	Vapor lock balance recovery	No	1	1	1	1	0	0	0	0

Control Equip-ment Code	Control Equipment Description	Used?	Total Plants	Total Points	Total Pollutants	Breakdown by Pollutant				
						VOC	TSP	SO_2	CO	NO_x
097		No	0	0	0	0	0	0	0	0
098	Moving bed dry scrubber	No	0	0	0	0	0	0	0	0
099	Miscellaneous control device	Yes	89	127	131	39*	79*	9*	1*	3*
100		No	1	2	2	2	0	0	0	0
101	High efficiency particulate air filter	Yes	58	81	84	2***	81*	0	1	0

* Primary pollutant controlled
** Probably regulated
*** May also be controlled with regulation in some cases