Appendix A. Assumptions Used to Calculate Volatile Organic Compound Emissions Reduction Potential and Associated Costs of Control

Control Strategy[a]/ Source Description	Control Technique	Control Efficiency (%)	COST-EFFECTIVENESS[b] Small ($/ton)	Medium ($/ton)	Large ($/ton)
RACT:					
Solvent metal cleaning: large source[c]	Carbon adsorber	54	(288)	(488)	(569)
small source[c]	Carbon adsorber	83	17	17	17
Printing and publishing: large source	Carbon adsorber	85	722	270	26
small source	Carbon adsorber	85	(24)	(24)	(24)
Dry cleaning: large source	Recovery dryers	70	231	(60)	(259)
small source	Recovery dryers	70	3,573	3,573	3,573
Fixed roof tanks-crude oil	Internal floating roof	98	32	(113)	(172)
Fixed roof tanks-gasoline	Internal floating roof	96	(157)	(244)	(279)
External floating roof tanks-crude oil	Secondary seal	90	6,222	8,762	12,025
External floating roof tanks-gasoline	Secondary seal	95	266	631	1,188
Bulk gasoline terminals-splash loading	Submerged load, balanced service carbon absorb, truck test	91	1,639	302	(71)
Bulk gasoline terminals-submerged loading, balanced service	Carbon adsorb, truck test	87	316	(107)	(178)
Bulk gasoline terminals-submerged loading, not balanced	Balanced serv, truck test	79	460	(63)	(241)
Service stations-Stage I	Vapor balance	95	14	14	14
Ethylene oxide manufacture	Incinerator	98	344	331	314
Phenol manufacture	Incinerator	98	1,735	1,351	1,122
Terephthalic acid manufacture	Incinerator	98	942	924	895
Acrylonltrile manufacture	Incinerator	98	210	193	189
SOCMI fugitives	Equipnent & ❑aintenance	37	355	89	24
Petroleum refinery fugitives	Equipment & maintenance	69	(28)	(145)	(191)
Cellulose acetate manufacture	Carbon adsorber	72	6,198	2,093	(54)
Styrene-butadiene rubber manufacture	Incinerator	20	1,647	454	137
Polypropylene manufacture	Flare	98	218	60	18
Polyethylene manufacture	Flare	98	267	74	22
Ethylene manufacture	Flare	98	57	36	25
Petroleum refinery wastewater separators	Firebox covers	95	(139)	(153)	(159)
Petroleum refinery vacuum distillation	Firebox piping	100	53	15	3
Vegetable oil processing	Stripper & equipment	42	662	62	(270)
Paint and varnish manufacture	Afterburner	92	492	258	196
Rubber and plastics manufacture[d]	Carbon adsorber	83	566	566	566
Rubber tire manufacture	Carbon adsorber	83	1,569	830	(45)
Green tire spray	Solvent change	90	4	3	2
Carbon black manufacture	Flare	90	2,634	1,049	727
Automobile surface coating	Higher solids coating	88	5,176	6,648	9,146
Beverage can surface coating	Incinerator	57	2,348	1,227	628
General surface coating	Process change	70	810	602	436
Paper surface coating (large source)	Incinerator	90	492	(58)	(204)
(small source)	Incinerator	91	4,277	4,277	4,277
Miscellaneous surface coating	Incinerator	90	3,549	1,837	1,094
Misc. (includes: industrial solvent use and miscellaneous surface coating)[d]	Incinerator	75	7,722	7,722	7,722

Appendix A (continued).

Category Name	Control Technique	Control Efficiency (X)	COST-EFFECTIVENESS: [b] Small ($/ton)	Medium ($/ton)	Large ($/ton)
New CTG's:					
Plastic parts coating		90	2,000[c]	2,000	2,000
Wood furniture coating		90	2,000[c]	2,000	2,000
Coke-oven by-product plants		90	2,000[c]	2,000	2,000
Automobile refinishing	Incinerator	75	7,722	7,722	7,722
Federal Ccmtrols:					
Architectural surface coating[d]	Water-base coating	25	l,000e	1,000	1,000
Commercial and consumer solvent use[d]		90	2,000e	2,000	2,000
Stage I I :[d]	Vapor balance	86	l,000e	1,000	1,000

(Derived from: Battye et al., Alliance Technologies Corporation, "Cost Assessment of Alternative National Ambient Air Quality Standards For Ozone, Draft Report," prepared for the U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Contract No. 68-02-4317, October 1987.)

[a] Strategy Descriptions

RACT = "Reasonable Available Control Technology" on all existing stationary sources that emit more than 25 tons per year of VOC.
New CTG's = new Control Technique Guidelines for existing stationary sources that emit more than 25 tons per year of VOC.
Federal Controls on selected small stationary sources of VOC (consumer and conmmercial solvents, and architectural surface coatings).
Stage II control devices on gas pumps to capture gasoline vapor during motor vehicle refueling.

[b] In our analysis, the cost-effectiveness for sources that emit greater than 50 tons per year of VOC was assumed to vary with changing source size. For sources emitting less than 50 tons per year, we assumed that cost-effectiveness does not change with source size. "Small", "Medium", and "Large" refers to cost-effectiveness for a typical source in these size ranges. Numbers inside parentheses denote a cost savings.
[c] "Large sources" emit more than 50 tons per year of VOC.
"Small sources" emit less than 50 tons per year of VOC.
[d] Sources that emit less than 50 tons per year of VOC.
[e] Cost-effectiveness assumed by OTA.