Source Category	Control Measure Name	= pollutant reduction		ant(s) Af		y pollutant re	duced Efficiency (% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant in 1999\$)
Cattle Feedlots	Chemical Additives to Waste	PM2.5 PM10	EC OC I	NOx VOC		CO Hg	Low Typical High	Low Typical High
					$\sqrt{*}$			
Hog Operations	Chemical Additives to Waste				$\sqrt{*}$		50%	73
Poultry Operations	Chemical Additives to Waste				$\sqrt{*}$		75%	1,014
Agricultural Burning	Seasonal Ban (Ozone Season			1.			100%	N/A
	Daily)			√*				
Ammonia - Natural Gas - Fired Reformers - Small Sources	Oxygen Trim + Water Injection			$\sqrt{*}$			65%	680
Ammonia - Natural Gas - Fired Reformers - Small Sources	Low NOx Burner			$\sqrt{*}$			50%	820
Ammonia - Natural Gas - Fired	Selective Non-Catalytic Reductio	ì					50%	2,900 3,870 3,870
Reformers - Small Sources	(SNCR)			$\sqrt{*}$	Х			
Ammonia - Natural Gas - Fired Reformers - Small Sources	Selective Catalytic Reduction (SCR)			$\sqrt{*}$	х		80%	2,230 2,230 2,860
Ammonia - Natural Gas - Fired Reformers - Small Sources	Low NOx Burner (LNB) + Flue Ga Recirculation (FGR)	IS		$\sqrt{*}$			60%	2,470 2,560 2,560
Ammonia Products; Feedstock	Low NOx Burner + Flue Gas						60%	2,470 2,560 2,560
Desulfurization - Small Sources	Recirculation			√*				
Asphaltic Conc; Rotary Dryer; Conv Plant - Small Sources	Low NOx Burner			$\sqrt{*}$			50%	2,200

Appendix C - Control Measure Summary List by Source Category - Sorted alphabetically by Pollutant and Source Category

Source Category	Control Measure	$\sqrt{1}$ = pollutant reduc			-	s) Af			pollut	ant rodu	iced	Control Efficiency		ige Annua ffectivene	
oouroe outegory	Name		,uon, 7	- poi	Iutant	ncieas	c, - r	ninai y	poliute			% from baseline)		primary poll	
		PM2.5 PM10	EC	ос	NOx	voc	SO2	NH3	со	Hg	Low	Typical High	Low	Typical	High
By-Product Coke Manufacturing; Oven Underfiring	Selective Non-Catalytic Reductior (SNCR)	I			√*			х				60%		1,640	
Cement Kilns	Biosolid Injection				√*							23%		310	
Cement Manufacturing - Dry	Low NOx Burner				√*							25%	300	440	620
Cement Manufacturing - Dry	Mid-Kiln Firing				√*							25%	-460	55	730
Cement Manufacturing - Dry	Selective Catalytic Reduction (SCR)				√*			х				80%		3,370	
Cement Manufacturing - Dry	Selective Non-Catalytic Reductior (SNCR) Ammonia Based	I			√*			х				50%		850	
Cement Manufacturing - Dry	Selective Non-Catalytic Reductior (SNCR) Urea Based	I			√*			х				50%		770	
Cement Manufacturing - Wet	Low NOx Burner				√*							25%	300	440	620
Cement Manufacturing - Wet	Mid-Kiln Firing				√*							25%	-460	55	730
Cement Manufacturing - Wet - Large Sources	Selective Catalytic Reduction (SCR)				√*			х				80%		2,880	
Cement Manufacturing - Wet - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%		2,880	

Source Category	Control Measure	= pollutant reduc	utant(polluta	int reduc		Control Efficiency	Ef	ge Annua fectivene	ss
	Name	PM2.5 PM10		VOC	SO 2		<u> </u>	Hg		6 from baseline) Typical High		primary poll Typical	
Ceramic Clay Manufacturing; Drying - Small Sources	Low NOx Burner		√*	VUC	302	NIIS	0	пу	LOW	50%	LOW	2,200	ngn
Coal Cleaning-Thrml Dryer; Fluidized Bed - Small Sources	Low NOx Burner		√*							50%		1,460	
Coal-fired Plants with Production Capacities>100MW	Combustion Optimization		√*							20%		-25	
Combustion Turbines - Jet Fuel - Small Sources	Selective Catalytic Reduction (SCR) + Water Injection		√*							90%		2,300	
Combustion Turbines - Jet Fuel - Small Sources	Water Injection		√*							68%		1,290	
Combustion Turbines - Natural Gas - Large Sources	Dry Low NOx Combustors		√*							50%	100	100	140
Combustion Turbines - Natural Gas - Small Sources	Water Injection		√*							76%		1,510	
Combustion Turbines - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR) + Steam Injection		√*			х				95%	2,010	2,010	8,960
Combustion Turbines - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR) + Low NOx Burner (LNB)		$\sqrt{*}$			х				94%	2,570	2,570	19,120
Combustion Turbines - Natural Gas - Small Sources	Dry Low NOx Combustors		√*							84%	490	490	540
Combustion Turbines - Natural Gas - Small Sources	Steam Injection		$\sqrt{*}$							80%		1,040	

Source Category	Control Measure	= pollutant red			•	s) Af increas		ced	Control Efficiency		ge Annua fectivene				
	Name											% from baseline)		primary poll	
Combustion Turbines - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR) + Water Injection	PM2.5 PM ⁴	10 EC	OC	NOx √*	VOC	SO2	NH3	CO	Hg	Low	7 Typical High 95%	Low	Typical 2,730	High
Combustion Turbines - Oil - Small Sources	Selective Catalytic Reduction (SCR) + Water Injection				√*							90%		2,300	
Combustion Turbines - Oil - Small Sources	Water Injection				√*							68%		1,290	
Commercial/Institutional - Natural Gas	Water Heaters + LNB Space Heat	ers			√*							7%		1,230	
Commercial/Institutional - Natural Gas	Water Heater Replacement				√*							7%		N/A	
Commercial/Institutional Incinerators	Selective Non-Catalytic Reduction (SNCR)				√*			х				45%		1,130	
Conv Coating of Prod; Acid Cleaning Bath - Small Sources	Low NOx Burner				√*							50%		2,200	
Fiberglass Manufacture; Textile-Type; Recuperative Furnaces	Low NOx Burner				$\sqrt{*}$							40%		1,690	
Fluid Catalytic Cracking Units - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							55%	1,430	3,190	3,190
Fuel Fired Equipment - Process Heaters	Low Nox Burner + Flue Gas Recirculation				√*							50%		570	

Source Category	Control Measure Name	Pollu $\sqrt{1}$ = pollutant reduction, X = po	Itant(s) Affecte ollutant increase, * = p		Control Efficiency (% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant)
Fuel Fired Equipment; Furnaces; Natural Gas	Low NOx Burner	PM2.5 PM10 EC OC	; NOX VOC SO2 $\sqrt{*}$	NH3 CO Hg LO	w Typical High	Low Typical High 570
Glass Manufacturing - Containers	Selective Catalytic Reduction (SCR)		$\sqrt{\star}$	x	75%	2,200
Glass Manufacturing - Containers	Electric Boost		√*		10%	7,150
Glass Manufacturing - Containers	Cullet Preheat		$\sqrt{*}$		25%	940
Glass Manufacturing - Containers	Low NOx Burner		$\sqrt{*}$		40%	1,690
Glass Manufacturing - Containers	Selective Non-Catalytic Reductio (SNCR)	n	$\sqrt{*}$	x	40%	1,770
Glass Manufacturing - Containers	OXY-Firing		√*		85%	4,590
Glass Manufacturing - Flat	Low NOx Burner		$\sqrt{*}$		40%	700
Glass Manufacturing - Flat	OXY-Firing		$\sqrt{*}$		85%	1,900
Glass Manufacturing - Flat	Electric Boost		√*		10%	2,320
Glass Manufacturing - Flat - Large Sources	Selective Non-Catalytic Reductio (SNCR)	n	$\sqrt{*}$	x	40%	740

Source Category	Control Measure Name	Polli $\sqrt{1}$ = pollutant reduction, X = p	utant(s) Affe		Iced Efficiency (% from baseline)	Average Annual Cost Effectiveness
Glass Manufacturing - Flat - Large Sources	Selective Catalytic Reduction (SCR)	PM2.5 PM10 EC 00	C NOX VOC S $\sqrt{*}$	SO2 NH3 CO Hg X	Low Typical High 75%	(\$/ton primary pollutant) Low Typical High 710
Glass Manufacturing - Flat - Small Sources	Selective Catalytic Reduction (SCR)		√*	x	75%	710
Glass Manufacturing - Flat - Small Sources	Selective Non-Catalytic Reduction (SNCR)	1	√*	Х	40%	740
Glass Manufacturing - Pressed	OXY-Firing		√*		85%	3,900
Glass Manufacturing - Pressed	Selective Catalytic Reduction (SCR)		√*	x	75%	2,530
Glass Manufacturing - Pressed	Low NOx Burner		√*		40%	1,500
Glass Manufacturing - Pressed	Cullet Preheat		√*		25%	810
Glass Manufacturing - Pressed	Electric Boost		√*		10%	8,760
Glass Manufacturing - Pressed	Selective Non-Catalytic Reductior (SNCR)	1	$\sqrt{*}$	x	40%	1,640
ICI Boilers - Coke - Small Sources	Selective Catalytic Reduction (SCR)		$\sqrt{*}$	х	70%	1,260
ICI Boilers - Coke - Small Sources	Low NOx Burner		√*		50%	1,460
ICI Boilers - Distillate Oil - Large Sources	Selective Non-Catalytic Reductior (SNCR)	1	√*	х	50%	^{1,890} 6 of 55

ICI Boilers - Distillate Oil -Small Sources Low NOx Burner

1,180

Source Category	Control Measure	= pollutant reduc			•		f fect se, * = p		polluta	ant redu	ced	Control Efficiency	E	age Annua ffectivene	SS
	Name											% from baseline)		n primary poll	
ICI Boilers - Distillate Oil - Small Sources	Low NOx Burner + Flue Gas Recirculation	PM2.5 PM10) EC	OC	NOx √*	VOC	SO2	NH3	CO	Hg	Low	Typical Hig 60%	h Low 1,090	Typical 2,490	High 2,490
ICI Boilers - Distillate Oil - Small Sources	Selective Non-Catalytic Reduction (SNCR)	1			√*			х				50%	3,470	4,640	4,640
ICI Boilers - Distillate Oil - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%	2,780	2,780	3,570
ICI Boilers - Liquid Waste	Selective Catalytic Reduction (SCR)				√*			х				80%	1,480	1,480	1,910
ICI Boilers - Liquid Waste - Small Sources	Low NOx Burner				$\sqrt{*}$							50%		400	
ICI Boilers - Liquid Waste - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							60%	1,120	1,120	1,080
ICI Boilers - Liquid Waste - Small Sources	Selective Non-Catalytic Reduction (SNCR)	ı			√*			x				50%	1,940	2,580	2,580
ICI Boilers - LPG - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%	2,780	2,780	3,570
ICI Boilers - LPG - Small Sources	Selective Non-Catalytic Reduction (SNCR)	ı			$\sqrt{*}$			х				50%	3,470	4,640	4,640
ICI Boilers - LPG - Small Sources	Low NOx Burner				$\sqrt{*}$							50%		1,180	
ICI Boilers - LPG - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							60%	1,090	2,490	2,490

Source Category	Control Measure Name	$\sqrt{1}$ = pollutant reduction	Pollutant(, X = pollutant	. ,		ollutant reduc	-	Eff	je Annua ectivene	SS
	Name	PM2.5 PM10 E0		VOC SO	о NH3 (CO Hg	(% from baseline) Low Typical Hig		orimary pollu Typical	
ICI Boilers - MSW/Stoker - Small Sources	Selective Non-Catalytic Reduction (SNCR) Urea Based		√*		X	so ng	55%		1,690	ingn
ICI Boilers - Natural Gas - Large Sources	Selective Non-Catalytic Reduction (SNCR)	n	$\sqrt{*}$		х		50%		1,570	
ICI Boilers - Natural Gas - Small Sources	Oxygen Trim + Water Injection		$\sqrt{*}$				65%		680	
ICI Boilers - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR)		$\sqrt{*}$		Х		80%	2,230	2,230	2,860
ICI Boilers - Natural Gas - Small Sources	Selective Non-Catalytic Reduction (SNCR)	n	$\sqrt{*}$		х		50%	2,900	3,870	3,870
ICI Boilers - Natural Gas - Small Sources	Low NOx Burner + Flue Gas Recirculation		$\sqrt{*}$				60%	2,470	2,560	2,560
ICI Boilers - Natural Gas - Small Sources	Low NOx Burner		$\sqrt{*}$				50%		820	
ICI Boilers - Process Gas - Small Sources	Low NOx Burner		√*				50%		820	
ICI Boilers - Process Gas - Small Sources	Oxygen Trim + Water Injection		√*				65%		680	
ICI Boilers - Process Gas - Small Sources	Selective Catalytic Reduction (SCR)		$\sqrt{*}$		х		80%	2,230	2,230	2,860
ICI Boilers - Process Gas - Small Sources	Low NOx Burner + Flue Gas Recirculation		$\sqrt{*}$				60%	2,470	2,560	2,560

Source Category	Control Measure Name	$\sqrt{1}$ = pollutant reduc			-	-	f ect (e, * = p		polluta	ant redu		Control Efficiency		Ef	ge Annua fectivene	ss
	Name		50	~~	Nou	VOO	000		~~	11	- '	% from baseline)			primary poll	
ICI Boilers - Residual Oil - Large Sources	Selective Non-Catalytic Reduction (SNCR)	PM2.5 PM10 וי	EC	OC	NOX √*	VUC	502	Х	co	нд	Low	Typical H 50%	ngn	LOW	Typical 1,050	підп
ICI Boilers - Residual Oil - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%		1,480	1,480	1,910
ICI Boilers - Residual Oil - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							60%		1,120	1,120	1,080
ICI Boilers - Residual Oil - Small Sources	Selective Non-Catalytic Reduction (SNCR)	ı			√*			х				50%		1,940	2,580	2,580
ICI Boilers - Residual Oil - Small Sources	Low NOx Burner				√*							50%			400	
ICI Boilers - Wood/Bark/Stoker - Large Sources	Selective Non-Catalytic Reduction (SNCR) Urea Based	1			√*			х				55%			1,190	
ICI Boilers - Wood/Bark/Stoker - Small Sources	Selective Non-Catalytic Reduction (SNCR) Urea Based	ı			√*			х				55%			1,440	
Industrial Coal Combustion	RACT to 50 tpy (LNB)				√*							21%			1,350	
Industrial Coal Combustion	RACT to 25 tpy (LNB)				√*							21%			1,350	
Industrial Incinerators	Selective Non-Catalytic Reduction (SNCR)	1			√*			x				45%			1,130	
Industrial Natural Gas Combustion	RACT to 50 tpy (LNB)				√*							31%			770	

Source Category	Control Measure Name	= pollutant reduc		•		f ect (e, * = p		polluta	int redu		Control Efficiency % from baseline)	Ef	ge Annua fectivene primary poll	SS
		PM2.5 PM10	EC	NOx	voc	SO2	NH3	со	Hq	Low			Typical	
Industrial Natural Gas Combustion	RACT to 25 tpy (LNB)			√*					•		31%		770	U
Industrial Oil Combustion	RACT to 50 tpy (LNB)			$\sqrt{*}$							36%		1,180	
Industrial Oil Combustion	RACT to 25 tpy (LNB)			√*							36%		1,180	
In-Proc; Process Gas; Coke Oven/Blast Ovens	Low NOx Burner + Flue Gas Recirculation			√*							55%	1,430	3,190	3,190
In-Process Fuel Use - Bituminous Coal - Small Sources	Selective Non-Catalytic Reductio (SNCR)	ı		$\sqrt{*}$			x				40%		1,260	
In-Process Fuel Use; Natural Gas - Small Sources	Low NOx Burner			√*							50%		2,200	
In-Process Fuel Use; Residual Oil - Small Sources	Low NOx Burner			√*							37%		2,520	
In-Process; Bituminous Coal; Cement Kilns	Selective Non-Catalytic Reductio (SNCR) Urea Based	n		√*			х				50%		770	
In-Process; Bituminous Coal; Lime Kilns	Selective Non-Catalytic Reductio (SNCR) Urea Based	n		√*			х				50%		770	
In-Process; Process Gas; Coke Oven Gas	Low NOx Burner			√*							50%		2,200	
Internal Combustion Engines - Gas	L-E (Medium Speed)			$\sqrt{*}$							87%		380	

Source Category	Control Measure	$\sqrt{1}$ = pollutant reduc		itant(polluta	int reduc		Control Efficiency	Ef	ge Annua fectivene	ess
	Name		F0 0/					~~			% from baseline)		primary poll	
Internal Combustion Engines - Gas - Large Sources	Air/Fuel + Ignition Retard	PM2.5 PM10	EC OU	νΟX √*	VOC	502	NH3	0	нд	Low	Typical High 30%	150	Typical 460	High 460
Internal Combustion Engines - Gas - Large Sources	Air/Fuel Ratio Adjustment			$\sqrt{*}$							20%		380	
Internal Combustion Engines - Gas - Large Sources	Ignition Retard			$\sqrt{*}$							20%		550	
Internal Combustion Engines - Gas - Small Sources	Air/Fuel + Ignition Retard			$\sqrt{*}$							30%	270	1,440	1,440
Internal Combustion Engines - Gas - Small Sources	Air/Fuel Ratio Adjustment			$\sqrt{*}$							20%		1,570	
Internal Combustion Engines - Gas - Small Sources	Ignition Retard			$\sqrt{*}$							20%		1,020	
Internal Combustion Engines - Oil - Small Sources	Ignition Retard			√*							25%		770	
Internal Combustion Engines - Oil - Small Sources	Selective Catalytic Reduction (SCR)			√*			х				80%		2,340	
Iron & Steel Mills - Annealing	Low NOx Burner (LNB) + SCR			$\sqrt{*}$			х				80%	1,320	1,720	1,720
Iron & Steel Mills - Annealing	Selective Non-Catalytic Reduction (SNCR)	on		√*			х				60%		1,640	
Iron & Steel Mills - Annealing	Low NOx Burner			$\sqrt{*}$							50%		570	

Source Category	Control Measure Name	= pollutant reduc			•	•	f ecte e, * = p		polluta	ant reduc		Control Efficiency	,	Eff	ge Annua fectivene	SS
	Name		50	~~	Nou	Voo	600	NU 10	~~	11		6 from baseline			orimary poll	
Iron & Steel Mills - Annealing	Low NOx Burner + Flue Gas Recirculation	PM2.5 PM10	EC	UC	NOX √*	VUC	502	NHJ	co	Hg	Low	Typical I 60%	ngn	Low 250	750	High 750
Iron & Steel Mills - Annealing - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				85%			3,830	
Iron & Steel Mills - Annealing - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	ve			√*			x				90%		3,720	4,080	4,080
Iron & Steel Mills - Galvanizing	Low NOx Burner				√*							50%			490	
Iron & Steel Mills - Galvanizing	Low NOx Burner + Flue Gas Recirculation				√*							60%		190	580	580
Iron & Steel Mills - Reheating	Low NOx Burner + Flue Gas Recirculation				√*							77%		150	380	380
Iron & Steel Mills - Reheating	Low NOx Burner				√*							66%			300	
Iron & Steel Mills - Reheating	Low Excess Air (LEA)				√*							13%			1,320	
Iron Production; Blast Furnaces; Blast Heating Stoves	Low NOx Burner + Flue Gas Recirculation				√*							77%			380	
Lime Kilns	Selective Non-Catalytic Reduction (SNCR) Urea Based	n			√*			x				50%			770	
Lime Kilns	Selective Catalytic Reduction (SCR)				√*			х				80%			3,370	

Source Category	Control Measure Name	= pollutant reduc			-	s) Af ncreas			polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	SS
Lime Kilns	Selective Non-Catalytic Reduction (SNCR) Ammonia Based	PM2.5 PM10	EC	oc	NOx √*	voc	SO2	NH3 X	со	Hg	•	% from baseline) Typical High 50%	•	primary poll Typical 850	,
Lime Kilns	Mid-Kiln Firing				√*							30%		460	
Lime Kilns	Low NOx Burner				√*							30%		560	
Medical Waste Incinerators	Selective Non-Catalytic Reduction (SNCR)				√*			х				45%		4,510	
Municipal Waste Combustors	Selective Non-Catalytic Reduction (SNCR)				√*			х				45%		1,130	
Natural Gas Production; Compressors - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				20%		1,651	
Nitric Acid Manufacturing - Small Sources	Extended Absorption				√*							95%		480	
Nitric Acid Manufacturing - Small Sources	Non-Selective Catalytic Reduction (NSCR)				√*			х				98%	510	550	710
Nitric Acid Manufacturing - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				97%		590	

			P	ollut	ant(s) Af	fect	ed				Control		Avera	ge Annua	al Cost
Source Category		√ = pollutant redu	ction, 2	X = po	llutant i	increas	e, * = p	orimary	polluta	ant redu		Efficienc	-		fectivene	
	Name	PM2.5 PM1		00	Nov	voc	802	NUO	со	Цa	•	% from baseli Typical	,		primary poll Typical	
		PIVIZ.3 PIVIT	U EC	00	NUX	VUC	302	NEIS	00	Hg	LOW	rypical	nıgn	LOW	rypical	nıgn
Open Burning	Episodic Ban (Daily Only)											100%			N/A	
					√*											
Plastics Prod-Specific; (ABS) -	Low NOx Burner + Flue Gas											55%		1,430	3,190	3,190
Small Sources	Recirculation				$\sqrt{*}$							55%		1,430	3,190	3,190
Process Heaters - Distillate Oil - Small Sources	Ultra Low NOx Burner				√*							74%			2,140	
- Sman Sources					N											
Process Heaters - Distillate Oil	Low NOx Burner (LNB) + Selective											92%		9,120	9,120	15,350
- Small Sources	Catalytic Reduction (SCR)				$\sqrt{*}$			Х				/-		-,	-,	
Process Heaters - Distillate Oil - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				75%			9,230	
Process Heaters - Distillate Oil	Catalytic Reduction (SCR) Selective Catalytic Reduction											75%		-, -	9,230	-,

Source Category	Control Measure Name	= pollutant reduct		utant(polluta	ant reduc		Control Efficiency	I	age Annua Effectivene	ess
	Name							~~			6 from baseline)		n primary pol	
Process Heaters - Distillate Oil - Small Sources	Selective Non-Catalytic Reduction (SNCR)	PM2.5 PM10	EC O	C NOX √*	voc	SO2	NH3 Х	со	Hg	LOW	Typical Hig 60%	n Low	7 Typical 3,180	Hign
Process Heaters - Distillate Oil - Small Sources	Low NOx Burner + Flue Gas Recirculation			√*							48%	4,250) 4,250	19,540
Process Heaters - Distillate Oil - Small Sources	Low NOx Burner - Selective Non- Catalytic Reduction (SNCR)			$\sqrt{*}$			х				78%	3,620) 3,620	3,830
Process Heaters - Distillate Oil - Small Sources	Low NOx Burner			√*							45%		3,470	
Process Heaters - LPG - Small Sources	Low NOx Burner (LNB) + SNCR			$\sqrt{*}$			х				78%	3,620) 3,620	3,830
Process Heaters - LPG - Small Sources	Selective Non-Catalytic Reduction (SNCR)	1		$\sqrt{*}$			х				60%		3,180	
Process Heaters - LPG - Small Sources	Ultra Low NOx Burner			√*							74%		2,140	
Process Heaters - LPG - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	e		$\sqrt{*}$			х				92%	9,120	9,120	15,350
Process Heaters - LPG - Small Sources	Low NOx Burner + Flue Gas Recirculation			$\sqrt{*}$							48%	4,250) 4,250	19,540
Process Heaters - LPG - Small Sources	Low NOx Burner			$\sqrt{*}$							45%		3,470	
Process Heaters - LPG - Small Sources	Selective Catalytic Reduction (SCR)			$\sqrt{*}$			х				75%		9,230	

Source Category	Control Measure Name	$\sqrt{1}$ = pollutant reduc			•		f ect e, * = p		polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	SS
	Name		50	~~			000		~~		•	% from baseline)		orimary poll	
Process Heaters - Natural Gas - Small Sources	Ultra Low NOx Burner	PM2.5 PM10	EC	0C	NOx √*	voc	502	NH3	0	Hg	LOW	Typical High 75%	LOW	Typical 1,500	пign
Process Heaters - Natural Gas - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	re			√*			х				88%	11,560	11,560	27,910
Process Heaters - Natural Gas - Small Sources	Selective Non-Catalytic Reduction (SNCR)	ı			√*			х				60%		2,850	
Process Heaters - Natural Gas - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							55%	3,190	3,190	15,580
Process Heaters - Natural Gas - Small Sources	Low NOx Burner				√*							50%		2,200	
Process Heaters - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				75%		12,040	
Process Heaters - Natural Gas - Small Sources	Low NOx Burner (LNB) + SNCR				√*			х				80%	3,520	3,520	6,600
Process Heaters - Other Fuel - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	/e			√*			х				91%	5,420	5,420	7,680
Process Heaters - Other Fuel - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				75%		5,350	
Process Heaters - Other Fuel - Small Sources	Low NOx Burner (LNB) + SNCR				√*			х				75%	2,230	2,300	2,860
Process Heaters - Other Fuel - Small Sources	Ultra Low NOx Burner				√*							73%		1,290	

Source Category	Control Measure Name	= pollutant reduc		utant(pollutant				polluta	nt reduc		Control Efficiency % from baseline)	Eff	ge Annua ectivene	SS
	Name	PM2.5 PM10	FC O		voc	SO2	NH3	0.0	Hg	```	Typical High		Typical	
Process Heaters - Other Fuel - Small Sources	Selective Non-Catalytic Reductior (SNCR)		20 0	√*	VOC	302	Х	00	ng	LOW	60%	Low	1,930	ingn
Process Heaters - Other Fuel - Small Sources	Low NOx Burner			$\sqrt{*}$							37%		2,520	
Process Heaters - Other Fuel - Small Sources	Low NOx Burner + Flue Gas Recirculation			$\sqrt{*}$							34%		3,490	
Process Heaters - Process Gas - Small Sources	Low NOx Burner			$\sqrt{*}$							50%		2,200	
Process Heaters - Process Gas - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	e		$\sqrt{*}$			х				88%	11,560	11,560	27,910
Process Heaters - Process Gas - Small Sources	Low NOx Burner (LNB) +Selective Reduction SNCR	9		$\sqrt{*}$			х				80%	3,520	3,520	6,600
Process Heaters - Process Gas - Small Sources	Selective Catalytic Reduction (SCR)			$\sqrt{*}$			х				75%		12,040	
Process Heaters - Process Gas - Small Sources	Ultra Low NOx Burner			$\sqrt{*}$							75%		1,500	
Process Heaters - Process Gas - Small Sources	Selective Non-Catalytic Reductior (SNCR)	1		$\sqrt{*}$			х				60%		2,850	
Process Heaters - Process Gas - Small Sources	Low NOx Burner + Flue Gas Recirculation			$\sqrt{*}$							55%	1,430	3,190	3,190
Process Heaters - Residual Oil - Small Sources	Ultra Low NOx Burner			$\sqrt{*}$							73%		1,290	

Source Category	Control Measure Name	\mathbf{P}	ollutant X = pollutant	• •		, polluta	nt reduced		Control Efficiency	Ef	ge Annua fectivene	SS
	Name	PM2.5 PM10 EC			600 NU2	~~	U	%) L ow	from baseline) Typical High		primary poll	
Process Heaters - Residual Oil - Small Sources	Low NOx Burner + Flue Gas Recirculation	PM2.5 PM10 EC	UC NUX √*		502 NH3		Hg [_0₩	34%	LOW	Typical 3,490	nign
Process Heaters - Residual Oil - Small Sources	Low NOx Burner		√*						37%		2,520	
Process Heaters - Residual Oil - Small Sources	Low NOx Burner (LNB) + SCR		√*		x				75%	2,230	2,300	2,860
Process Heaters - Residual Oil - Small Sources	Low NOx Burner (LNB) + Selectiv Catalytic Reduction (SCR)	re	$\sqrt{*}$		х				91%	5,420	5,420	7,680
Process Heaters - Residual Oil - Small Sources	Selective Non-Catalytic Reduction (SNCR)	n	$\sqrt{*}$		х				60%		1,930	
Process Heaters - Residual Oil - Small Sources	Selective Catalytic Reduction (SCR)		$\sqrt{\star}$		х				75%		5,350	
Residential Natural Gas	Water Heater Replacement		$\sqrt{*}$						7%		N/A	
Residential Natural Gas	Water Heater + LNB Space Heate	ers	√*						7%		1,230	
Rich-Burn Stationary Reciprocating Internal Combustion Engines	Non-selective catalytic reduction		$\sqrt{*}$						90%		342	
Rich-Burn Stationary Reciprocating Internal Combustion Engines	Non-selective catalytic reduction		√*						90%		342	
Rich-Burn Stationary Reciprocating Internal Combustion Engines (RICE)	Non-selective catalytic reduction (NSCR)		$\sqrt{*}$	\checkmark		\checkmark			90%		342	

Source Category	Control Measure	$\sqrt{1}$ = pollutant reduc		lluta = pollu	•	•			polluta	nt redu	ced	Control Efficiency		ge Annua fectivene	
	Name							·				% from baseline)	(\$/ton	primary poll	utant)
		PM2.5 PM10	EC	OC N	NOx	voc	SO2	NH3	со	Hg	Low	Typical Higl	ר Low	Typical	High
Sand/Gravel; Dryer - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							55%	1,430	3,190	3,190
Secondary Aluminum Production; Smelting Furnaces	Low NOx Burner				√*							50%		570	
Solid Waste Disposal; Government; Other	Selective Non-Catalytic Reduction (SNCR)	1			√*			x				45%		1,130	
Space Heaters - Distillate Oil - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							60%	1,090	2,490	2,490
Space Heaters - Distillate Oil - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%	2,780	2,780	3,570
Space Heaters - Distillate Oil - Small Sources	Selective Non-Catalytic Reduction (SNCR)	1			√*			х				50%	3,470	4,640	4,640
Space Heaters - Distillate Oil - Small Sources	Low NOx Burner				√*							50%		1,180	
Space Heaters - Natural Gas - Small Sources	Low NOx Burner				√*							50%		820	
Space Heaters - Natural Gas - Small Sources	Selective Non-Catalytic Reduction (SNCR)	1			√*			х				50%	2,900	3,870	3,870
Space Heaters - Natural Gas - Small Sources	Selective Catalytic Reduction (SCR)				√*			х				80%	2,230	2,230	2,860
Space Heaters - Natural Gas - Small Sources	Low NOx Burner + Flue Gas Recirculation				√*							60%	2,470	2,560	2,560

Source Category	Control Measure Name	Po $\sqrt{1}$ = pollutant reduction, X	llutant(= pollutant			polluta	nt reduced		Control Efficiency	Ef	ge Annua fectivene	SS
		PM2.5 PM10 EC	OC NOx	voc s	O2 NH3	со	Hg	Low			Typical	
Space Heaters - Natural Gas - Small Sources	Oxygen Trim + Water Injection		$\sqrt{*}$				-		65%		680	•
Starch Manufacturing; Combined Operation - Small Sources	Low NOx Burner + Flue Gas Recirculation		v *						55%	1,430	3,190	3,190
Steel Foundries; Heat Treating	Low NOx Burner		$\sqrt{*}$						50%		570	
Steel Production; Soaking Pits	Low NOx Burner + Flue Gas Recirculation		$\sqrt{*}$						60%	250	750	750
Sulfate Pulping - Recovery Furnaces - Small Sources	Selective Non-Catalytic Reduction (SNCR)	ı	$\sqrt{*}$		х				50%	2,900	3,870	3,870
Sulfate Pulping - Recovery Furnaces - Small Sources	Low NOx Burner		$\sqrt{*}$						50%		820	
Sulfate Pulping - Recovery Furnaces - Small Sources	Oxygen Trim + Water Injection		v *						65%		680	
Sulfate Pulping - Recovery Furnaces - Small Sources	Selective Catalytic Reduction (SCR)		$\sqrt{*}$		х				80%	2,230	2,230	2,860
Sulfate Pulping - Recovery Furnaces - Small Sources	Low NOx Burner + Flue Gas Recirculation		√*						60%	2,470	2,560	2,560
Surface Coat Oper; Coating Oven Htr; Nat Gas - Small Sources	Low NOx Burner		$\sqrt{*}$		х				50%		2,200	
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles wi separated Overfire Air (LNC2)	th	$\sqrt{*}$						48%		N/A	

Source Category	Control Measure	= pollutant reduction	Pollut , X = pol	•				polluta	ant redu	ced	Control Efficiency	Average Annual Cost Effectiveness
	Name									,	6 from baseline)	(\$/ton primary pollutant)
		PM2.5 PM10 EC	c oc	NOx	voc	SO2	NH3	со	Hg	Low	Typical High	Low Typical High
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles with cross-Coupled Overfire Air (LNC1)			√*							33%	N/A
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles with separated Overfire Air (LNC2)	h		√*							38%	N/A
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles with Close-Coupled and Separated Overfire Air (LNC3)	h		√*							53%	N/A
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles with cross-Coupled Overfire Air (LNC1)			√*							43%	N/A
Utility Boiler - Coal/Tangential	Low Nox Coal-and-Air Nozzles with Close-Coupled and Separated Overfire Air (LNC3)	h		√*							58%	N/A
Utility Boiler - Coal/Tangential	Selective Non-Catalytic Reduction (SNCR)			√*			х				35%	N/A
Utility Boiler - Coal/Tangential	Selective Catalytic Reduction (SCR)			√*			х		\checkmark		90% (Hg 95%)	N/A
Utility Boiler - Coal/Tangential	Natural Gas Reburn (NGR)			√*							50%	N/A
Utility Boiler - Coal/Wall	Low Nox Burner without Overfire A	ir		√*							41	N/A
Utility Boiler - Coal/Wall	Low Nox Burner with Overfire Air			√*							56%	N/A
Utility Boiler - Coal/Wall	Low Nox Burner with Overfire Air			√*							55%	N/A

Source Category	Control Measure Name	Pollu $\sqrt{1}$ = pollutant reduction, X = po	ollutant (s) Affect		-	Average Annual Cost Effectiveness
Utility Boiler - Coal/Wall	Low Nox Burner without Overfire A	PM2.5 PM10 EC OC Air	NOx VOC SO2	NH3 CO Hg	(% from baseline) Low Typical High 40%	(\$/ton primary pollutant) Low Typical High N/A
Utility Boiler - Coal/Wall	Selective Catalytic Reduction (SCR)		$\sqrt{*}$	х	90%	N/A
Utility Boiler - Coal/Wall	Selective Non-Catalytic Reduction (SNCR)		√*	Х	35%	N/A
Utility Boiler - Coal/Wall	Natural Gas Reburn (NGR)		$\sqrt{*}$		50%	N/A
Utility Boiler - Cyclone	Selective Non-Catalytic Reduction (SNCR)		$\sqrt{*}$	Х	35%	N/A
Utility Boiler - Cyclone	Natural Gas Reburn (NGR)		$\sqrt{*}$		50%	N/A
Utility Boiler - Cyclone	Selective Catalytic Reduction (SCR)		$\sqrt{*}$	Х	80%	N/A
Utility Boiler - Oil- Gas/Tangential	Natural Gas Reburn (NGR)		$\sqrt{*}$		50%	N/A
Utility Boiler - Oil- Gas/Tangential	Selective Catalytic Reduction (SCR)		$\sqrt{*}$	Х	80%	N/A
Utility Boiler - Oil- Gas/Tangential	Selective Non-Catalytic Reduction (SNCR)		$\sqrt{*}$	X	50%	N/A
Utility Boiler - Oil-Gas/Wall	Selective Non-Catalytic Reduction (SNCR)		$\sqrt{*}$	x	50%	N/A

Source Category	Control Measure Name	Pollutant(s) Affected = pollutant reduction, X = pollutant increase, * = primary pollutant reduction PM2.5 PM10 EC OC NOX VOC SO2 NH3 CO Hg											Control Efficiency		Ef	ge Annua fectivene primary poll	ss
Utility Boiler - Oil-Gas/Wall	Natural Gas Reburn (NGR)	PM2.5	5 PM10	EC	oc	NOx √*	voc	SO2	NH3	со	Hg	Low	Typical 50%	,		Typical N/A	
Utility Boiler - Oil-Gas/Wall	Selective Catalytic Reduction (SCR)					√*			х				80%			N/A	
Agricultural Burning	Bale Stack/Propane Burning	\checkmark	√*	\checkmark	\checkmark							49%	63%	63%		2,591	
Agricultural Tilling	Soil Conservation Plans	\checkmark	\checkmark	\checkmark	\checkmark								11.7%			138	
Asphalt Manufacture	Increased Monitoring Frequency (IMF) of PM Controls	√*	√*										6.5%			620	
Asphalt Manufacture	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%			5,200	
Asphalt Manufacture	Paper/Nonwoven Filters - Cartrido Collector Type	ge √	$\sqrt{*}$	\checkmark	\checkmark								99%		85	147	256
Asphalt Manufacture	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%		37	126	303
Asphalt Manufacture	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%		42	117	266
Asphalt Manufacture	Fabric Filter (Reverse-Air Cleaned Type)	d √	√*	\checkmark	\checkmark								99%		53	148	337
Beef Cattle Feedlots	Watering	\checkmark	√*	\checkmark	\checkmark								50%			307	

Source Category	Control Measure Name	= polluta	int reduc			t ant(Ilutant i				polluta	ant redu		Control Efficiency	E	ige Annua ffectivene	ess
	Name	DM2	5 PM10	FC	00	NOv	VOC	6 02		<u> </u>	Ца		% from baseline) / Typical Higl		primary poll Typical	
Chemical Manufacture	Increased Monitoring Frequency (IMF) of PM Controls		J FINITO √*	EC	00	NOX	VOC	302	NHJ		пу	LOW	6.5%		620	mgn
Chemical Manufacture	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Chemical Manufacture	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%	55	220	550
Commercial Institutional Boilers - Coal	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Commercial Institutional Boilers - Coal	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Commercial Institutional Boilers - Coal	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Commercial Institutional Boilers - Coal	Fabric Filter (Reverse-Air Cleane Type)	ed √	$\sqrt{*}$	\checkmark	\checkmark								99%	53	148	337
Commercial Institutional Boilers - Coal	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%	42	117	266
Commercial Institutional Boilers - Liquid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	$\sqrt{*}$										7.7%		5,200	
Commercial Institutional Boilers - Liquid Waste	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Commercial Institutional Boilers - LPG	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	

Source Category	Control Measure	$\sqrt{1}$ = pollutar	nt reduc			t ant(Ilutant i				polluta	ant redu	Control Efficiency	Ef	ge Annua fectivene	SS
	Name	PM2.5	5 PM10	EC	ос	NOx	voc	SO2	NH3	со	Ha	% from baseline) Typical High		primary pollo Typical	
Commercial Institutional Boilers - LPG	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*									 7.7%		5,200	
Commercial Institutional Boilers - Natural Gas	Increased Monitoring Frequency (IMF) of PM Controls	√*	√*									6.5%		620	
Commercial Institutional Boilers - Natural Gas	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	$\sqrt{*}$									7.7%		5,200	
Commercial Institutional Boilers - Oil	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*									7.7%		5,200	
Commercial Institutional Boilers - Oil	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$									6.5%		620	
Commercial Institutional Boilers - Oil	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark							98%	40	110	250
Commercial Institutional Boilers - Process Gas	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*									7.7%		5,200	
Commercial Institutional Boilers - Process Gas	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*									6.5%		620	
Commercial Institutional Boilers - Solid Waste	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{\star}$	$\sqrt{*}$									6.5%		620	
Commercial Institutional Boilers - Solid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	$\sqrt{*}$									7.7%		5,200	
Commercial Institutional Boilers - Wood	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*									7.7%		5,200	

Source Category	Control Measure Name	√ = pollutar	nt reduc			ant(: Iutant i				polluta	ant redu		Control Efficiency		Ef	ge Annua fectivene	SS
	Name	PM2.5	5 PM10	EC	ос	NOx	voc	SO2	NH3	со	Ηα	•	Typical	,		Typical	
Commercial Institutional Boilers - Wood	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%			620	
Commercial Institutional Boilers - Wood/Bark	Fabric Filter (Pulse Jet Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%		42	117	266
Commercial Institutional Boilers - Wood/Bark	Fabric Filter (Reverse-Air Cleaned Type)	d √	√*	\checkmark	\checkmark								99%		53	148	337
Commercial Institutional Boilers - Wood/Bark	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%		40	110	250
Construction Activities	Dust Control Plan	\checkmark	√*	\checkmark	\checkmark								62.5%			3,600	
Conveyorized Charbroilers	Catalytic Oxidizer	$\sqrt{*}$	√*				\checkmark					80%	83%	90%		2,966	
Electric Generation - Coke	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%			5,200	
Electric Generation - Coke	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%			620	
Electric Generation - Bagasse	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	$\sqrt{*}$										7.7%			5,200	
Electric Generation - Bagasse	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%			620	
Electric Generation - Coal	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%			5,200	

Course Cotomore	Control Manager	Pollutant(s) Affected		Average Annual Cost
Source Category	Control Measure Name	= pollutant reduction, X = pollutant increase, * = prime	(% from baseline)	Effectiveness (\$/ton primary pollutant)
Electric Generation - Coal	Increased Monitoring Frequency (IMF) of PM Controls	PM2.5 PM10 EC OC NOX VOC SO2 NH $\sqrt{*}$ $\sqrt{*}$	H3 CO Hg Low Typical High 6.5%	Low Typical High 620
Electric Generation - Liquid Waste	Increased Monitoring Frequency (IMF) of PM Controls	√* √*	6.5%	620
Electric Generation - Liquid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√* √*	7.7%	5,200
Electric Generation - LPG	CEM Upgrade and Increased Monitoring Frequency of PM Controls	* *	7.7%	5,200
Electric Generation - LPG	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$ $\sqrt{*}$	6.5%	620
Electric Generation - Natural Gas	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$ $\sqrt{*}$	7.7%	5,200
Electric Generation - Natural Gas	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$ $\sqrt{*}$	6.5%	620
Electric Generation - Oil	Increased Monitoring Frequency (IMF) of PM Controls	* *	6.5%	620
Electric Generation - Oil	CEM Upgrade and Increased Monitoring Frequency of PM Controls	* *	7.7%	5,200
Electric Generation - Solid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$ $\sqrt{*}$	7.7%	5,200
Electric Generation - Solid Waste	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$ $\sqrt{*}$	6.5%	620

Source Category	Control Measure Name	√ = polluta	nt reduc			t ant(Ilutant				polluta	ant redu		Control Efficiency	E	ge Annua ffectivene	ess
	name	DM2 A	5 PM10	FC	00	NOv	VOC	SO 2	N∐2	00	Ца	Lov	(% from baseline) v Typical High		primary pol	
Electric Generation - Wood	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*	EC	00	NOX	VOC	302	мпэ	00	пу	LOW	7.7%	LOW	5,200	ingn
Electric Generation - Wood	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Fabricated Metal Products - Abrasive Blasting	Paper/Nonwoven Filters - Cartridg Collector Type	je √	√*	\checkmark	V								99%	85	142	256
Fabricated Metal Products - Welding	Paper/Nonwoven Filters - Cartridg Collector Type	je √	√*	\checkmark	\checkmark								99%	85	142	256
Ferrous Metals Processing - Coke	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%		5,200	
Ferrous Metals Processing - Coke	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Ferrous Metals Processing - Coke	Fabric Filter (Mech. Shaker Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%	37	126	303
Ferrous Metals Processing - Coke	Fabric Filter (Reverse-Air Cleaned Type)	i √	√*	\checkmark	\checkmark								99%	53	148	337
Ferrous Metals Processing - Coke	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								93%	75	751	2,100
Ferrous Metals Processing - Ferroalloy Production	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%		5,200	
Ferrous Metals Processing - Ferroalloy Production	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	

Source Category	Control Measure Name	√ = polluta	nt reduc			t ant(Illutant i				, polluta	ant redu		Control Efficiency	E	ige Annua ffectivene	ess
	Name	DMO		50	00	Now	Voo	600		~~~	11	- '	% from baseline)		primary pol	
Ferrous Metals Processing - Ferroalloy Production	Fabric Filter (Reverse-Air Cleaned Type)		5 PM10 √*	v	√	NUX	VUC	502	NH3	co	нд	Low	v Typical High 99%	1 Low 53	Typical 148	High 337
Ferrous Metals Processing - Ferroalloy Production	Dry ESP-Wire Plate Type	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								98%	40	110	250
Ferrous Metals Processing - Ferroalloy Production	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%	37	126	303
Ferrous Metals Processing - Gray Iron Foundries	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%		5,200	
Ferrous Metals Processing - Gray Iron Foundries	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Ferrous Metals Processing - Gray Iron Foundries	Impingement-Plate Scrubber	\checkmark	√*	\checkmark	\checkmark								64%	46	431	1,200
Ferrous Metals Processing - Gray Iron Foundries	Venturi Scrubber	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								94%	76	751	2,100
Ferrous Metals Processing - Gray Iron Foundries	Fabric Filter (Mech. Shaker Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%	37	126	303
Ferrous Metals Processing - Gray Iron Foundries	Fabric Filter (Reverse-Air Cleaned Type)	t √	$\sqrt{*}$	\checkmark	\checkmark								99%	53	148	337
Ferrous Metals Processing - Gray Iron Foundries	Dry ESP-Wire Plate Type	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								98%	40	110	250
Ferrous Metals Processing - Iron & Steel Production	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	

Source Category	Control Measure	√ = polluta	nt reduc			t ant(Ilutant i				, polluta	ant redu		Control Efficiency	,	Ef	ge Annua fectivene	SS
	Name	PM2	5 PM10	FC	00	ΝΟχ	voc	SO2	NH3	00	Hq	,	% from baseline Typical	,		primary poll Typical	
Ferrous Metals Processing - Iron & Steel Production	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*	20	00	NOX	100	002	NII5	00	ng	Low	7.7%	. ng n	Low	5,200	. ngn
Ferrous Metals Processing - Iron and Steel Production	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								73%		76	751	2,100
Ferrous Metals Processing - Iron and Steel Production	Fabric Filter (Pulse Jet Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%		42	117	266
Ferrous Metals Processing - Iron and Steel Production	Fabric Filter (Mech. Shaker Type)) √	√*	\checkmark	\checkmark								99%		37	126	303
Ferrous Metals Processing - Iron and Steel Production	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%		40	110	250
Ferrous Metals Processing - Iron and Steel Production	Wet ESP - Wire Plate Type	\checkmark	√*	V	V								99%		55	220	550
Ferrous Metals Processing - Iron and Steel Production	Fabric Filter (Reverse-Air Cleaner Type)	d√	√*	V	V								99%		53	148	337
Ferrous Metals Processing - Other	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	$\sqrt{*}$										7.7%			5,200	
Ferrous Metals Processing - Other	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%			620	
Ferrous Metals Processing - Steel Foundries	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%			620	
Ferrous Metals Processing - Steel Foundries	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%			5,200	

Source Category	Control Measure Name	= polluta	nt reduc			tant(•			/ pollut	ant redu		Control Efficienc	у	Ef	ge Annua fectivene	ess
	Name	PM2	5 PM10	FC	00	NOx	voc	S02	NH3	00	Hq	Low	6 from baseli Typical	,	(\$/ton Low	primary poll Typical	
Ferrous Metals Processing - Steel Foundries	Venturi Scrubber	√	√*	√	√	NOX	100	002		00	iig	Lon	73%	ingn	76	751	2,100
Ferrous Metals Processing - Steel Foundries	Fabric Filter (Mech. Shaker Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%		37	126	303
Ferrous Metals Processing - Steel Foundries	Wet ESP - Wire Plate Type	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%		55	220	550
Ferrous Metals Processing - Steel Foundries	Dry ESP-Wire Plate Type		√*	\checkmark	\checkmark								98%		40	110	250
Ferrous Metals Processing - Steel Foundries	Fabric Filter (Reverse-Air Cleaned Type)	I √	√*	\checkmark	\checkmark								99%		53	148	337
Ferrous Metals Processing - Steel Foundries	Fabric Filter (Pulse Jet Type)		$\sqrt{*}$	\checkmark	\checkmark								99%		42	117	266
Grain Milling	Fabric Filter (Reverse-Air Cleaned Type)	I √	√*	\checkmark	\checkmark								99%		53	148	337
Grain Milling	Fabric Filter (Pulse Jet Type)		√*	\checkmark	\checkmark								99%		42	117	266
Grain Milling	Paper/Nonwoven Filters - Cartrido Collector Type	je √	$\sqrt{*}$	\checkmark	\checkmark								99%		85	142	256

Source Category	Control Measure Name	√ = pollutar	nt reduc			tant(Illutant i	-			, polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	SS
	Name	PM2.5	5 PM10	EC	ос	NOx	voc	SO2	NH3	со	Hg	•	% from baselin Typical		primary poll Typical	
Industrial Boilers - Coal	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%		5,200	
Industrial Boilers - Coal	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{\star}$	$\sqrt{*}$										6.5%		620	
Industrial Boilers - Coal	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%	42	117	266
Industrial Boilers - Coal	Fabric Filter (Reverse-Air Cleaned Type)	d√	√*	\checkmark	\checkmark								99%	53	148	337
Industrial Boilers - Coal	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								82%	76	751	2,100
Industrial Boilers - Coal	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Industrial Boilers - Coke	CEM Upgrade and Increased Monitoring Frequency of PM Controls	√*	√*										7.7%		5,200	
Industrial Boilers - Coke	Increased Monitoring Frequency (IMF) of PM Controls	√*	√*										6.5%		620	
Industrial Boilers - Liquid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	

Source Category	Control Measure	√ = polluta	nt reduc			ant(s	•			polluta	ant redu	iced	Control Efficiency		ge Annua fectivene	
eeulee eulegery	Name								-			(c	% from baseline)	(\$/ton	primary poll	utant)
Industrial Boilers - Liquid Waste	Increased Monitoring Frequency (IMF) of PM Controls		5 PM10 √*	EC	OC	NOx	voc	SO2	NH3	со	Hg	LOW	Typical High 6.5%	LOW	Typical 620	Hign
Industrial Boilers - Liquid Waste	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Industrial Boilers - LPG	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	*										7.7%		5,200	
Industrial Boilers - LPG	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	
Industrial Boilers - Natural Gas	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Industrial Boilers - Natural Gas	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Industrial Boilers - Oil	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Industrial Boilers - Oil	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Industrial Boilers - Oil	Venturi Scrubber	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								92%	76	751	2,100
Industrial Boilers - Oil	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Industrial Boilers - Process Gas	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	*										7.7%		5,200	

Source Category	Control Measure Name	$\sqrt{1}$ = pollutar	nt reduc			t ant(: Ilutant i	•			polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	ss
	Name	PM2 5	PM10	FC	00	NOv	voc	SO2	NH3	00	Ha	•	% from baseline) Typical High		primary poll Typical	
Industrial Boilers - Process Gas	Increased Monitoring Frequency (IMF) of PM Controls	√*	√*	LU	00	NOX	100	002	NIII	00	119	Low	6.5%	Low	620	ingi
Industrial Boilers - Solid Waste	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Industrial Boilers - Solid Waste	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Industrial Boilers - Wood	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Industrial Boilers - Wood	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	
Industrial Boilers - Wood	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								93%	76	751	2,100
Industrial Boilers - Wood	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Industrial Boilers - Wood	Fabric Filter (Reverse-Air Cleane Type)	d √	√*	\checkmark	\checkmark								99%	53	148	337
Industrial Boilers - Wood	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%	42	117	266
Mineral Products - Cement Manufacture	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Mineral Products - Cement Manufacture	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	

Source Category	Control Measure Name	√ = polluta	nt reduc			t ant(, polluta	ant redu		Control Efficiency	E	ige Annua ffectivene	ess
	Name	DM2 /	5 PM10	EC	00	NOv	VOC	602		<u> </u>	Ца	Low	(% from baseline) / Typical Hig ł		primary pol Typical	High
Mineral Products - Cement Manufacture	Fabric Filter (Mech. Shaker Type)	rwz√	√*	EC √	√	NUX	VUC	302	мпэ	0	пу	LOW	99%	37	126	303
Mineral Products - Cement Manufacture	Fabric Filter (Reverse-Air Cleanec Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%	53	148	337
Mineral Products - Cement Manufacture	Paper/Nonwoven Filters - Cartridg Collector Type	e √	$\sqrt{*}$	\checkmark	\checkmark								99%	85	142	256
Mineral Products - Cement Manufacture	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Mineral Products - Cement Manufacture	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%	42	117	266
Mineral Products - Coal Cleaning	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%		620	
Mineral Products - Coal Cleaning	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Mineral Products - Coal Cleaning	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								99%	76	751	2,100
Mineral Products - Coal Cleaning	Fabric Filter (Mech. Shaker Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%	37	126	303
Mineral Products - Coal Cleaning	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%	42	117	266
Mineral Products - Coal Cleaning	Paper/Nonwoven Filters - Cartridg Collector Type	e √	√*	\checkmark	\checkmark								99%	85	142	256

Source Category	Control Measure Name	$\sqrt{1}$ = pollutar	nt reduc			: ant(: Ilutant i				polluta	ant redu		Control Efficienc	у	Ef	ge Annua fectivene primary pollu	SS
	Name	PM2 5	PM10	FC	00	ΝΟχ	voc	502	NH3	co	На	,	Typical	,		Typical	
Mineral Products - Coal Cleaning	Fabric Filter (Reverse-Air Cleaned Type)		√*	√	√	NOX	VOC	302	NIII	00	ng	LOW	99%	riigii	53	148	337
Mineral Products - Other	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%			5,200	
Mineral Products - Other	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%			620	
Mineral Products - Other	Paper/Nonwoven Filters - Cartridg Collector Type	le √	√*	\checkmark	\checkmark								99%		85	145	256
Mineral Products - Other	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%		55	220	550
Mineral Products - Other	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%		40	110	250
Mineral Products - Other	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark								99%		42	117	266
Mineral Products - Other	Fabric Filter (Reverse-Air Cleaned Type)	I √	√*	\checkmark	\checkmark								99%		53	148	337
Mineral Products - Other	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%		37	126	303
Mineral Products - Stone Quarrying & Processing	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%			620	
Mineral Products - Stone Quarrying & Processing	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%			5,200	

Source Category	= polluta	nt reduc			tant(Illutant i				polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	ess	
	Name	-			~~					~~			(% from baseline)		primary poll	
Mineral Products - Stone Quarrying and Processing	Fabric Filter (Pulse Jet Type)	РМ2. √	5 PM10 √*	FC √	v √	NOX	voc	502	NH3	co	Нg	LOV	v Typical High 99%	Low 42	Typical 117	High 266
Mineral Products - Stone Quarrying and Processing	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Mineral Products - Stone Quarrying and Processing	Venturi Scrubber	\checkmark	√*	\checkmark	\checkmark								95%	76	751	2,100
Mineral Products - Stone Quarrying and Processing	Fabric Filter (Reverse-Air Cleaned Type)	d √	√*	\checkmark	\checkmark								99%	53	148	337
Mineral Products - Stone Quarrying and Processing	Paper/Nonwoven Filters - Cartrido Collector Type	ge √	√*	\checkmark	\checkmark								99%	85	142	256
Mineral Products - Stone Quarrying and Processing	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%	55	220	550
Mineral Products - Stone Quarrying and Processing	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%	37	126	303
Municipal Waste Incineration	Dry ESP-Wire Plate Type	\checkmark	$\sqrt{*}$	\checkmark									98%	40	110	250
Non-Ferrous Metals Processing - Aluminum	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	
Non-Ferrous Metals Processing - Aluminum	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Non-Ferrous Metals Processing - Aluminum	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%	37	126	303

Source Category	Control Measure	√ = pollutar	nt reduc				s) A			rollut	ant redu	iced	Contro Efficien			ge Annua fectivene	
oouroe outegory	Name	v – poliutai	it reduc	,11011, 7	v – po	nutarit	ncieas	юс, —	primary	poliuti			(% from base	-		primary poll	
	Hamo	PM2.5	5 PM10	EC	ос	NOx	voc	SO2	NH3	со	Hg		v Typica	,		Typical	High
Non-Ferrous Metals Processing - Aluminum	Fabric Filter (Reverse-Air Cleanec Type)	l √	$\sqrt{*}$	\checkmark	\checkmark						U		99%	U	53	148	337
Non-Ferrous Metals Processing - Aluminum	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%		55	220	550
Non-Ferrous Metals Processing - Aluminum	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%		40	110	250
Non-Ferrous Metals Processing - Copper	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	√*										6.5%			620	
Non-Ferrous Metals Processing - Copper	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	$\sqrt{*}$										7.7%			5,200	
Non-Ferrous Metals Processing - Copper	Fabric Filter (Mech. Shaker Type)	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%		37	126	303
Non-Ferrous Metals Processing - Copper	Fabric Filter (Reverse-Air Cleanec Type)	I √	√*	\checkmark	\checkmark								99%		53	148	337
Non-Ferrous Metals Processing - Copper	Dry ESP-Wire Plate Type		√*	\checkmark	\checkmark								98%		40	110	250
Non-Ferrous Metals Processing - Copper	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%		55	220	550
Non-Ferrous Metals Processing - Lead	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%			5,200	
Non-Ferrous Metals Processing - Lead	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%			620	

Source Category	Control Measure	√ = polluta	nt reduc			tant(Ilutant	-			, polluta	ant redu		Control Efficiency	Ef	ge Annua fectivene	ess
	Name												(% from baseline)		primary poll	
Non-Ferrous Metals Processing - Lead	Fabric Filter (Reverse-Air Cleaned Type)		5 PM10 √*	EC √	oc √	NOx	voc	SO2	NH3	CO	Hg	Lov	v Typical High 99%	Low 53	Typical 148	High 337
Non-Ferrous Metals Processing - Lead	Wet ESP - Wire Plate Type	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								99%	55	220	550
Non-Ferrous Metals Processing - Lead	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Non-Ferrous Metals Processing - Lead	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%	37	126	303
Non-Ferrous Metals Processing - Other	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	
Non-Ferrous Metals Processing - Other	CEM Upgrade and Increased Monitoring Frequency of PM Controls	$\sqrt{*}$	√*										7.7%		5,200	
Non-Ferrous Metals Processing - Other	Fabric Filter (Reverse-Air Cleaned Type)	t √	√*	\checkmark	\checkmark								99%	53	148	337
Non-Ferrous Metals Processing - Other	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%	55	220	550
Non-Ferrous Metals Processing - Other	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Non-Ferrous Metals Processing - Other	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%	37	1,260	303
Non-Ferrous Metals Processing - Zinc	Increased Monitoring Frequency (IMF) of PM Controls	$\sqrt{*}$	$\sqrt{*}$										6.5%		620	

Source Category	$\sqrt{1}$ = pollutar	nt reduc			-	s) Af increas			polluta	ant redu		Control Efficiency		Ef	ge Annua fectivene	SS	
	Name		PM10	50	00	Nov	VOC	602	NUO	<u> </u>	Цa		% from baselir Typical	,		primary poll Typical	
Non-Ferrous Metals Processing - Zinc	CEM Upgrade and Increased Monitoring Frequency of PM Controls	ΥΜ2.5 √*	√*	EC		NUX	VUC	502	NHJ	co	Hg	LOW	7.7%	nıgn	LOW	5,200	піуп
Non-Ferrous Metals Processing - Zinc	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99%		37	126	303
Non-Ferrous Metals Processing - Zinc	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%		40	110	250
Non-Ferrous Metals Processing - Zinc	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%		55	220	550
Non-Ferrous Metals Processing - Zinc	Fabric Filter (Reverse-Air Cleaned Type)	J √	√*	\checkmark	V								99%		53	148	337
		\checkmark	√*	\checkmark	\checkmark												
Paved Roads	Vacuum Sweeping	\checkmark	√*	\checkmark	\checkmark								50.5%			485	
Prescribed Burning	Increase Fuel Moisture	\checkmark	√*	\checkmark	\checkmark								50%			2,617	
Residential Wood Combustion	Education and Advisory Program	\checkmark	$\sqrt{*}$	V	V								50%			1,320	
Residential Wood Stoves	NSPS compliant Wood Stoves	√*	√*										98%			2,000	
Unpaved Roads	Chemical Stabilization	\checkmark	√*	\checkmark									37.5%			2,753	

Source Category	= polluta	int reduc			•	s) Al increas			[,] polluta	ant red	uced	Control Efficiency		ige Annua ffectivene		
	Name											(%	from baseline)		primary poll	
		PM2.	5 PM10	EC	oc	NOx	voc	SO2	NH3	со	Hg	Low	Typical High	Low	Typical	High
Unpaved Roads	Hot Asphalt Paving	\checkmark	$\sqrt{*}$	\checkmark	\checkmark								67.5%		537	
Utility Boilers - Coal	Fabric Filter (Mech. Shaker Type)	\checkmark	√*	\checkmark	\checkmark								99.5%	37	126	303
Utility Boilers - Coal	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark						\checkmark	(Hg 3%)	98% (Hg 20%) (Hg 36%	40)	110	250
Utility Boilers - Coal	Fabric Filter	\checkmark	√*	\checkmark	\checkmark						\checkmark		95% (Hg 80%)		N/A	
Utility Boilers - Coal	Fabric Filter (Pulse Jet Type)	\checkmark	√*	\checkmark	\checkmark						\checkmark		99%	42	117	266
Utility Boilers - Coal	Fabric Filter (Reverse-Air Cleanec Type)	٧	√*	\checkmark	\checkmark						\checkmark		99%	53	148	337
Utility Boilers - Gas/Oil	Fabric Filter	\checkmark	√*	\checkmark	\checkmark						\checkmark		95%		N/A	
Wood Pulp & Paper	Wet ESP - Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								99%	55	220	550
Wood Pulp & Paper	Dry ESP-Wire Plate Type	\checkmark	√*	\checkmark	\checkmark								98%	40	110	250
Bituminous/Subbituminous Coal	Flue Gas Desulfurization							√*					90%		N/A	
Bituminous/Subbituminous Coal	Flue Gas Desulfurization							√*					90%		N/A	

Source Category	Control Measure	Pollutant(s) $\sqrt{1 - 1}$ = pollutant reduction, X = pollutant inclusion		Control Efficiency	Average Annual Cost Effectiveness
	Name			(% from baseline)	(\$/ton primary pollutant)
		PM2.5 PM10 EC OC NOx V	ос so2 NH3 со Hg Lo	ow Typical High	Low Typical High
Bituminous/Subbituminous Coal (Industrial Boilers)	Wet Flue Gas Desulfurization		$\sqrt{*}$	90%	1,027 1,536 1,980
Bituminous/Subbituminous Coal (Industrial Boilers)	Spray Dryer Abosrber		$\sqrt{*}$	90%	804 1,341 1,973
Bituminous/Subbituminous Coal (Industrial Boilers)	In-duct Dry Sorbent Injection		$\sqrt{*}$	40%	1,111 1,526 2,107
By-Product Coke Manufacturing	Vacuum Carbonate Plus Sulfur Recovery Plant		$\sqrt{*}$	82%	N/A
Distillate Oil (Industrial Boiler)	Wet Flue Gas Desulfurization		√*	90%	2,295 3,489 4,524
Inorganic Chemical Manufacture	Flue Gas Desulfurization		√*	90%	N/A
In-process Fuel Use - Bituminous Coal	Flue Gas Desulfurization		$\sqrt{*}$	90%	N/A
Lignite (Industrial Boiler)	Wet Flue Gas Desulfurization		$\sqrt{*}$	90%	1,027 1,536 1,980
Lignite (Industrial Boiler)	Spray Dryer Abosrber		$\sqrt{*}$	90%	804 1,341 1,973
Lignite (Industrial Boiler)	In-duct Dry Sorbent Injection		$\sqrt{*}$	40%	1,111 1,526 2,107
Lignite (Industrial Boilers)	Flue Gas Desulfurization		$\sqrt{*}$	90%	N/A

Source Category	Control Measure Name	Pollutant(s) Affected √ = pollutant reduction, X = pollutant increase, * = primary pollutant reduc	control Efficiency (% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant)
Mineral Products Industry	Flue Gas Desulfurization	PM2.5 PM10 EC OC NOx VOC SO2 NH3 CO Hg $\sqrt{*}$	Low Typical High 90%	Low Typical High N/A
Petroleum Industry	Flue Gas Desulfurization (FGD)	$\sqrt{*}$	90%	N/A
Primary Lead Smelters - Sintering	Dual Absorption	√*	99%	N/A
Primary Metals Industry	Flue Gas Desulfurization	√*	90%	N/A
Primary Zinc Smelters - Sintering	Dual Absorption	$\sqrt{*}$	99%	N/A
Process Heaters (Oil and Gas Production)	Flue Gas Desulfurization	√*	90%	N/A
Pulp and Paper Industry (Sulfate Pulping)	Flue Gas Desulfurization	$\sqrt{*}$	90%	N/A
Residual Oil (Commercial/Institutional Boilers)	Wet Flue Gas Desulfurization	$\sqrt{*}$	90%	2,295 3,489 4,524
Residual Oil (Commercial/Institutional Boilers)	Flue Gas Desulfurization	√*	90%	N/A
Residual Oil (Industrial Boilers	Flue Gas Desulfurization	√*	90%	N/A
Secondary Metal Production	Flue Gas Desulfurization	√*	90%	N/A

Source Category	Control Measure Name	Pollutant(s) Affected $\sqrt{1}$ = pollutant reduction, X = pollutant increase, * = primary pollutant reduction	(% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant)
Steam Generating Unit- Coal/Oil	Flue Gas Desulfurization	PM2.5 PM10 EC OC NOx VOC SO2 NH3 CO Hg $\sqrt{*}$	Low Typical High 90%	Low Typical High N/A
Sulfur Recovery Plants - Elemental Sulfur	Amine Scrubbing + Flue Gas Desulfurization	√*	99.7%	N/A
Sulfur Recovery Plants - Elemental Sulfur	Amine Scrubbing	$\sqrt{*}$	97.8%	N/A
Sulfur Recovery Plants - Elemental Sulfur	Amine Scrubbing + Flue Gas Desulfurization	$\sqrt{*}$	99.8%	N/A
Sulfur Recovery Plants - Elemental Sulfur	Amine Scrubbing + Flue Gas Desulfurization	$\sqrt{\star}$	99.8%	N/A
Sulfur Recovery Plants - Elemental Sulfur Sulfur Recovery Plants -	Amine Scrubbing	$\sqrt{*}$	97.1% 98.4%	N/A N/A
Elemental Sulfur Sulfur Recovery Plants -	Amine Scrubbing Flue Gas Desulfurization	√*	90%	N/A
Elemental Sulfur Sulfur Recovery Plants -	Flue Gas Desulfurization	√*	90%	N/A
Sulfur Removal Sulfuric Acid Plants - Contact	Increase Absorption Efficiency	√* √*	85%	N/A
Absorbers Sulfuric Acid Plants - Contact Absorbers	from Existing to NSPS Level (99.7%) + Flue Gas Desulfurizat Increase Absorption Efficiency from Existing to NSPS Level		75%	N/A
	(99.7%)	Y		

Source Category	= pollutant		ollut X = poll	•			polluta	int redu		Control Efficiency	Ef	ge Annua fectivene	SS	
	Name	DM2.5	PM10 EC	00		voc	SO2	со	Hg		Typical High	· ·	Typical	,
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%) + Flue Gas Desulfurization			00	NOX	VOC	√*	00	iig	Low	75%	LOW	N/A	ingii
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%)						$\sqrt{\star}$				95%		N/A	
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%)						√*				85%		N/A	
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%) + Flue Gas Desulfurization	on					$\sqrt{\star}$				95%		N/A	
Sulfuric Acid Plants - Contact Absorbers	Flue Gas Desulfurization						$\sqrt{*}$				90%		N/A	
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%)						$\sqrt{*}$				90%		N/A	
Sulfuric Acid Plants - Contact Absorbers	Increase Absorption Efficiency from Existing to NSPS Level (99.7%) + Flue Gas Desulfurization	on					√*				90%		N/A	
Utility Boilers - Coal-Fired	Fuel Switching - High-Sulfur Coal Low-Sulfur Coal	to √	\checkmark				√*				60%	113	140	167
Utility Boilers - Coal-Fired	Coal Washing	\checkmark	\checkmark				√*		\checkmark		40%	70	320	563
Utility Boilers - Coal-Fired	Repowering to IGCC				\checkmark		√*		\checkmark		99%		N/A	
Utility Boilers - High Sulfur Content	Flue Gas Desulfurization (Wet Scrubber Type)						$\sqrt{*}$		\checkmark	(Hg 29%)	90%) (Hg 64%) (Hg 98%)	N/A	

Source Category	Control Measure Name	= pollutant reduction,	•	s) Affected	pollutant reduced	Control Efficiency (% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant)
Utility Boilers - Medium Sulfur Content	Flue Gas Desulfurization (Wet Scrubber Type)	PM2.5 PM10 EC	C OC NOX	VOC SO2 NH3 $\sqrt{*}$	-	you for backing) Sow Typical High 90% 29%) (Hg 64%) (Hg 98%)	Low Typical High N/A
Utility Boilers - Very High Sulfur Content	Flue Gas Desulfurization (Wet Scrubber Type)			√*	\checkmark	90%	N/A
Adhesives - Industrial	SCAQMD Rule 1168			$\sqrt{*}$		73%	2,202
Aircraft Surface Coating	MACT Standard			$\sqrt{*}$		60%	165
Architectural Coatings	OTC AIM Coating Rule			√*		55%	6,628
Architectural Coatings	South Coast Phase I			√*		34%	3,300 1,443 4,600
Architectural Coatings	South Coast Phase III			√*		73%	10,059
Architectural Coatings	AIM Coating Federal Rule			√*		20%	228
Architectural Coatings	South Coast Phase II			$\sqrt{*}$		47%	4,017
AREA	OTC Mobile Equipment Repair a Refinishing Rule	nd		$\sqrt{\star}$		61%	2,534
AREA	OTC Solvent Cleaning Rule			$\sqrt{*}$		66%	1,400

Source Category	Control Measure Name	Pollutant(s) Affected $\sqrt{1}$ = pollutant reduction, X = pollutant increase, * = primary pollutant reduction	•	Average Annual Cost Effectiveness
AREA	OTC Consumer Products Rule	PM2.5 PM10 EC OC NOx VOC SO2 NH3 CO Hg $\sqrt{*}$	(% from baseline) Low Typical High 39.2%	(\$/ton primary pollutant) Low Typical High 1,032
AREA	OTC Mobile Equipment Repair an Refinishing Rule	ıd √*	61%	2,534
AREA	OTC Mobile Equipment Repair an Refinishing Rule	ıd √*	61%	2,534
AREA	OTC Consumer Products Rule	√*	39.2%	1,032
AREA	OTC Mobile Equipment Repair an Refinishing Rule	ıd √*	61%	2,534
Automobile Refinishing	Federal Rule	√*	37%	118
Automobile Refinishing	California FIP Rule (VOC content TE)	&	89%	7,200
Automobile Refinishing	CARB BARCT Limits	√*	47%	750
Bakery Products	Incineration >100,000 lbs bread	√*	39.9%	1,470
Commercial Adhesives	CARB Long-Term Limits	√*	85%	2,880
Commercial Adhesives	CARB Mid-Term Limits	√*	55%	2,192

Source Category	Control Measure Name	Pollutant(s) Affected $\sqrt{1}$ = pollutant reduction, X = pollutant increase, * = primary pollutant reduced	Control Efficiency (% from baseline)	Average Annual Cost Effectiveness (\$/ton primary pollutant)
Commercial Adhesives	Federal Consumer Solvents Rule		Low Typical High	Low Typical High 232
Consumer Solvents	CARB Long-Term Limits	$\sqrt{*}$	85%	2,880
Consumer Solvents	CARB Mid-Term Limits	$\sqrt{*}$	55%	2,192
Consumer Solvents	Federal Consumer Solvents Rule	$\sqrt{*}$	25%	232
Cutback Asphalt	Switch to Emulsified Asphalts	$\sqrt{*}$	100%	15
Electrical/Electronic Coating	SCAQMD Rule	$\sqrt{*}$	70%	5,976
Electrical/Electronic Coating	MACT Standard	$\sqrt{\star}$	36%	5,000
Fabric Printing, Coating and Dyeing	Permanent Total Enclosure (PTE) √*		N/A
Flexographic Printing	Permanent Total Enclosure (PTE) √*	95	9,947
Graphic Arts	Use of Low or No VOC Materials	$\sqrt{\star}$	65%	3,500 4,150 4,800
Highway Vehicles - Gasoline Engine	Federal Reformulated Gasoline (RFG)	$X \sqrt{*} \qquad $	0% 7.65% 15.3%	2,498 25,093

Source Category	Source Category Control Measure Name						t ant(Ilutant	-	Control Efficiency % from baseline)	Average Annual Effectivenes (\$/ton primary pollut		SS				
	Р	M2.5	PM10) EC	ос	NOx	voc	SO2	NH3	со	Ηα	Typical High				
Highway Vehicles - Light Duty Gasoline Engines	Basic Inspection and Maintenanc Program		√	√	. 20		√	√*	√	√	√	9	 i ypiear i rigir		N/A	
Industrial Maintenance Coating	South Coast Phase III							√*					73%		10,059	
Industrial Maintenance Coating	AIM Coating Federal Rule							√*					20%		228	
Industrial Maintenance Coating	South Coast Phase II							$\sqrt{*}$					47%		4,017	
Industrial Maintenance Coating	South Coast Phase I							√*					34%	3,300	1,443	4,600
Machinery, Equipment, and Railroad Coating	SCAQMD Limits							√*					55.2%		2,027	
Marine Surface Coating (Shipbuilding)	Add-On Controls							√*					90%		8,937	
Marine Surface Coating (Shipbuilding)	MACT Standard							√*					24%		2,090	
Metal Can Surface Coating Operations	Permanent Total Enclosure (PTE)						$\sqrt{*}$					95		8,469	
Metal Coil & Can Coating	Incineration							√*					90%		8,937	
Metal Coil & Can Coating	BAAQMD Rule 11 Amended							√*					42%		2,007	

Source Category	Control Measure Name	\mathbf{P} = pollutant reduction,			(s) Af increas		•			Average Annual Cost Effectiveness (\$/ton primary pollutant)					
Metal Coil & Can Coating	MACT Standard	PM2.5 PM10 EC	ос	NOx	VOC √*	SO2	NH3	со	Hg		6 from baselin Typical 36%	,		primary polit Typical 1,000	
Metal Furniture Surface Coating Operations	Permanent Total Enclosure (PTE)			$\sqrt{*}$						95			19,321	
Metal Furniture, Appliances, Parts	MACT Standard				$\sqrt{*}$						36%			1,000	
Metal Furniture, Appliances, Parts	SCAQMD Limits				$\sqrt{*}$						55.2%			2,027	
Miscellaneous Metal Products Coatings	MACT Standard				$\sqrt{*}$						36%			1,000	
Motor Vehicle Coating	Incineration				$\sqrt{*}$						90%			8,937	
Motor Vehicle Coating	MACT Standard				$\sqrt{*}$						36%			118	
Municipal Solid Waste Landfill	Gas Collection (SCAQMD/BAAQI	MD)			√*						70%			700	

		Pollutant(s) Affected	Control	Average Annual Cost				
Source Category	Control Measure	= pollutant reduction, X = pollutant increase, * = primary pollutant reduced	Efficiency	Effectiveness				
	Name		(% from baseline)	(\$/ton primary pollutant)				
		PM2.5 PM10 EC OC NOX VOC SO2 NH3 CO Hg Lov	w Typical High	Low Typical High				

Source Category	Control Measure Name	= pollutant reductio	Control Efficiency (% from baseline)	Average Annual Co Effectiveness (\$/ton primary pollutant)							
Open Top Degreasing	Title III MACT Standard	PM2.5 PM10 E	EC OC N	Ox VOC √*	SO2	NH3	CO H	· · · ·		Typical -69	
Open Top Degreasing	SCAQMD 1122 (VOC content lim	it)		$\sqrt{*}$				76%		1,248	
Open Top Degreasing	Airtight Degreasing System			√*				98%		9,789	
Paper and other Web Coating Operations	Permanent Total Enclosure (PTE)			$\sqrt{*}$				95		1,503	
Paper Surface Coating	Incineration			√*				78%		4,776	
Pesticide Application	Reformulation - FIP Rule			$\sqrt{*}$				20%		9,300	
Portable Gasoline Containers	OTC Portable Gas Container Rule	2		$\sqrt{*}$				33%		581	
Product and Packaging Rotogravure and Screen Printing	Permanent Total Enclosure (PTE)			√*				95		12,770	
Publication Rotogravure Printing	Permanent Total Enclosure (PTE)			$\sqrt{*}$				95		2,422	
Rubber and Plastics Manufacturing	SCAQMD - Low VOC			$\sqrt{*}$				60%		1,020	
Stage II Service Stations	Low Pressure/Vacuum Relief Valv	e		$\sqrt{*}$				91.6%	930	1,080	1,230

Source Category	Control Measure	$\sqrt{1}$ = pollutant reduct		utant(-	ced	Control Efficiency		Average Annual Cost Effectiveness						
	Name	pondantiodad				с, р		(% from baseline)			(\$/ton primary pollutant)				
		PM2.5 PM10	EC O	NOx	voc	SO2	NH3	со	Hg	Low		,	Low	Typical	High
Stage II Service Stations - Underground Tanks	Low Pressure/Vacuum Relief Valv	е			$\sqrt{*}$						73%	-	930	1,080	1,230
Traffic Markings	South Coast Phase III				√*						73%			1,059	
Traffic Markings	AIM Coating Federal Rule				√*						20%			228	
Traffic Markings	South Coast Phase I				√*						34%		8,600	1,443	12,800
Traffic Markings	South Coast Phase II				√*						47%			4,017	
Wood Furniture Surface Coating	Add-On Controls				√*					67%	75%	98%	468	20,000	22,100
Wood Furniture Surface Coating	New CTG				√*						47%		462	967	22,100
Wood Furniture Surface Coating	MACT Standard				√*						30%			446	
Wood Product Surface Coating	Incineration				√*						86%			4,202	
Wood Product Surface Coating	SCAQMD Rule 1104				√*						53%			881	
Wood Product Surface Coating	MACT Standard				√*						30%			446	