

APPENDIX A

INDIANA ELECTRIC GENERATING UNITS
WITH
EXISTING AND PROJECTED CONTROLS

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INDIANA ELECTRIC GENERATING UNITS

Source Name	County ID	Source ID	Unit ID	Existing PM Control	Projected Retrofit/Construction	Existing SO2 Control	Projected Retrofit/Construction	Existing NOx Control	Projected Retrofit/Construction	Existing Hg Control	Projected Retrofit/Construction	Existing Control(s)	Retrofit by 2012	Retrofit by 2018
A B Brown	129	00010	1	Baghouse		Dual Alkali FGD		Selective Catalytic Reduction			Bromide Hg Control-	B+FGD+SCR		Bromide Hg Control
			2	Cold-side Electrostatic Precipitator	1 year MATS ext.	Dual Alkali FGD	1 year MATS ext.	Selective Catalytic Reduction	1 year MATS ext.		Bromide Hg Control-1 year MATS ext.	ESP+FGD+SCR		Bromide Hg Control
Alcoa	173	00002	1*	Hot-side Electrostatic Precipitator		Wet Limestone FGD		Low NOx Burner Technology w/ Overfire Air				ESP+LNB w/SOFA+FGD		
			2*	Hot-side Electrostatic Precipitator		Wet Limestone FGD		Low NOx Burner Technology w/ Overfire Air				ESP+LNB w/SOFA+FGD		
			3*	Hot-side Electrostatic Precipitator		Wet Limestone FGD		Low NOx Burner Technology w/ Overfire Air				ESP+LNB w/SOFA+FGD		
			4	Cold-side Electrostatic Precipitator		Wet Limestone FGD		Low NOx Cell Burner Selective Catalytic Reduction				ESP+FGD+SCR		
Bailey	127	00002	7	Cold-side Electrostatic Precipitator		Wet Limestone		Overfire Air / Selective Catalytic Reduction (2008)			ACI	ESP+FGD+SCR		ACI
			8	Cold-side Electrostatic Precipitator		Wet Limestone		Overfire Air / Selective Catalytic Reduction			ACI	ESP+FGD+SCR		ACI
Cayuga	165	00001	1	Cold-side Electrostatic Precipitator		Wet Limestone	Dry Sorbent Injection System and Activated Carbon Injection System installed in 2015	Low NOx Burner Technology w/ Separated OFA	Selective Catalytic Reduction installed in 2015		Hg Re-Emission Chem.+Hg Trim Tech.	ESP+FGD+LNB w/SOFA		SCR, Hg Re-Emission Chem. and Hg Trim Tech.
			2	Cold-side Electrostatic Precipitator	1 year MATS ext.	Wet Limestone	Dry Sorbent Injection System and Activated Carbon Injection System scheduled to be installed by 2015-1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA	Selective Catalytic Reduction scheduled to be installed by 2015-1 year MATS ext.		Hg Re-Emission Chemical Additive+Hg Trim Technology-1 year MATS ext.	ESP+FGD+LNB w/SOFA		SCR, Hg Re-Emission Chem. and Hg Trim Tech.
			4**	Shut Down and removed from permit in 2009		Shut Down and removed from permit in 2009		Shut Down and removed from permit in 2009		Shut Down and removed from permit in 2009			Shut Down 2009	
Clifty Creek	077	00001	1	Cold-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air Selective Catalytic Reduction				ESP+SCR		FGD
			2	Cold-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air Selective Catalytic Reduction				ESP+SCR		FGD
			3	Cold-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air Selective Catalytic Reduction				ESP+SCR		FGD
			4	Cold-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air Selective Catalytic Reduction				ESP+SCR		FGD
			5	Cold-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air Selective Catalytic Reduction				ESP+SCR		FGD
			6	Hot-side Electrostatic Precipitator			FGD installation completed in 2014	Overfire Air				ESP		FGD
Dean H Mitchell	089	00117	11	Shut Down 2010	Units 4, 5, 6 & 11 retired in 2010-New Combustion Turbine (natural gas only), Boiler Id 9A, startup in 2012	Shut Down 2010	Units 4, 5, 6 & 11 retired in 2010-New Combustion Turbine (natural gas only), Boiler Id 9A, startup in 2012	Shut Down 2010	Units 4, 5, 6 & 11 retired in 2010-New Combustion Turbine (natural gas only), Boiler Id 9A, startup in 2012	Shut Down 2010	Units 4, 5, 6 & 11 retired in 2010-New Combustion Turbine (natural gas only), Boiler Id 9A, startup in 2012		Shut Down 2010	
			4	Shut Down 2010		Shut Down 2010		Shut Down 2010		Shut Down 2010			Shut Down 2010	
			5	Shut Down 2010		Shut Down 2010		Shut Down 2010		Shut Down 2010			Shut Down 2010	
			6	Shut Down 2010		Shut Down 2010		Shut Down 2010		Shut Down 2010			Shut Down 2010	

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Edwardsport	083	00003	6-1**	Shut Down 2012	Units 6-1, 7-1, 7-2, & 8-1 retired in 2011-New Integrated Gasification Combined Cycle Electric Generating Plant - 2 Combustion Turbines (natural gas or syngas), Boiler Ids - CTHRSG1 and CTHRSG2	Shut Down 2012	Units 6-1, 7-1, 7-2, & 8-1 retired in 2011-New Integrated Gasification Combined Cycle Electric Generating Plant - 2 Combustion Turbines (natural gas or syngas), Boiler Ids - CTHRSG1 and CTHRSG2	Shut Down 2012	Units 6-1, 7-1, 7-2, & 8-1 retired in 2011-New Integrated Gasification Combined Cycle Electric Generating Plant - 2 Combustion Turbines (natural gas or syngas), Boiler Ids - CTHRSG1 and CTHRSG2	Shut Down 2012	Units 6-1, 7-1, 7-2, & 8-1 retired in 2011-New Integrated Gasification Combined Cycle Electric Generating Plant - 2 Combustion Turbines (natural gas or syngas), Boiler Ids - CTHRSG1 and CTHRSG2		Shut Down 2012	
			7-1	Shut Down 2012		Shut Down 2012		Shut Down 2012		Shut Down 2012			Shut Down 2012	
			7-2	Shut Down 2012		Shut Down 2012		Shut Down 2012		Shut Down 2012			Shut Down 2012	
			8-1	Shut Down 2012		Shut Down 2012		Shut Down 2012		Shut Down 2012			Shut Down 2012	
F B Culley	173	00001	1**	Shut Down 2007		Shut Down 2007		Shut Down 2007		Shut Down 2007			2007	
			2	Baghouse		Wet Limestone		Low NOx Burner Technology (Dry Bottom only) Selective Catalytic Reduction			Bromide Hg Control	B+FGD+SCR		Bromide Hg Control
			3	Baghouse		Wet Limestone		Low NOx Burner Technology (Dry Bottom only) Selective Catalytic Reduction			Bromide Hg Control	B+FGD+SCR		Bromide Hg Control
Frank E Ratts	125	00001	1SG1	Cold-side Electrostatic Precipitator	Shut Down 2015-1 year MATS ext.		Shut Down 2015-1 year MATS ext.	SNCR/Low NOx Burner Technology (Dry Bottom only)	Shut Down 2015-1 year MATS ext.		Shut Down 2015-1 year MATS ext.	ESP+LNB		Shut Down 2015
			2SG1	Cold-side Electrostatic Precipitator				SNCR/Low NOx Burner Technology (Dry Bottom only)				ESP+LNB		Shut Down 2015
Gibson	051	00013	1	Cold-side Electrostatic Precipitator		Wet Limestone		Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction			Hg Re-Emission Chemical and Fuel Additive	ESP+FGD+SCR		Hg Re-Emission Chem.+Fuel Add.
			2	Cold-side Electrostatic Precipitator		Wet Limestone		Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction			Hg Re-Emission Chemical and Fuel Additive	ESP+FGD+SCR		Hg Re-Emission Chem.+Fuel Add.
			3	Cold-side Electrostatic Precipitator	ESP Upgrade-6 month MATS ext.	Wet Limestone	6 month MATS ext.	Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction	6 month MATS ext.		Hg Re-Emission Chemical and Fuel Additive-6 month MATS ext.	ESP+FGD+SCR		ESP Upgrade, Hg Re-Emission Chem. and Fuel Add.
			4	Cold-side Electrostatic Precipitator	ESP Upgrade	Wet Limestone		Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction			Fuel Additive	ESP+FGD+SCR		ESP Upgrade, Hg Re-Emission Chem. and Fuel Add.
			5	Cold-side Electrostatic Precipitator	1 year MATS ext.	Wet Limestone	1 year MATS ext.	Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction	1 year MATS ext.		Hg Re-Emission Chemical and Fuel Additive-1 year MATS ext.	ESP+FGD+SCR		Hg Re-Emission Chem.+Fuel Add.
Harding Street	097	00033	50	Cold-side Electrostatic Precipitator	Convert to Natural Gas-1 year MATS ext.		Convert to Natural Gas-1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA Selective Non-catalytic Reduction	Convert to Natural-1 year MATS ext.		Convert to Natural Gas-1 year MATS ext.	ESP+SNCR		Convert to Natural
			60	Cold-side Electrostatic Precipitator	Convert to Natural Gas-1 year MATS ext.		Convert to Natural Gas-1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA Selective Non-catalytic Reduction	Convert to Natural-1 year MATS ext.		Convert to Natural Gas-1 year MATS ext.	ESP+SNCR		Convert to Natural
			70	Cold-side Electrostatic Precipitator	Convert to Natural Gas-1 year MATS ext.	Wet Limestone	Convert to Natural Gas-1 year MATS ext.	Low NOx Burner Technology w/ Closed-coupled/Separated OFA Selective Catalytic Reduction	Convert to Natural-1 year MATS ext.		Convert to Natural Gas-1 year MATS ext.	ESP+FGD+SCR		Convert to Natural

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IPL Eagle Valley	109	4	3	Cold-side Electrostatic Precipitator	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	ESP	Shut Down 2015	
			4	Cold-side Electrostatic Precipitator	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	ESP+LNB w/SOFA	Shut Down 2015	
			5	Cold-side Electrostatic Precipitator	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	ESP+LNB w/SOFA	Shut Down 2015	
			6	Cold-side Electrostatic Precipitator	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA	Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.		Replaced 4 coal-fired units with 2 natural gas-fired combined cycle systems/1 year MATS ext.	ESP+LNB w/SOFA	Shut Down 2015	
Merom	153	00005	1SG1	Cold-side Electrostatic Precipitator		Wet Limestone	Redesign FGD	Selective Catalytic Reduction Low NOx Burner Technology w/ Overfire Air			ACI	ESP+FGD+SCR		Redesign FGD and ACI
			2SG1	Cold-side Electrostatic Precipitator		Wet Limestone	Redesign FGD	Selective Catalytic Reduction Low NOx Burner Technology w/ Overfire Air			ACI	ESP+FGD+SCR		Redesign FGD and ACI
Michigan City	091	00021	12	Cold-side Electrostatic Precipitator	Baghouse-1 year ext.		Wet Limestone FGD completed 2015/1 year MATS ext.	Overfire Air - Selective Catalytic Reduction	1 year ext.		ACI and Fuel Additives-1 year ext.	ESP+SCR		Baghouse, FGD, ACI and Fuel Additives
Petersburg	125	00002	1	Cold-side Electrostatic Precipitator	ESP Upgrade	Wet Limestone	Bypass Scrubber Upgrade installed in 2014	Low NOx Burner Technology w/ Closed-coupled/Separated OFA			ACI installed in 2014	ESP+FGD+LNB	Upgrade ESP+Upgrade FGD+ACI	
			2	Cold-side Electrostatic Precipitator	ESP Replaced with Baghouse in 2014	Wet Limestone	Bypass Scrubber Upgrade	Low NOx Burner Technology w/ Closed-coupled/Separated OFA Selective Catalytic Reduction			ACI installed in 2014	ESP+FGD+SCR	B+Upgrade FGD+ACI	
			3	Cold-side Electrostatic Precipitator	ESP to be Replaced with Baghouse in 2015-1 year MATS ext.	Wet Limestone	1 year MATS ext.	Selective Catalytic Reduction Low NOx Burner Technology w/ Closed-coupled OFA	1 year MATS ext.		ACI installed in 2014-1 year MATS ext.	ESP+FGD+SCR		Baghouse and ACI
			4	Cold-side Electrostatic Precipitator	ESP Upgrade-1 year MATS ext.	Wet Limestone		Low NOx Burner Technology w/ Closed-coupled OFA			ACI installed in 2014-1 year MATS ext.	ESP+FGD+LNB	Upgrade ESP and ACI	

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R Gallagher	043	00004	1	Retired in 2012		Retired in 2012		Retired in 2012		Retired in 2012			Shut Down in 2012	
			2	Baghouse			Dry Sorbent Injection System installed 2011	Low NOx Burner Technology w/ Overfire Air				B+LNB	DSI	
			3	Retired in 2012		Retired in 2012		Retired in 2012		Retired in 2012			Shut Down in 2012	
			4	Baghouse			Dry Sorbent Injection System installed 2011	Low NOx Burner Technology w/ Overfire Air				B+LNB	DSI	
R M Schahfer	073	00008	14	Cold-side Electrostatic Precipitator	1 year ext.		FGD and DSI to be installed by 2016-1 year MATS ext.	Overfire Air Selective Catalytic Reduction	1 year ext.		ACI-1 year MATS ext.	ESP+SCR		FGD, DSI and ACI
			15	Cold-side Electrostatic Precipitator	1 year ext.		FGD and DSI to be installed by 2016-1 year MATS ext.	Low NOx Burner Technology (Dry Bottom only) A 35% efficient stratified overfire air system was added in 2008	SNCR to be installed by 2013-1 year MATS ext.		ACI-1 year MATS ext.	ESP+LNB		FGD, DSI, SNCR and ACI
			17	Cold-side Electrostatic Precipitator				Low NOx Burner Technology w/ Closed-coupled/Separated OFA				ESP+FGD+LNB		
			18	Cold-side Electrostatic Precipitator				Low NOx Burner Technology w/ Closed-coupled/Separated OFA				ESP+FGD+LNB		
Rockport	147	00020	MB1	Cold-side Electrostatic Precipitator			DSI to be intalled by 2015-1 year MATS ext.	Low NOx Burner Technology (Dry Bottom only)	SCR to be installed by 2016			ESP+LNB w/OFA		SCR and DSI
			MB2	Cold-side Electrostatic Precipitator			DSI to be intalled by 2015-1 year MATS ext.	Low NOx Burner Technology (Dry Bottom only)	SCR to be installed by 2016			ESP+LNB w/OFA		SCR and DSI
State Line	089	00210	3	Shut Down 2012		Shut Down 2012		Shut Down 2012		Shut Down 2012			Shut Down 2012	
			4	Shut Down 2012		Shut Down 2012		Shut Down 2012		Shut Down 2012			Shut Down 2012	

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Tanners Creek	029	00002	U1	Cold-side Electrostatic Precipitator	Shut Down in 2015-45 day MATS ext.		Shut Down in 2015-45 day MATS ext.	Low NOx Burner Technology (Dry Bottom only)/SNCR on 2010	Shut Down in 2015-45 day MATS ext.		Shut Down in 2015-45 day MATS ext.	ESP+LNB	SNCR	Shut Down in 2015
			U2	Cold-side Electrostatic Precipitator	Shut Down in 2015-45 day MATS ext.		Shut Down in mid 2015-45 day MATS ext.	Low NOx Burner Technology (Dry Bottom only)/SNCR on 2010	Shut Down in 2015-45 day MATS ext.		Shut Down in 2015-45 day MATS ext.	ESP+LNB	SNCR	Shut Down in 2015
			U3	Cold-side Electrostatic Precipitator	Shut Down in 2015-45 day MATS ext.		Shut Down in mid 2015-45 day MATS ext.	Low NOx Burner Technology (Dry Bottom only)/SNCR on 2010	Shut Down in 2015-45 day MATS ext.		Shut Down in 2015-45 day MATS ext.	ESP+LNB	SNCR	Shut Down in 2015
			U4	Cold-side Electrostatic Precipitator	Shut Down in 2015-45 day MATS ext.		Shut Down in mid 2015-45 day MATS ext.	Overfire Air	Shut Down in 2015-45 day MATS ext.		Shut Down in 2015-45 day MATS ext.	ESP+OFA		Shut Down in 2015
Wabash River	167	00021	1	Other	IGCC	Other	IGCC	Steam Injection	IGCC					Convert to NG
			2	Cold-side Electrostatic Precipitator	Shut down in 2016-1 year ext.		Shut Down in 2016-1 year MATS ext.	Low NOx Burner Technology w/ Overfire Air	Shut down in 2016-1 year ext.		Shut down in 2016-1 year ext.	ESP+LNB wOFA		Shut Down 2016
			3	Cold-side Electrostatic Precipitator	Shut down in 2016-1 year ext.		Shut Down in 2016-1 year MATS ext.	Low NOx Burner Technology w/ Overfire Air	Shut down in 2016-1 year ext.		Shut down in 2016-1 year ext.	ESP+LNB wOFA		Shut Down 2016
			4	Cold-side Electrostatic Precipitator	Shut down in 2016-1 year ext.		Shut Down in 2016-1 year MATS ext.	Low NOx Burner Technology w/ Overfire Air	Shut down in 2016-1 year ext.		Shut down in 2016-1 year ext.	ESP+LNB wOFA		Shut Down 2016
			5	Cold-side Electrostatic Precipitator	Shut down in 2016-1 year ext.		Shut Down in 2016-1 year MATS ext.	Low NOx Burner Technology w/ Overfire Air	Shut down in 2016-1 year ext.		Shut down in 2016-1 year ext.	ESP+LNB wOFA		Shut Down 2016
			6	Cold-side Electrostatic Precipitator	Convert to NG-1 year ext.		Convert to NG/1 year MATS ext.	Low NOx Burner Technology w/ Separated OFA	Convert to NG-1 year ext.		Convert to NG-1 year ext.	ESP+LNB		Convert to NG

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Whitewater Valley	177	00009	1	Cold-side Electrostatic Precipitator/ Baghouse	1 year MATS ext.		DSI-1 yr MATS ext.	Low NOx Burner Technology (Dry Bottom only) Ammonia Injection Overfire Air	1 year MATS ext.		ACI-1 year MATS ext.	ESP+LNB		DSI+ACI
			2	Cold-side Electrostatic Precipitator/ Baghouse	1 year MATS ext.		DSI-1 yr MATS ext.	Low NOx Burner Technology w/ Separated OFA Ammonia Injection Overfire Air	1 year MATS ext.		ACI-1 year MATS ext.	ESP+LNB		DSI+ACI

*Not an affected EGU

**Not included in original BART-Eligible EGU list from Indiana's Regional Haze SIP

APPENDIX B

STATE WIDE EMISSION INVENTORIES
FOR
MAJOR POLLUTANTS CONTRIBUTING
TO
VISIBILITY IMPAIRMENT
BY
CATEGORY AND YEAR

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Table 1
State Wide SO₂ Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
SO ₂	2005	16,965.43	875,879.93	9,488.97	3,977.57	133,768.27	1,040,080.17
SO ₂	2006	16,829.35	751,355.65	8,037.48	2,991.18	133,557.51	912,771.17
SO ₂	2007	16,693.27	626,831.37	6,585.99	2,004.79	133,413.05	785,528.48
SO ₂	2008	16,634.19	502,307.09	5,134.50	1,018.41	133,269.60	658,363.79
SO ₂	2009	16,634.19	502,307.09	5,134.50	1,018.41	109,748.24	634,842.43
SO ₂	2010	14,175.68	427,321.90	2,818.11	918.19	8,4675.72	529,909.60
SO ₂	2011	11,717.16	352,336.71	501.72	817.98	59,603.19	424,976.76

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

Table 2
State Wide NO_x Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
NO _x	2005	22,992.10	210,819.00	110,666.83	165,898.82	78,241.73	588,618.49
NO _x	2006	22,615.53	192,015.31	95,141.65	125,488.01	75,944.92	511,205.42
NO _x	2007	22,238.96	173,211.61	79,616.47	85,077.19	73,648.12	433,792.35
NO _x	2008	21,866.39	154,407.91	64,091.28	44,666.38	71,351.31	356,383.28
NO _x	2009	21,866.39	154,407.91	64,091.28	44,666.38	57,070.28	342,102.25
NO _x	2010	20,800.31	137,019.74	67,318.79	108,052.71	59,410.12	392,601.66
NO _x	2011	19,734.22	119,631.56	70,546.31	171,439.03	61,749.95	443,101.08

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

Table 3
State Wide VOC Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
VOC	2005	169,596.80	2,166.70	55,821.31	108,733.86	60,635.21	396,953.88
VOC	2006	169,777.06	2,177.73	42,891.91	82,279.47	59,549.86	356,676.03
VOC	2007	169,957.32	2,188.76	29,962.50	55,825.08	58,464.52	316,398.18
VOC	2008	170,137.58	2,199.79	17,033.09	29,370.69	57,379.17	276,120.32
VOC	2009	170,137.58	2,199.79	17,033.09	29,370.69	50,830.35	269,571.50
VOC	2010	134,415.27	2,019.54	29,885.60	52,544.90	55,462.02	274,327.35
VOC	2011	98,692.97	1,839.30	42,738.11	75,719.12	60,093.70	279,083.20

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

Table 4
State Wide NH₃ Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
NH ₃	2005	95,297.70	751.44	66.94	7,315.41	1,365.40	104,796.88
NH ₃	2006	95,965.33	837.47	56.23	5,551.42	1,789.93	104,200.39
NH ₃	2007	96,632.96	923.51	45.52	3,787.44	2,214.46	103,603.89
NH ₃	2008	97,300.53	1,009.54	34.81	2,023.46	2,639.00	103,007.33
NH ₃	2009	97,300.53	1,009.54	34.81	2,023.46	2,267.67	102,635.99
NH ₃	2010	49,853.05	610.09	50.70	2,679.19	1,444.65	54,637.68
NH ₃	2011	2,405.58	210.65	66.59	3,334.91	621.63	6,639.36

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

Table 5
State Wide PM_{2.5} Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
PM _{2.5}	2005	72,517.84	34,552.13	6,642.95	3,260.37	41,803.77	158,777.05
PM _{2.5}	2006	72,060.25	32,795.63	5,370.13	3,103.46	41,479.59	154,809.06
PM _{2.5}	2007	71,602.67	31,039.12	4,097.32	2,946.55	41,155.41	150,841.07
PM _{2.5}	2008	71,150.58	29,282.61	2,824.51	2,789.64	40,831.23	146,878.57
PM _{2.5}	2009	71,150.85	29,282.61	2,824.51	2,789.64	34,322.01	140,369.63
PM _{2.5}	2010	81,530.06	19,625.75	3,842.13	4,150.61	23,770.23	132,918.78
PM _{2.5}	2011	91,909.26	9,968.88	4,859.76	5,511.57	13,218.45	125,467.93

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

Table 6
State Wide PM₁₀ Emission Trends by Category and Year (tons/year)

POLLUTANT	Year	Area	EGU	Non-Road	Mobile	Point	Total
PM ₁₀	2005	550,757.54	42,256.84	7,005.92	4,625.59	95,196.31	699,842.19
PM ₁₀	2006	497,328.13	41,823.94	5,683.62	4,139.14	94,393.58	643,368.42
PM ₁₀	2007	443,898.72	41,391.04	4,361.33	3,652.69	93,590.85	586,894.64
PM ₁₀	2008	390,474.82	40,958.15	3,039.04	3,166.23	92,788.12	530,426.36
PM ₁₀	2009	390,474.82	40,958.15	3,039.04	3,166.23	76,660.35	514,298.59
PM ₁₀	2010	437,656.83	27,857.41	4,080.97	6,915.33	54,046.25	530,556.80
PM ₁₀	2011	484,838.84	14,756.68	5,122.90	10,664.43	31,432.15	546,815.00

Note: emissions information obtained from the U.S. Environmental Protection Agency's National Emission Inventory Database

APPENDIX C

INDIANA BART-ELIGIBLE ELECTRIC GENERATING UNITS COVERED BY CAIR

(from the Indiana Regional Haze State Implementation Plan dated March 11, 2011)

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Indiana BART-eligible Electric Generating Units covered by CAIR

(from the Indiana Regional Haze State Implementation Plan dated March 11, 2011)

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_ NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
A B Brown Generating Station	1	250	Dual Alkali FGD	Selective Catalytic Reduction	SCR+FGD					
A B Brown Generating Station	2	250	Dual Alkali FGD	Selective Catalytic Reduction	SCR+FGD					
Alcoa Allowance Management Inc	1	144	Wet Limestone FGD (2008)	Low NO _x Burner Technology w/ Overfire Air	LNB w/SOFA					
Alcoa Allowance Management Inc	2	144	Wet Limestone FGD (2008)	Low NO _x Burner Technology w/ Overfire Air	LNB w/SOFA					
Alcoa Allowance Management Inc	3	144	Wet Limestone FGD (2008)	Low NO _x Burner Technology w/ Overfire Air	LNB w/SOFA					
Alcoa Allowance Management Inc	4	300	Wet Limestone FGD (2008)	Low NO _x Burner Selective Catalytic Reduction	SCR		FGD	FGD	FGD	FGD
Bailly Generating Station	7	160	Wet Limestone	Overfire Air / Selective Catalytic Reduction (2008)	SCR+FGD					
Bailly Generating Station	8	320	Wet Limestone	Overfire Air / Selective Catalytic Reduction	SCR+FGD					
Cayuga*	1	500	Wet Limestone (2008 - 95%)	Low NO _x Burner Technology w/ Separated OFA	FGD+LNB w/SOFA		SCR	SCR	SCR	SCR
Cayuga*	2	495	Wet Limestone (2008 - 95%)	Low NO _x Burner Technology w/ Separated OFA	FGD+LNB w/SOFA		SCR	SCR	SCR	SCR
Clifty Creek*	1	217	(FGD Scheduled possibly 2013)	Overfire Air Selective Catalytic Reduction	FGD+SCR					
Clifty Creek*	2	217	(FGD Scheduled possibly 2013)	Overfire Air Selective Catalytic Reduction	FGD+SCR					
Clifty Creek*	3	217	(FGD Scheduled possibly 2013)	Overfire Air Selective Catalytic Reduction	FGD+SCR					

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_ NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
Clifty Creek*	4	217	(FGD Scheduled possibly 2013)	Overfire Air Selective Catalytic Reduction	FGD+SCR					
Clifty Creek*	5	217	(FGD Scheduled possibly 2013)	Overfire Air Selective Catalytic Reduction	FGD+SCR					
Clifty Creek*	6	217	(FGD Scheduled possibly 2013)	Overfire Air	FGD	SCR	SCR	SCR	SCR	SCR
Dean H Mitchell Generating Station	11	125	Shut Down	Shut Down	LNB					
Dean H Mitchell Generating Station	4	125	Shut Down	Shut Down	Comb. Optimization			SCR		SCR
Dean H Mitchell Generating Station	5	125	Shut Down	Shut Down	Comb. Optimization			SCR		SCR
Dean H Mitchell Generating Station	6	110	Shut Down	Shut Down	LNB			SCR		SCR
Edwardsport	7-1	40	Unit will retire in 2012, IGCC will replace all the units in 2012	Unit will retire in 2012, IGCC will replace all the units in 2012		Retire	Retire	Retire	Retire	Retire
Edwardsport	7-2	40	Unit will retire in 2012, IGCC will replace all the units in 2012	Unit will retire in 2012, IGCC will replace all the units in 2012		Retire	Retire	Retire	Retire	Retire
Edwardsport	8-1	40	Unit will retire in 2012, IGCC will replace all the units in 2012	Unit will retire in 2012, IGCC will replace all the units in 2012		Retire	Retire	Retire	Retire	Retire
F B Culley Generating Station	2	90	Wet Limestone	Low NO _x Burner Technology (Dry Bottom only)	FGD+LNB			SNCR		SNCR
F B Culley Generating Station	3	270	Wet Limestone	Low NO _x Burner Technology (Dry Bottom only) Selective Catalytic Reduction	FGD+SCR					
Frank E Ratts	1SG1	122	U.S. EPA settlement, plant-wide from 2009 levels 42% reduction - 2012, 58% - 2014	Low NO _x Burner Technology (Dry Bottom only) OFA-2008	LNB			SCR		SCR

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_ NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
Frank E Ratts	2SG1	121	U.S. EPA settlement, plant-wide from 2009 levels 42% reduction - 2012, 58% - 2014	Low NO _x Burner Technology (Dry Bottom only) OFA-2008	LNB			SCR		SCR
Gibson*	1	630	Wet Limestone	LNB w/ Overfire Air Selective Catalytic Reduction	SCR+FGD					
Gibson*	2	630	Wet Limestone	Low NO _x Burner Technology w/ Overfire Air Selective Catalytic Reduction	SCR+FGD					
Gibson*	3	630	Wet Limestone	Low NO _x Burner Technology w/ Overfire Air Selective Catalytic Reduction	SCR+FGD					
Gibson*	4	622	Wet Limestone	Low NO _x Burner Technology w/ Overfire Air Selective Catalytic Reduction	SCR+FGD					
Gibson	5	620	Wet Limestone	Low NO _x Burner Technology w/ Overfire Air Selective Catalytic Reduction	SCR+FGD					
Harding Street Station (EW Stout)	50	109		LNB w/ Separated OFA Selective Non-catalytic Reduction	SNCR					
Harding Street Station (EW Stout)	60	109		LNB w/ Separated OFA Selective Non-catalytic Reduction	SNCR					
Harding Street Station (EW Stout)*	70	435	Wet Limestone	LNB w/ Closed-coupled/Separated OFA Selective Catalytic Reduction	SCR	FGD	FGD	FGD	FGD	FGD
IPL Eagle Valley Generating Station	3	43								

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
IPL Eagle Valley Generating Station	4	56		Low NO _x Burner Technology w/ Separated OFA	LNB w/SOFA					
IPL Eagle Valley Generating Station	5	62		Low NO _x Burner Technology w/ Separated OFA	LNB w/SOFA					
IPL Eagle Valley Generating Station	6	99		Low NO _x Burner Technology w/ Separated OFA	LNB w/SOFA					
Merom	1SG1	507	upgrade FGD-90% 2012, upgrade to 95% 2014	Selective Catalytic Reduction Low Nox Burner Technology w/ Overfire Air	SCR+FGD					
Merom	2SG1	493	upgrade FGD-90% 2012, upgrade to 95% 2014	Selective Catalytic Reduction Low NO _x Burner Technology w/ Overfire Air	SCR+FGD					
Michigan City Generating Station	12	469		Overfire Air - Selective Catalytic Reduction	SCR			Hg Control		Hg Control
Petersburg	1	232	Wet Limestone	Low NO _x Burner Technology w/ Closed-coupled/Sep. OFA	FGD+LNB			SCR		SCR
Petersburg	2	407	Wet Limestone	LNB w/ Closed-coupled/Separated OFA Selective Catalytic Reduction	FGD+SCR					
Petersburg	3	510	Wet Limestone	LNB w/ Closed-coupled/Separated OFA Selective Catalytic Reduction	FGD+SCR					
Petersburg	4	545	Wet Limestone	Low NO _x Burner Technology w/ Closed-coupled/Sep. OFA	FGD+LNB		SCR	SCR		SCR
R Gallagher*	1	140	Shut down by 2/1/12 or Convert to NG 1/1/13	Shut down by 2/1/12 or Convert to NG 1/1/13	LNB					

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_ NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
R Gallagher*	2	140	Dry Sorbent Technology 1/1/11	Low NO _x Burner Technology w/ Overfire Air	LNB					
R Gallagher*	3	140	Shut down by 2/1/12 or Convert to NG 1/1/13	Shut down by 2/1/12 or Convert to NG 1/1/13	LNB					
R Gallagher*	4	140	Dry Sorbent Technology 1/1/11	Low NO _x Burner Technology w/ Overfire Air	LNB					
R M Schahfer Generating Station	14	431		Overfire Air Selective Catalytic Reduction	SCR			Hg Control		Hg Control
R M Schahfer Generating Station	15	472		LNB (Dry Bottom only) A 35% efficient stratified overfire air system was added in 2008	LNB			Hg Control		Hg Control
R M Schahfer Generating Station	17	361	Wet Limestone	LNB w/ Closed-coupled/Separated OFA	SCR	FGD+ LNB	FGD+ LNB	FGD+ LNB		
R M Schahfer Generating Station	18	361	Wet Limestone	LNB w/ Closed-coupled/Separated OFA	LNB	FGD+ LNB	FGD+ LNB	FGD+ LNB		
Rockport*	MB1	1300	FGD 12/31/17 TR allowances < CAIR 2012 and 2014	LNB (Dry Bottom only) (SCR 12/31/17)	LNB w/OFA	FGD	FGD	FGD+ SCR	FGD	FGD+ SCR
Rockport*	MB2	1300	FGD 12/31/17 TR allowances < CAIR 2012 and 2014	Low NO _x Burner Technology (Dry Bottom only) (SCR 12/31/19)	LNB w/OFA	FGD	FGD	FGD+ SCR	FGD	FGD+ SCR
State Line Generating Station (IN)	3	187								
State Line Generating Station (IN)	4	303		Overfire Air		SCR	SCR	SCR+Hg Control	SCR	SCR (-Hg Control)
Tanners Creek*	U1	140	Burn only coal with no more than 1.2 lb/MMBtu annual average	Low NO _x Burner Technology (Dry Bottom only) A 30% efficient SNCR will be in place in 2010. SNCR will operate year round	OFA					

INDIANA COAL-FIRED UNITS					EPA IPM 3.0 2006 runs				LADCO Round 5 Runs	
<u>BART-eligible Units</u>										
<u>*MANEVU Ask</u>			SO ₂	NO _x						
FACILITY_ NAME	UNIT ID	Capacity MWatts	2009 + Projected SO ₂ CONTROL	2009 + Projected NO _x CONTROL	IPM Existing	IPM 2010 Retrofit	IPM 2015 Retrofit	IPM 2020 Retrofit	LADCO 2012 Retrofit	LADCO 2018 Retrofit
Tanners Creek*	U2	140	Burn only coal with no more than 1.2 lb/MMBtu annual average	Low NO _x Burner Technology (Dry Bottom only) A 30% efficient SNCR will be in place in 2010. SNCR will operate year round	OFA					
Tanners Creek*	U3	200	Burn only coal with no more than 1.2 lb/MMBtu annual average	Low NO _x Burner Technology (Dry Bottom only) A 30% efficient SNCR will be in place in 2010. SNCR will operate year round	OFA			FGD+ SCR		FGD+ SCR
Tanners Creek*	U4	500	Burn only coal with no more than 1.2% sulfur content annual average	Overfire Air	OFA					
Wabash River Gen Station*	1	85	IGCC	IGCC						
Wabash River Gen Station*	2	85	Shut Down 9-30-09	Shut Down 9-30-09	LNB					
Wabash River Gen Station*	3	85	Shut Down 9-30-09	Shut Down 9-30-09	LNB			SNCR		SNCR
Wabash River Gen Station*	4	85		Low NO _x Burner Technology w/ Overfire Air	LNB					
Wabash River Gen Station*	5	95	Shut Down 9-30-09	Shut Down 9-30-09	LNB			SNCR		SNCR
Wabash River Gen Station*	6	318	TR allocation in 2014 < CAIR	Low NO _x Burner Technology w/ Separated OFA	LNB			FGD+ SCR		FGD+ SCR
Whitewater Valley	1	34.77		Low NO _x Burner Technology w/ Separated OFA Ammonia Injection Overfire Air	LNB					

APPENDIX D

FEDERAL LAND MANAGERS AND U.S. EPA REGION 5
COMMENTS AND
IDEM RESPONSES TO COMMENTS

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IDEM Responses to U.S. Department of Interior National Parks Service Comments

Comment 1:

Section 1.0, Overview: Please summarize that ammonium sulfate and ammonium nitrate are the major contributors to visibility impairment at Class I areas as explanation for focusing the discussion on emissions reductions for SO₂ and NO_x.

IDEM Response:

A summary paragraph that explains that ammonium sulfate and ammonium nitrate are major contributors to visibility impairment at Class 1 areas and the reason the discussion on emission reductions is focused on SO₂ and NO_x was added in the new Executive Summary section. In addition, the results of an evaluation of the chemical composition of the light extinction for 20% best visibility days and 20% worst visibility days for the northern Class 1 areas was incorporated in Section 2.1.1, Regional Haze Controls, the third paragraph under the Long Term Strategy subsection. The percentage contributions to light extinction from the highest contributing pollutants are discussed. This information was taken from the Indiana Regional Haze SIP, Appendix 9a.

Comment 2:

Section 2.2.2, Long Term Strategy: Please provide more explanation of emissions calculation methods used to develop Graph 2-3 and Tables 1 and 2 in Appendix B. The Midwest Regional Planning Organization calculated the 2005 inventory and EPA calculated the 2008 and 2011 National Emissions Inventories. How were emissions in the intervening years calculated?

IDEM Response:

More explanation was provided in Section 2.2.2 Long Term Strategy Emission Reductions as to how emissions for the intervening years were calculated. See the last paragraph under this section.

Comments 3 and 4:

Section 2.3, Emissions Progress: IDEM reports that NO_x emissions from mobile sources increased in 2010. IDEM should clarify that mobile emissions calculation methods changed from the Mobile 6 model that was used in the 2005 inventory to the MOVES model that was used in the 2008 and 2011 inventories. Similarly, the NONROAD model was updated after the 2005 inventory. These methods changes complicate interpretation of emissions trends, particularly for NO_x and particulate matter. In Graph 2.4 and accompanying text please clarify that SO₂ and NO_x emissions trends include all major source categories.

Please add tables of 2005, 2011 and 2018 projected emissions separately accounting for the major source categories and the major pollutants that contribute to visibility impairment: SO₂, NO_x, volatile organic compounds, ammonia, particulate matter greater than 10 microns and particulate matter greater than 2.5 microns. By comparing current emissions to 2018 projected emissions, IDEM can demonstrate progress toward emissions reductions that were used in regional air quality models to project 2018 visibility improvement goals for Class I areas.

IDEM Response:

Table 2.5 in Section 2.3.1, Sulfur Dioxide incorporates 2005 and 2011 actual emissions, and 2018 projected emissions separately accounting for the major source categories and SO₂ and NO_x pollutants. Current emissions are compared to 2018 projected emissions in the last paragraph of this section for SO₂. Emission information for VOCs, NH₄, PM₁₀ and P_{2.5} were added in Appendix B; however these pollutants were not included in the emission progress discussion because the methods for estimating emission information from the major source categories for these pollutants are complex and have changed since 2005 causing inconsistent values.

A note was added to Table 2.4 and Graph 2.4 and the accompanying text in the first paragraph was revised in this section to clarify that SO₂ and NO_x emissions and emissions trends include all major source categories. The last paragraph in Section 2.3.2, Nitrogen Oxides compares current emissions to 2018 projected emissions for NO_x. Included in this paragraph is a discussion of the change in mobile emission calculations from the Mobile 6 model that was used in the 2005 inventory to the MOVES model that was used in the 2008 and 2011 inventories and update to the NONROAD model after the 2005 inventory.

Comment 5:

Section 2.5, Assessment of Current Strategy: This section describes IDEM's consultations with states that have Class I areas that are impacted by emissions from Indiana. Please add a summary table of visibility trends at these Class I areas to support IDEM's conclusion that IDEM's existing state implementation plan is sufficient for Class I areas to meet the visibility improvement goals set by these states. At a minimum IDEM can cite progress reports by Kentucky, Minnesota, North Carolina, and Virginia, to demonstrate that Class I national parks in these states are already meeting 2018 visibility goals.

IDEM Response:

Section 2.5, Assessment of Current Strategy was revised for the Class 1 areas listed to include a discussion of the progress made by the state towards meeting 2018 visibility goals according to the states' RH SIP 5-year progress reports submitted to the U.S. EPA.

IDEM Responses to U.S. Forest Service Comments

Comment 1:

We recommend including the 2018 emissions projections (outlined in the original SIP) in Section 2.3, Emissions Progress to enhance the clarity of the 5-year progress report. Comparing current emissions levels with the 2018 projections will demonstrate progress toward the emissions reductions used to project visibility improvement goals for Class I areas. Since the rate of emissions reductions from 2010-2014 was reduced over the rate of reductions that occurred from 2005-2010, it is important to highlight the amount of required reductions remaining over the next five-year period.

IDEM Response:

A new table, Table 2.5, was added to Section 2.3, Emissions Progress. The table includes the NEI emission estimates for 2005 and 2011 and the emission reduction projections for 2018. A summary of the progress made as of 2011 compared to the 2018 projections was added to Sections 2.3.1, Sulfur Dioxide and 2.3.2, Nitrogen Oxides as recommended.

Comment 2:

We also recommend including emissions information for the following pollutants (in addition to the information provided for SO₂ and NO_x): volatile organic compounds, ammonia, PM₁₀, and PM_{2.5}.

IDEM Response:

Emission information for VOCs, NH₄, PM₁₀ and PM_{2.5} were added in Appendix B, however these pollutants were not included in the emission progress discussion because the methods for estimating emission information from the major source categories for these pollutants are complex and have changed over the past 10 ten years causing inconsistent values.

IDEM Responses to U.S. EPA Region 5 Comments

Comment 1:

I think the document could be improved if you move up, even before the intro, like an exec summary or perhaps a “determination of adequacy” section (like you have on pg 33) that lays out the big picture right away that you guys are on track in your RH progress. I had to wade through it to find it. I also thought you had some extra fluff in there in terms of rehashing what is in the RHR within your document.

IDEM Response:

A negative declaration to the U.S. EPA Administrator specifying that further revision of the existing implementation plan is not needed at this time was provide in a new Executive Summary section that was added to the document.

Comment 2:

I also thought you had some extra fluff in there in terms of rehashing what is in the RHR within your document. For example, in Section 2.6 on pg 32 you lay out the various options states can follow with respect to showing their progress. I am not sure all that is needed, just perhaps a reference to the pertinent sections of the RHR.

IDEM Response:

IDEM appreciates and understands Region 5’s comment, however IDEM choses to leave the complete language from the referenced sections of these regulations in the document for clarity and consistency.



United States Department of the Interior

NATIONAL PARK SERVICE

Air Resources Division

P.O. Box 25287

Denver, CO 80225-0287

TRANSMITTED VIA ELECTRONIC MAIL - NO HARDCOPY TO FOLLOW

N3615 (2350)

January 29, 2016

Jean Boling
Indiana Department of Environmental Management
Office of Air Quality, Air Programs Branch
100 North Senate Avenue, MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251

Dear Ms. Boling:

Thank you for the opportunity to review and comment on Indiana's draft Regional Haze Five Year Progress Report. As you requested, we conducted an expedited review. Note that 40 CFR 51.308(i) requires states to consult with Federal Land Managers 60 days prior to public hearing.

Indiana Department of Environmental Management (IDEM) has addressed most of the requirements for the regional haze periodic progress report as outlined in 40 CFR 51.308(g) and (h). No Class I areas are located in Indiana. IDEM identifies Class I areas that were determined through the regional planning organizations to be impacted by emissions from Indiana. The progress report summarizes implementation of federal emission control programs and Best Available Retrofit Technology for sources in Indiana as part of Indiana's 2011 Regional Haze State Implementation Plan. IDEM reports reductions in sulfur dioxide (SO₂) and nitrogen oxide (NO_x) emissions. Below are suggestions to better characterize the emissions reductions in Indiana and the relevance to visibility improvements at Class I areas.

Section 1.0. Overview: Please summarize that ammonium sulfate and ammonium nitrate are the major contributors to visibility impairment at Class I areas¹ as explanation for focusing the discussion on emissions reductions for SO₂ and NO_x.

¹Hand, J.L., Copeland, S.A., Day, D.E., Dillner, A.M., Indresand, H., Malm, W.C., McDade, C.E., Moore, T., Pitchford, M.L., Schichtel, B.A., Watson, J.G. 2011. Spatial and Seasonal Patterns and Temporal Variability of Haze and its Constituents in the United States: Report V.

Section 2.2.2 Long Term Strategy: Please provide more explanation of emissions calculation methods used to develop Graph 2-3 and Tables 1 and 2 in Appendix B. The Midwest Regional Planning Organization calculated the 2005 inventory and EPA calculated the 2008 and 2011 National Emissions Inventories. How were emissions in the intervening years calculated?

Section 2.3 Emissions Progress: IDEM reports that NO_x emissions from mobile sources increased in 2010. IDEM should clarify that mobile emissions calculation methods changed from the Mobile 6 model that was used in the 2005 inventory to the MOVES model that was used in the 2008 and 2011 inventories. Similarly, the NONROAD model was updated after the 2005 inventory. These methods changes complicate interpretation of emissions trends, particularly for NO_x and particulate matter. In Graph 2.4 and accompanying text please clarify that SO₂ and NO_x emissions trends include all major source categories.

Please add tables of 2005, 2011, and 2018 projected emissions separately accounting for the major source categories and the major pollutants that contribute to visibility impairment: SO₂, NO_x, volatile organic compounds, ammonia, particulate matter greater than 10 microns and particulate matter greater than 2.5 microns. By comparing current emissions to 2018 projected emissions, IDEM can demonstrate progress toward emissions reductions that were used in regional air quality models to project 2018 visibility improvement goals for Class I areas.

Section 2.5 Assessment of Current Strategy: This section describes IDEM's consultations with states that have Class I areas that are impacted by emissions from Indiana. Please add a summary table of visibility trends at these Class I areas to support IDEM's conclusion that IDEM's existing state implementation plan is sufficient for Class I areas to meet the visibility improvement goals set by these states. At a minimum IDEM can cite progress reports by Kentucky,² Minnesota³, North Carolina,⁴ and Virginia,⁵ to demonstrate that Class I national parks in these states are already meeting 2018 visibility goals.

We appreciate the opportunity to work with Indiana to improve visibility in Class I national parks and wilderness areas. If you have questions, please contact me at patricia_f_brewer@nps.gov or 303-969-2153.

Sincerely,



Pat Brewer

Cc: John Summerhays, EPA Region 5

² Kentucky State Implementation Plan (SIP) Revision: Regional Haze 5-Year Periodic Report 2008-2013 For Kentucky's Class I Federal Area. 2014. http://air.ky.gov/SiteCollectionDocuments/Kentucky_Regional_Haze_5-Year_Periodic_Report_SIP%20Revision_Sept_2014.pdf

³ Five-Year Regional Haze Progress Report State Implementation Plan. December 2014. Minnesota Pollution Control Agency. <https://www.pca.state.mn.us/air/minnesota-regional-haze-plan>

⁴ Regional Haze 5-Year Periodic Review State Implementation Plan for North Carolina Class I Areas. 2013. http://daq.state.nc.us/planning/haze/regional_haze_sip.shtml

⁵ Air Quality State Implementation Plans; Approval and Promulgation: Virginia; Regional Haze Five-Year Progress Report. 2014. 79 FR 25019. EPA-R03-OAR-2014-0006-0006 <http://www.regulations.gov>.

Boling, Jean

From: O'Dea, Claire B -FS <cbodea@fs.fed.us>
Sent: Friday, January 29, 2016 10:25 AM
To: Boling, Jean
Cc: DERF, MARK; patricia_f_brewer@nps.gov
Subject: RE: Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan

*** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ***

Hi Jean,

The US Forest Service has completed our review of the Indiana Regional Haze 5-Year Progress Report. The Forest Service appreciates the opportunity to review the document and the chance to once again work cooperatively with the Indiana Department of Environmental Management. The expedited timeline made it impossible for us to submit a formal letter, but we were informed that comments via email would suffice. We can draft these comments into a formal letter for later submission if desired.

We concur with the findings that the 2011 Indiana State Implementation Plan is sufficient for meeting the goals outlined in the Regional Haze Rule. The first five year period following the base year resulted in significant reductions in sulfate and nitrogen oxide emissions. During the first five year period of this SIP, sulfate emissions have been reduced by an additional 28% and nitrogen oxide emissions have been reduced by an additional 13%. Therefore, we agree with your conclusion that no additional controls are necessary for the first planning period for emission sources in Indiana in order to achieve reasonable progress in visibility for federally mandated Class I areas managed by the USDA Forest Service.

We do, however, recommend including the 2018 emissions projections (outlined in the original SIP) in Section 2.3 to enhance the clarity of the 5-Year Progress Report. Comparing current emissions levels with the 2018 projections will demonstrate progress toward the emissions reductions used to project visibility improvement goals for Class I areas. Since the rate of emissions reductions from 2010-2014 was reduced over the rate of reductions that occurred from 2005-2010, it is important to highlight the amount of required reductions remaining over the next five-year period. We also recommend including emissions information for the following pollutants (in addition to the information provided for SO₂ and NO_x): volatile organic compounds, ammonia, PM₁₀, and PM_{2.5}.

The Forest Service understands the timeline under which Indiana is working to meet EPA targets, which is why we conducted this expedited review. In the future, we ask that Indiana incorporate the Federal Land Manager review into the drafting and submission timeline, in order to provide us with the full 60 day review period required by 40 CFR 51.308(i).

We look forward to our continued close cooperation toward the national goal of no "man-made" visibility impairment to the Class I areas in our region by 2064.

Best,



Claire O'Dea, PhD
Air Quality Specialist
Forest Service
Eastern Regional Office
p: 202-205-1686
c: 919-368-6879

cbodea@fs.fed.us

1400 Independence Ave, SW, #1121
Washington, DC 20250

www.fs.fed.us



Caring for the land and serving people

From: Boling, Jean [<mailto:JBoling@idem.IN.gov>]

Sent: Thursday, January 14, 2016 3:29 PM

To: O'Dea, Claire B -FS; patricia.f.brewer@nps.gov

Cc: DERF, MARK

Subject: Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan

Federal Land Managers,

The state of Indiana submits its Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan for your review in accordance with Sections 51.308(i)(2) and (3) of the Regional Haze Rule which requires the State to provide Federal Land Managers with an opportunity for consultation on state implementation plan revisions for regional haze. The state of Indiana's 5-year progress report clearly demonstrates that significant SO₂ and NO_x emission reductions were realized over the 5-year evaluation period (2007-2012) as a result of federal and state control measures implemented over the past 10 years and in preparation for those to be implemented by 2018, the end of the first regional haze planning period. The state of Indiana has confirmed through this evaluation that its existing Regional Haze SIP is adequate to meet the requirements of the Regional Haze Rule and to support reasonable progress goals at all Class I areas impacted by emissions from Indiana. If you have any questions or need any additional information regarding the state of Indiana's Regional Haze 5-year progress report, please don't hesitate to contact me or Mark Derf at (317) 233-5682 or mderf@idem.IN.gov.

Thank you, in advance, for your assistance and cooperation and I look forward to hearing from you.

Jean Boling

Senior Environmental Engineer
Indiana Department of Environmental Management
Office of Air Quality, Air Programs Branch
100 North Senate Avenue, MC 61-53 IGCN 1003
Indianapolis, IN 46204-2251
Phone: 317-232-8228
Fax: 317-233-5967
E-mail: jboling@idem.IN.gov

Boling, Jean

From: Alvarez, Gilberto <alvarez.gilberto@epa.gov>
Sent: Thursday, February 11, 2016 2:45 PM
To: Boling, Jean
Cc: Ko, Joseph
Subject: Quick review of RH 5 Yr Progress Report

**** This is an EXTERNAL email. Exercise caution. DO NOT open attachments or click links from unknown senders or unexpected email. ****

Hi Jean. I took a look at your draft submittal. I do not have any "show stopper" comments. I think the document could be improved if you move up, even before the intro, like an exec summary or perhaps a "determination of adequacy" section (like you have on pg 33) that lays out the big picture right away that you guys are on track in your RH progress. I had to wade through it to find it. I also thought you had some extra fluff in there in terms of rehashing what is in the RHR within your document. For example, in Section 2.6 on pg 32 you lay out the various options states can follow with respect to showing their progress. I am not sure all that is needed, just perhaps a reference to the pertinent sections of the RHR. But that is pretty much a minor quibble. Go ahead and do your 30 day public comment action and if we do find anything worth nothing during that time period, we will let you know via that process. I hope this quick response helps.

We look forward to working with you as move forward to an actual formal submittal. Again, Joe Ko will be working with you on the review, but I will be guiding and working with him.

Gilberto Alvarez
Attainment Planning and Maintenance Section
Air Programs Branch - Air and Radiation Division
US EPA R5; AR 18 J; 77 W Jackson
Chicago IL 60604
312 886 6143

APPENDIX E

IDEM PUBLIC PARTICIPATION PROCESS DOCUMENTATION

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LEGAL NOTICE OF PUBLIC HEARING

Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan

Notice is hereby given under 40 Code of Federal Regulations (CFR) 51.102 that the Indiana Department of Environmental Management (IDEM) is accepting written comment and providing an opportunity for a public hearing regarding the Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan (SIP). All interested persons are invited and will be given reasonable opportunity to express their views concerning the submittal of the proposed Indiana Regional Haze Five-Year Progress Report State Implementation Plan.

Indiana initially submitted its Regional Haze SIP to the United States Environmental Protection Agency (U.S. EPA) on January 14, 2011. The final corrected version was submitted on March 10, 2011. In developing its Regional Haze SIP, Indiana calculated baseline and natural visibility conditions for affected Class 1 areas outside the state, established reasonable progress goals for those areas, provided Best Available Retrofit Technology determinations, adopted a Long Term Strategy supporting progress towards visibility goals, included a visibility monitoring strategy, and documented consultation with other states and Federal Land Managers. The U.S. EPA finalized a limited approval and promulgation of Indiana's Regional Haze SIP in the June 11, 2016, *Federal Register* (FR) published at 77 FR 34218.

The Regional Haze Rule requires a comprehensive analysis of each State's Regional Haze SIP every ten (10) years and a progress report every five (5) years to evaluate the effectiveness of the State's long-term strategies for regional haze. Indiana submits this 5-year progress report SIP revision in accordance with the Regional Haze Rule requirements in 40 CFR 51.308(g) and (h) for progress reports. This report will evaluate the status of implementation and provide a summary of the emissions reductions achieved for all emission management measures implemented by the State of Indiana for the first 5-year review of the 2008 to 2018 planning period and is due March 2016.

The draft documents will be available on the following web page:

<http://www.in.gov/idem/airquality/2337.htm>

Any person may submit written comments on the Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan. Written comments should be directed to:

Ms. Jean Boling
Indiana Department of Environmental Management
Office of Air Quality, Room 1003
100 North Senate Avenue
Indianapolis, Indiana 46204

Comments can also be submitted via fax number (317) 233-5967 or e-mail at jboling@idem.IN.gov. Comments must be submitted by March 25, 2016. Interested parties may also present oral or written comments at the public hearing, if held. Oral statements will be heard, but for the accuracy of the record, statements should be submitted in writing. Written statements may be submitted to the attendant designated to receive written comments at the public hearing.

A public hearing on the Draft Indiana Regional Haze Five-Year Progress Report State Implementation Plan will be held if a public hearing request is received by March 21, 2016. If a hearing is requested, the hearing will be held on March 22, 2016. The hearing will convene at 3:00 p.m. local time at the Indianapolis Public Library – College Avenue Branch located at 4180 N. College Avenue, Indianapolis, Indiana 46205. If a request for a public hearing is not received by March 21, 2016, the hearing will be cancelled. Interested parties can check the online IDEM calendar at <http://www.in.gov/activecalendar/EventList.aspx> or contact Ms. Jean Boling at (317) 232-8228, after March 21, 2016, to see if the hearing has been cancelled or will convene.

A transcript of the hearing and all written submissions provided at the public hearing shall be open to public for inspection at IDEM and copies may be made available to any person upon payment of reproduction costs. Any person heard or represented at the hearing or requesting notice shall be given written notice of actions resulting from the hearing.

For additional information contact Ms. Jean Boling, at the Indiana Department of Environmental Management, Office of Air Quality, Room N1003, Indiana Government Center North, 100 North Senate Avenue, Indianapolis, IN 46204 or call (317) 232-8228 or (800) 451-6027 ext. 2-8244 (in Indiana).

Speech and hearing impaired callers may contact the agency via the Indiana Relay Service at 1-800-743-3333.

Indianapolis Marion County Public Library - Central Library
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Event Date: Tuesday, March 22, 2016

Indianapolis, IN 46206-0211

Fax Number: (317) 269-5264

Salesperson: Jacquelyn Brewer

E-mail: jbrewer@indypl.org

Contact: Catherine Mitchell

Mailing Address:

E-mail: cmitchel@idem.in.gov

Daytime Phone: (317) 234-6530

Fax Number:

On-Site Contact: Catherine Mitchell

Mailing/Billing: P.O.Box 211 Indianapolis IN 46206-0211

Event Name: IN. DEPT. OF ENVIRONMENTAL MANAGEMENT

EVENT ORDER - INTERNAL : LSC18711

Site: LSC and Branches

Telephone Number: (317) 275-4020

Day/Date	Start/End Time	Location	Function	Set-Up	Est	Gte	Set
Tue, 3/22/16	3:00PM- 7:00PM	College - Small Meeting Room	Meeting Only				

Event Notes: paperwork received 2/18--JB

