

# **APPENDIX A**

INDIANA COAL-FIRED ELECTRIC GENERATING UNITS  
CONTROLS, CONTROL EFFICIENCIES, AND SHUTDOWNS

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Indiana Coal-Fired Electric Generating Units Controls, Control Efficiencies, and Shutdowns

Source Name	County ID	Source ID	Unit ID	PM Control(s)	SO <sub>2</sub> Control(s)	SO <sub>2</sub> Control Efficiency (%)	NO <sub>x</sub> Control(s)	NO <sub>x</sub> Control Efficiency (%)	SO <sub>3</sub> Control(s)	H <sub>2</sub> SO <sub>4</sub> Control(s)	Hg Control(s)	Comments
A B Brown	129	00010	1	Baghouse	Dual Alkali FGD		Low NO <sub>x</sub> Burner Technology and Low Excess Air/Selective Catalytic Reduction System				Sorbent Injection System	Replaced with renewables and NG-fired turbines according to source (3-17-2021). Shut Down in 2023
			2	Cold-side Electrostatic Precipitator	Dual Alkali FGD	96.7	Low NO <sub>x</sub> Burner Technology and Low Excess Air/Selective Catalytic Reduction System			Sorbent Injection System	Replaced with renewables and NG-fired turbines according to source (3-17-2021). Highest control efficiency for 2015 to 2019. Shut Down in 2023	
Alcoa	173	00002	4	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (2008)	Information not available	Low NO <sub>x</sub> Burner Technology with Overfire Air (1998)/Selective Catalytic Reduction System (2004)	Information not available		Reagent Injection System (2009)		Per 2019-2020 Vectren IRP exit agreement to purchase power in 2023. Unit will still operate in some capacity beyond 2023.
Cayuga	165	00001	1	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (2008)	98.44	Low NO <sub>x</sub> Burner Technology w/ Separated OFA (1993)/Selective Catalytic Reduction System (2015)	88.00	SO <sub>3</sub> Mitigation System (2015)		Mercury re-emission chemical injection system (2015), Calcium Bromide (2016)	Control efficiencies calculated. Per the 10/3/2024 stakeholder meeting concerning Duke's proposed IRP, Blend 2 is the preferred portfolio. This unit would convert to NG by 1/1/2030 and retire coal by 1/1/2030. Permit for NG conversion in house and under review with IDEM-permit number is 165-47430-00001.
			2	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (2008)	98.91	Low NO <sub>x</sub> Burner Technology w/ Separated OFA (1993)/Selective Catalytic Reduction (2015)	88.00	SO <sub>3</sub> Mitigation System (2015)		Mercury re-emission chemical injection system (2014), Calcium Bromide (2016)	Control efficiencies calculated. Per the 10/3/2024 stakeholder meeting concerning Duke's proposed IRP, Blend 2 is the preferred portfolio. This unit would convert to NG by 1/1/2030 and retire coal by 1/1/2031. Permit for NG conversion in house and under review with IDEM-permit number is 165-47430-00001.
Clifty Creek	077	00001	1	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air Selective Catalytic Reduction	From 70-90%				No update
			2	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air Selective Catalytic Reduction	From 70-90%				
			3	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air Selective Catalytic Reduction	From 70-90%				
			4	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air Selective Catalytic Reduction	From 70-90%				
			5	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air Selective Catalytic Reduction	From 70-90%				
			6	Hot-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System	98% (design basis)	Overfire Air					
FB Culley	173	00001	2	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization		Low NO <sub>x</sub> Burner Technology (Dry Bottom only)					Replaced with renewables and NG-fired combustion turbines, as per source (3-17-2021). Updated 2022/May-2023 IRP conversion to NG. Company is seeking IURC approval of the conversion. Due to Shut Down in 2025
			3	Baghouse	Wet Limestone Fluidized-Gas Desulfurization	98.50	Low NO <sub>x</sub> Burner Technology (Dry Bottom only) Selective Catalytic Reduction System			Sorbent Injection System	Highest control efficiency averages for 2015 to 2019. Updated 2022/May-2023 IRP conversion to NG. Company is seeking IURC approval of the conversion. Due to Shut Down in 2027	

Gibson	051	00013	1	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System (2007)	98.47	Selective Catalytic Reduction System (2005)	81.00	SO <sub>2</sub> Mitigation System	Mercury re-emission chemical injection system (2015), Calcium Bromide (2015)	Control efficiencies calculated. Per the 10/3/2024 stakeholder meeting concerning Duke's proposed IRP, Blend 2 is the preferred portfolio. These units would co-fire NG by 1/1/2030, and retire coal by 1/1/2030.
			2	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System (2007)	98.03	Selective Catalytic Reduction System (2002)	81.00	SO <sub>2</sub> Mitigation System	Mercury re-emission chemical injection system (2015), Calcium Bromide (2015)	
			3	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System (2006)	98.61	Selective Catalytic Reduction System (2002)	84.00	SO <sub>2</sub> Mitigation System	Mercury re-emission chemical injection system (2015), Calcium Bromide (2015)	Control efficiencies calculated. Per the 10/3/2024 stakeholder meeting concerning Duke's proposed IRP, Blend 2 is the preferred portfolio. These units would convert to NG by 1/1/2030, and retire coal by 1/1/2032.
			4	Cold-side Electrostatic Precipitator	Limestone Fluidized-Gas Desulfurization System (1994)	96.32	Selective Catalytic Reduction System (2003)	88.00	SO <sub>2</sub> Mitigation System	Calcium Bromide (2015)	
			5	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System (1982)	93.66	Selective Catalytic Reduction System (2004)	85.00	SO <sub>2</sub> Mitigation System	Mercury re-emission chemical injection system (2015), Calcium Bromide (2015)	Control efficiencies calculated. Per the 10/3/2024 stakeholder meeting concerning Duke's proposed IRP, Blend 2 is the preferred portfolio. This unit would retire by 1/1/2030.
Merom	153	00005	1SG1	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System	98.30	Selective Catalytic Reduction System/Low NO <sub>x</sub> Burner Technology w/ Overfire Air	90.00	SO <sub>2</sub> Mitigation System	Activated Carbon Injection System (2015)	Highest control efficiency averages for 2015 to 2019.
			2SG1	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization System	98.50	Selective Catalytic Reduction System/Low NO <sub>x</sub> Burner Technology w/ Overfire Air	90.80	SO <sub>2</sub> Mitigation System	Activated Carbon Injection System (2015)	Control efficiency averages for 2015 to 2019.
Michigan City	091	00021	12	Baghouse (2015)	Fluidized-Gas Desulfurization	84.38	Overfire Air - Selective Catalytic Reduction System	91.61		Activated Carbon Injection System (2015)	Highest control efficiency averages for 2016 to 2019. November 2018 - Per the last public meeting (October 18, 2018) on the 2018 IRP NISPCO expects to retire this unit in 2028 in their long term plan.
Petersburg	125	00002	1	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (1996)	97-99	Low NO <sub>x</sub> Burner Technology w/ Closed-coupled/Separated OFA (1995)		Sodium based solution (SBS) injection (2015)	Activated Carbon Injection System (2015)	Highest control efficiency rough estimate provided by source. Shut down in 2021
			2	Baghouse (2015)	Wet Limestone Fluidized-Gas Desulfurization (1996)	95-99	Low NO <sub>x</sub> Burner Technology w/ Closed-coupled/Separated OFA (1994) Selective Catalytic Reduction System (2004)			Activated Carbon Injection System (2015)	Control efficiency rough estimate provided by source. Shut down in 2023
			3	Baghouse (2016)/Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization upgraded in 2006	94-97	Selective Catalytic Reduction System (2004)/ Overfire Air OFA	70-85		Activated Carbon Injection System (2016)	Highest control efficiency rough estimates provided by source. Consent Decree: subject to NO <sub>x</sub> and SO <sub>2</sub> limits for 2025 and 2026 as follows: operate the coal-fired Units 1 through 4 so the Units combined do not emit SO <sub>2</sub> in excess of an annual tonnage limitation of 10,100 tons per year and coal-fired Units 1 through 4 combined do not emit NO <sub>x</sub> in excess of an annual tonnage limitation of 8,500 tons per year. Conversion to gas by 2025(approximate)-IDEM 125-46458-00002 permit issued Dec 5 2023 for natural gas conversion on units 3 and 4.
			4	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization upgraded in 2011	96-97	TFS Low NO <sub>x</sub> Burner Technology w/ Closed-coupled/Separated Air OFA	70-85		Activated Carbon Injection System (2016)	

R Gallagher	043	00004	2	Baghouse (2007)	Dry Sorbent Injection System (2010)	45.66	Low NO <sub>x</sub> Burner Technology w/ Overfire Air	45.66				Shut Down 06/2021	
			4	Baghouse (2008)	Dry Sorbent Injection System (2010)	48.35	Low NO <sub>x</sub> Burner Technology w/ Overfire Air	48.35					Shut Down 06/2021
R M Schahfer	073	00008	14	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System (2013)	99.07	Overfire Air Selective Catalytic Reduction System	85.24		Reagent Injection System	Activated Carbon Injection System (2014)	Highest control efficiency average for 2015-2019: NOx control efficiency average for 2016-2019. Shut Down 2021	
			15	Cold-side Electrostatic Precipitator	Fluidized-Gas Desulfurization System (2014)	98.1	Low NO <sub>x</sub> Burner Technology (Dry Bottom only) (2009)/Selective Non-Catalytic Reduction System				Reagent Injection System	Activated Carbon Injection System (2014)	Highest control efficiency average for 2015-2019: NOx control efficiency average for 2016-2019. Shut Down 2021
			17	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (2010)	99.14	Low NO <sub>x</sub> Burner Technology w/ Closed-coupled/Separated OFA						Highest control efficiency average for 2015-2019. Due to shut down in 2025. They submitted application No. 073-47965-00008 to install 4 natural gas-fired simple cycle combustion turbines.
			18	Cold-side Electrostatic Precipitator	Wet Limestone Fluidized-Gas Desulfurization (2009)	99.25	Low NO <sub>x</sub> Burner Technology w/ Closed-coupled/Separated OFA						Highest control efficiency average for 2015-2019. Due to shut down in 2025
Rockport	147	00020	MB1	Cold-side Electrostatic Precipitator	Enhanced DSI System (2020), DSI System (2015)	48.00	Low NO <sub>x</sub> Burner Technology (Dry Bottom only) and Overfire Air Selective Catalytic Reduction System	57.00		Activated Carbon Injection System		Plant-wide SO <sub>2</sub> cap = 10,000 tpy, SO <sub>2</sub> rate = 0.15 #/MMBtu, NOx rate = 0.090#/MMBtu; Highest control efficiency average for 2016-2020 (for DSI prior to enhancement)*. Retirement in consent decree 9/13/21 and Jan-2022 IRP for both units is 2028	
			MB2	Cold-side Electrostatic Precipitator	Enhanced DSI System (2020), DSI System (2015)	48.00	Low NO <sub>x</sub> Burner Technology (Dry Bottom only) and Overfire Air Selective Catalytic Reduction System	61.00			Activated Carbon Injection System		Plant-wide SO <sub>2</sub> cap = 10,000 tpy, After 2028 SO <sub>2</sub> cap = 5,000 tpy; SO <sub>2</sub> rate = 0.15 #/MMBtu, NOx rate = 0.090 #/MMBtu; Highest control efficiency average for 2016-2020 (for DSI prior to enhancement)*. Retirement in consent decree 9/13/21 and Jan-2022 IRP for both units is 2028
Whitewater Valley	177	00009	1	Cold-side Electrostatic Precipitator/ Baghouse			Low NO <sub>x</sub> Burner Technology (Dry Bottom only)/Ammonia Injection Overfire Air (2004)/Selective Non-Catalytic Reduction System/Shared Dry Sorbent Injection System (2015)			Shared Activated Carbon Injection System (2015)		No update	
			2	Cold-side Electrostatic Precipitator/ Baghouse			Low NO <sub>x</sub> Burner Technology w/ Separated/Ammonia Injection Overfire Air (2003)/Selective Non-Catalytic Reduction/Shared Dry Sorbent Injection System (2015)						

\*The SCRs were in service for part of the historic record period with the Unit 1 SCR in full operation for 2018 - 2020 and the Unit 2 SCR in full operation for part of 2020

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