

APPENDIX F - EPD BACT Comparison Spreadsheet for the Coal Fired Boiler S1

State	Plant Name	City/County	General Project Description	Added Capacity (MW)	NOx	CO	VOC	PM
Arizona	Tucson Electric - Springfield	Tucson	2 x 330 MW (PC)-fired	760	0.697 24-hr			0.034 - PM filterable only 2-hr
Arkansas	Plum Point (LS Power)	Concord	650-800MW Pulverized Powder River basin (sub bituminous) coal fired boiler	600	0.09 24-hr (excluding SSM)	0.18	0.02	0.018 PM10
Arkansas	SWEPSCO John W. Turk	Fulton (Pulaski)	600 MW (nominal net) Ultra-supercritical PRB Sub-bituminous coal, 6000 mbtu/hr	600	0.067 24-hr 0.05 annual	0.15 24-hr net-avg	0.0036 3-hr average (BACT), 0.00076 (115) 3-hr uncorrected 24	0.012 3-hr PM10/PM10 filterable 0.025 3-hr PM10 24-hr
Colorado	Xcel Energy, Comanche Station	Pueblo (Pueblo)	Addition of Unit 3, an approximately 750 MW (net) super critical pulverized coal boiler to the existing Comanche Station. Minimum gross heat input rate of approximately 7,421 mmbtu/hr. Sub-bituminous coal	750	0.08 - 30 day average 0.07 - annual average	0.13 - 24-hr avg	0.0035	0.015 - filterable (0.012 PM10) 0.022 - total (0.020 PM10)
Georgia	Longleaf Energy Associates LLC (LS Power Development, LLC)	Early	Contract 12 new pulverized coal boilers (600 MW each)	1,200	0.07 - 30 day average 0.05 - annual average	0.16 - 30 day avg; 0.1 (BACT)	0.0036	0.012 - filterable 0.012 - total (BACT)
Illinois	Dallman Unit 4	SIEMENS	250 MW coal fire 3.65% S ~ 7.0 BmmBtu. PSD for PM10, SAM. Not subject to PSD for NOx and SO2 because project relied out of review. Sierra Club Settlement at end of permit re. NOx, SO2 and other issues.	250	N/A	0.12 - 24-hr		0.012 filterable PM 0.035 total PM
Illinois	Peabody - Prairie State Generating Station	Washington	1,500 megawatt (MW) coal-fired plant, comprised of two 750 MW pulverized coal boilers - in Washington County in southern Illinois. This permit was appealed to EAB and EAB ruled in favor of the permit. 7,450 million Btu/hr. The boilers would generate electricity for the Illinois NB 5 coal. The plant would use 190 MW pulverized coal. The pulverized coal fired boiler designed for base load operation on Powder River Basin coal. "Unit 4" will be co-located with existing Units 1-3.	1,500	0.07 - 30 day average	0.12 - 24-hr block average, 863 lb/hr for startup and shutdown	0.004 - 3-hr block average	0.015 - 3-hr block average PM filterable total PM10 - 0.035 24-hr block average
Iowa	MidAmerican - Council Bluffs	Council Bluffs	Installation of three new 680 Mw (700 MW nominal) (6,500 mbtu/hr) pulverized coal boilers. Unit 2, 4, and 41, along with auxiliary coal and ash handling system and cooling towers. Proposed to be located at existing Holcomb power plant.	1,950	0.07 - 30 day average	0.154 - 24-hr average	0.0036	0.027 PM 0.025 PM10 (pg 5)
Kansas	Sunflower Electric Power Cooperative, Holcomb Power Plant	Holcomb (Finney)	Contract 1 new pulverized coal boiler (750 MW). Proposed to be located at existing Holcomb power plant. The boiler has the capability of firing a blend containing eastern bituminous coal and up to 50% western coal. (8542 mmbtu/hr) 750	750	4.17 bed AND 1,506.72 by, Pg 35 has quarterly reports of 12-month NOx and SO2 emissions.	0.1 - 30-day avg	0.0032 - 3-hr avg	0.016 - total PM10/PM10, 0.015 filterable (pg 28)
Kentucky	Thoroughbred	Cynthiana (Madison)	2 x 750 MW PC-fired; two 7443 mmbtu/hr boilers	1,500	0.07 - 30-day rolling avg	0.10 - 30-day	0.0072 - 30 day 18 or 25	0.018 - total
Missouri	City Utilities of Springfield, Southwest Power Station	Springfield (Greene)	275 MW PC-fired, low sulfur, western subbituminous coal, 275 mmbtu/hr. The heat input to the boiler shall not exceed 7,800 MMBTUHR. PRIMARY FUEL, THE HEAT INPUT TO THE BOILER SHALL NOT EXCEED 7,800 MMBTUHR. 810 MW - Unit 2, SUBBITUMINOUS COAL AS A PRIMARY FUEL. THE HEAT INPUT TO THE BOILER SHALL NOT EXCEED 8,100 MMBTUHR.	275	0.05 30-day	0.15-20 day	0.0036	0.010 PM10 0.014 - filterable PM10, 0.0244 - total PM10, 0.015-filterable PM
Missouri	KCP&L	Weston (Platte)	810 MW - Unit 2, SUBBITUMINOUS COAL AS A PRIMARY FUEL. THE HEAT INPUT TO THE BOILER SHALL NOT EXCEED 8,100 MMBTUHR.	810	0.05 - 30-day	0.14 - 30-day	0.0036	0.014 - filterable PM10, 0.0239 - total PM10, 0.015 - Filterable PM
Missouri	KCP&L	Weston (Platte)	810 MW PC-fired, pulverized PRB coal	570	0.10 - 24-hour (excluding SSM), 0.05 - 30-day (excluding SSM)	0.16	0.0036	0.018 PM10 - total ??? filterable in file
Montana	Roundup Power	Roundup (Missoula)	2 x 330 MW PC-fired, bituminous western coal	780	0.10 - 1-hr average, 0.07 - 24-hr average	0.15 -	0.003	0.012 - filterable - no condensable limit
Nebraska	Omaha Public Power District - Nebraska City	Nebraska City	Addition of one 680 MW (6478 mmbtu/hr) coal-fired unit at the existing Nebraska City power station. EPD 585 is not correct exhibit.	680	0.07 - 30 day average (following 18-month optimization, item 0.12)	0.16	0.0034	0.019 - total
Nevada	Newmont	Eureka County	200 MW supercritical, 2030 mmbtu/hr PRB coal		0.067 24-hr	0.15 - 24-hr	8.1 lb/hr (not a BACT)	0.012 24-hr filterable only PM10/PM10
Nevada	LS Power - White Pine	White Pine area near UT border	3 units @ 530 MW (nominal) each, 1600 MW total, 5216 mmbtu/hr. Western subbituminous coals.	1,600	0.07 - 24-hr avg, 0.06 - 24-hr average (doesn't include startup), 0.05 - 30 day, 0.0365 - 365 day (the limits can be lowered depending on the data obtained in optimization period.)	0.15 - 24-hr avg	0.0036 - 24-hr avg	0.015 - 24-hr avg (filterable)
New Mexico (New)	Silva Global - Desert Rock Energy Facility	25 miles SW of Farmington, NM	2 x 750 MW gas-fired, mine mouth plant. Pulverized coal-fired supercritical boiler, 6,810 MMBtu/hr maximum heat input, low sulfur western coal	1,500		0.10 - 24-hr average	0.0030 - 24-hr average	0.01 - 24-hr avg PM filterable 0.025 - 3-hr PM10 24-hr

BACT Limits (BMMBtu unless noted)

State	Plant Name	City/County	General Project Description	Added Capacity (MMBtu)	NOx	CO	VOC	PM
North Carolina	Duke Power - Cliffside	Cliffside (Rutherford and Cleveland)	One new pulverized coal 800 MW unit at an existing power generating station. Fuel will be bituminous coal or a blend of bituminous and subbituminous coal. Note EPA 564 is for Duke Cliffside, but NOT for 2 new units.	800	0.07 - 30 day average	0.12 - 3 hr average	0.063 - 3 hr average (6.934 in PD yearly avg.)	0.012 filterable, 0.019-3 hr average, 0.015 total PM10
North Dakota	Rocky Mt. Power		118 MW - not really a good example because much smaller than the existing unit. This permit was just to re-permit the facility with a dry scrubber instead.		0.09 30-day			0.012-0.015 filterable and 0.024 total
Oklahoma	Hugo Generating	(CHOCTAW)	750 MW PC-fired		0.07 - 30-day, 0.05 - annual average	0.15-30 day	0.0035 - annual	0.035 - total PM10, voluntary PSD avoidance limit, 0.015 filterable PM10
South Carolina	Sanjeev Cooper Units 3 and 4	Cross (Berkeley)	2 units @ 690 MW each. SO2, NOx, and SAM need out of 2 units @ 690 MW each. Bituminous coal (PULVERIZED, SYNTHETIC, AND UP TO 30% PETCOKE, 5700.00 MBTUHH	1320	Tri-0.031 ENHMETU (355 day rolling average) and 2278 TPI (each boiler) NOx limits are PSD avoidance limits.	0.15	0.0024	0.015 PM filterable, 0.018 PM10 including condensables (201 and 202)
South Dakota	Older Tail Bly Stone II	Milbank (Grant)	6900 mmbtu/hr Super critical pulverized coal fired boiler. Fuel is subbituminous coal. Subbituminous PRB Coal	690 net	N/A	0.15-30 day	0.0036	0.012 PM10 filterable 0.035 PM10 total
Texas	LS Power - Sandy Creek	Rebel (McCluskey)	Contract 1 pulverized Powder River basin coal fired boiler to yield 600 MW (net). New power plant. Another Texas permit where we have the whole permit, unless Parish 6, 5,185 mmbtu/hr	600	0.07 - 30 day average 0.05 - annual average, 0.2 - 1 hour	0.15 - 30-day average, and annual average, 0.3 - 1 hour	0.0036	0.015 - filterable annual 0.04 - total annual (subject to performance test and lower limit)
Texas	Oak Grove	Rowland (Robertson)	2 units @ 690 MW each. Lignite. Good comparison to Parish 8 in that the whole permit is here.	1720	0.08 30-day (could be lowered after optimization per 27)	0.17	0.0045	0.015 filterable annual and 0.040 total annual average
Texas	Source 2		500 MW, Low sulfur coal required (0.625 lb S/mmbtu), low PM10 condensable limit. Per. Ex has only conditions, not a copy of whole permit. Relied out of PSD review for SO2 and NOx (see coal 25)	800	0.059 - 30-day, 0.05 - annual average	0.15 - 12-month rolling avg.	0.0025 - annual	0.015 - filterable PM, 0.022 - total PM10
Texas	Parish Unit 8	(FORT BEND)	660 MW, Per 178 are conditions but no emission limits. Per 178 is max. allowable emissions, but document says based on application only and can be increased w/ new application. The permit is for 660 MW, but the application is for 1901.5 RBH. C-Info. that has 0.015 lb SO2/mmbtu, SAM link, but that limit does not appear in permit. 5700.00 MBTUHH	950	0.43	0.0500	0.003	0.012 PM10 filterable, 0.013 PM
Utah	Intermountain Unit 3	Delta (Millard)	FIRE DRY BOTTOM, TANGENTALLY FIRED OR WALL-FIRED BOILER. BITUMINOUS OR BLEND	950	0.07 30-day	0.15 - 30 day	0.0027	0.015 PM filterable, 0.018 PM10 including condensables (201 or 201A and 202)
West Virginia	Longview	ASTONDALE	600 MW, 6.114 MBTUHH COAL-FIRED BOILER		0.08 - 24-hr	0.11-3 hr	0.0043-3 hr	0.02 total PM, 0.018 PM10 total (includes condensables) (both limits include condensables)
Wisconsin	Western 4, Wisconsin Public Service Corporation	MADISON	600 MW, 5773 MBTUHH, PRB Coal		0.07 30-day (lowered to 0.06 30-day by ALJ)	0.15	0.0036	0.015 PM filterable, 0.018 PM10 total (includes condensables)
Wisconsin	Enn Road		2 units @ 500 MW each (not sure about exact size)		0.07 30-day	0.12-3 hr	0.0035-24 hr	
Wyoming	Batt/Dry Fork	(cannibal)	385 MW (net) PRB coal.		0.05 - 12 month	0.15 - annual	0.0027 - annual	0.015 - annual - filterable PM/PM10
Nevada	Tocop	Mesquite (Clark County)	750MW (gross), 6.045 million Btu/hr - Maximum heat input rate. Pulverized Coal-Fired Utility Boiler, Western bituminous or sub-bituminous coal.		0.05 24-hr	0.10 24-hr, 564.8 lb/hr	0.003 lb/mmbtu, 18.1 lb/hr	0.010 lb/mmbtu, 3 hr - PM filterable; 0.030 lb/mmbtu, 3 hr - total PM10.
Missouri	Associated Electric Cooperative's Noborne	Noborne (Carroll)	689 MW (net), 780 MW (gross), 6872 mmbtu/hr, subbituminous utility boiler, 6872 mmbtu/hr		0.065 30-day, 0.05 annual, 1635 tpy	0.15 - 30-day	0.0035 3-hr	0.015 - 3 hr - PM10 filterable, 0.016 - 3 hr total PM10, 123 lb/hr - 24 hr total PM10, 0.015-3 hr - PM filterable
Texas	Limestone III	Jewett (Limestone County)	new Unit 3 Boiler, at the Limestone Electric Generating Station. 800 MW boiler firing sub-bituminous coal. The boiler will burn subbituminous coal. The boiler will operate in one of three modes: (1) burning either 100 percent sub-bituminous coal, or (2) a nominal blend (by weight) of 20 percent petroleum coke with 80 percent sub-bituminous, or (3) a 40 percent bituminous coal with 60 percent sub-bituminous coal and 40%	800	0.07 - 30 day, 0.05 - 12 month	0.15 - 30 day	0.0039 - annual	0.015 - annual-PMP/PM10 filterable, 0.015 - annual-PMP/PM10 total, 0.012 - annual-PM filterable (NACT)
Ohio	AMP	Leban Falls (Meigs)	Two (2) supercritical lignite-fired boilers burning pulverized bituminous coal and petcoke up to 30% by weight of coal-petcoke blend) in either boiler, each rated at 5,700 million Btu/hr maximum heat input capacity with an output of 690 MW each		0.1 - 24 hr, 0.07 - 30 day	0.54 - 3 hr	0.0037 - 3 hr, 25 or 25A	0.025 - 3 hr - PM10 total, 0.015-3 hr - PM10 filterable, 569 lbs annual
South Carolina	Pine Dee	Cross (Berkeley)			0.07 - 30 day avg	0.15 - 30 day avg	0.0024 - 3-hr avg., 15, 25 or 25A	0.018 - 3 hr avg. - Total PM, 0.015 - 3 hr avg. - Filterable PM, 0.018 - 3 hr avg. - Total PM10, 0.012 - 3 hr avg. - Filterable PM10

State	Plant Name	SO2	H2SO4	Opacity	Mercury	Control Technologies	HF	Lead	HCL	Ammonia	RBLC ID	Notes
North Carolina	Duke Power - Cliffside	no limit - sets out of PSD review	0.005	20	21 x 10 ⁻⁶ lbMMW-hr, 0.020 lb/GWh gross energy output when burning only bituminous coal, 0.081 lb/GWh gross energy output when burning only subbituminous coal. For blended coals, the weighted emission rate	Low-NOx Burner, SOFA, SCR, Dry ESP, Wet ESP		7.29E-04			no	no
North Dakota	Rocky Mt. Power	0.12 30-day and 90% reduction - then lowered to 0.11 30-day and 92%	0.0083			SCR, Dry FGD, Baghouse - Review summary has discussion of dry FGD benefits.					no	no
Oklahoma	Hugo Generating	0.65E-30 lb/yr 403.0118 24-HOUR PERIOD	0.0037		8x10 ⁻⁶ lbMMW-hr	SCR, Wet FGD, baghouse					OK-0118	no
South Carolina	Sanjeev Cooper Units 3 and 4	0.13 lbMMW-BTU (65E DAY) has 0.0025 lbMMW-BTU, 0.0016 lbMMW-BTU ANNUAL AVERAGE EFFICIENCY ARE PSD AVOIDANCE LIMITS.			3.600E-6 E-6 lbMMW-BTU (1126)	LNB, SCR, FGD, ESP	0.0003 lbMMW-BTU (1126)	1.690E-5 E-5 lbMMW-BTU	0.0024 lbMMW-BTU (1126)		SC-0104	yes
South Dakota	Oliver Tail Blk Stone II	N/A	0.005			SCR baghouse, Wet FGD.	0.0006				no	yes
Texas	LS Power - Sandy Creek	0.12 - 30 day average 0.10 - annual average	0.0037 - 30-day average 0.0037 - annual	10%	20 x 10 ⁻⁶ lbMMW-hr	LNB, SCR, Dry Scrubber, Baghouse, WACI	0.0028 - 1 hour, 0.0037 - annual	6.7E-5 1-hr, 1.2E-5 lbMMW-hr annual	1.31E-5 annual	41 lb/hr	TX-0499	yes
Texas	Oak Grove	0.182 30-day	0.0122		1.45E-04	SCR, baghouse, Wet FGD.					no	yes
Texas	Source 2	0.10 - 30-day 0.06 - 12-month	0.0037	10	20 x 10 ⁻⁶ lbMMW-hr		0.0008 - annual	0.0000384 - annual	0.0018 - annual	0.0033 lb/hr	no	no
Texas	Parish Unit 8	0.3	0.00151	10	2.44E-04	SCR, baghouse, Wet FGD.	0.00507	4.82E-05			TX-0275	no
Utah	Intermountain Unit 3	0.10 24-hr, 0.08 30-day	0.0044 24-hr			SCR, baghouse, Wet FGD	0.0005		38 1300 LB/H		UT-0085	yes
West Virginia	Longview	0.163-hr, 0.12 24-hr (inlet and outlet CEMS ps 3)	0.0075	10	2.39E-05	LNB, SCR, FGD, dry sorbent injection + baghouse	0.00001 (p 0021 in RBLC)	1.72E-05	0.0021		WV-0523	yes
Wisconsin	Western 4, Wisconsin Public Service Corporation	0.10 30-day and 0.09 annual (ALJ acted 80% control req.)	0.005 24-hr		1.70E-06	LNB, SCR, Dry FGD, Baghouse	0.0002 lbMMW-hr (1126)	0.330 LB/H	10 5400 LB/H	3.0990 PPAC	WI-0228	yes
Wisconsin	Elm Road	0.15 30-day	0.01 24-hr	20	1.12E-05	LNB, SCR, baghouse, Wet FGD, Wet ESP	0.00088	7.99E-06	16.2 lb/hr, 24 hr	5 ppm, 20 lb/hr	no	no
Wyoming	Bein/Dry Fork	0.07 - 12 month	0.0029 - annual	20	97E-6 lbMMW-hr, 12 month (optimization study with rate 20E-6 lbMMW-hr 12 month)	LNB, SCR, Dry FGD, Baghouse, A/C	2.87 lb/hr annual			10 ppm, 19.6 lb/hr annual	WY-0094	no
Nevada	Tongue	0.05 - 24-hr 0.08 - 30-day (if S=0.4%), 0.074-30 day (if S=0.2-0.4%), 0.07 (if S=0.2%), 2.408 tpy, sulfur limited to 0.62 lbMMW-hr	0.005 - 3 hr	20	20x10 ⁻⁶ lbMMW-hr, 97x10 ⁻⁶ lbMMW-hr sub-bituminous (max 20x10 ⁻⁶ lbMMW-hr based on Cond 21)	LNB, SCR, Baghouse, Wet FGD	0.00024 - 3 hr, 1.43 lb/hr	0.00004 - 3 hr, 0.24 lb/hr	0.16 lb/hr, 3 hr (not BACT)		no	no details
Missouri	Associate Electric Cooperatives Norborna		0.0039 (not listed as BACT in RBLC but listed as BACT in permit)	20	66x10 ⁻⁶ lbMMW-hr	LNB, OFA, SCR, Dry FGD, Baghouse, A/C	7.3 lb/hr	0.034 lb/hr			MO-0077	no details
Texas	Limestone III	0 1-30 day, 0.05-12 month	0.0075 - annual		20E-6 lbMMW-hr, 12E-6 to 18E-6 - 12 month avg - 1SE- 6 for subbit coal or a blend of Subbit and pet coke and weighted avg. when firing blend of subbit and bit (MACT)		0.0007 - annual(BACT), 0.0005 annual (MACT)			10 ppm	no	no
Ohio	AMP	0.24 - 3 hr, 0.184 - 24 hr, 0.15 - 30 day	0.0075 - 3 hr	20	1.9E-6 lbMMW-hr - 12 month avg.	SCR, Wet FGD, Baghouse, WESP, A/C	8.92E-6 - 3 hr, 12 or 29				OH-0319	no
North Carolina	Pea Doe	0.12 - 30 day avg.	0.005 - 3 hr avg.	20	3.0E-6 lbMMW-hr - 12 month - 46.3 lb/hr	LNB, OFA, SCR, Wet FGD, Baghouse, (carbon injection mercury control final study)	3.41E-4 - 3 hr, 05 percent efficiency, 13				no	no