Permitting Coal-Fired Power Plants
How Low Can You Go?

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BACT

An emissions limitation based on the maximum degree of reduction which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

40 C.F.R. § 52.21(b)(12); *See also,* 42 U.S.C. 7479(3).

MACT

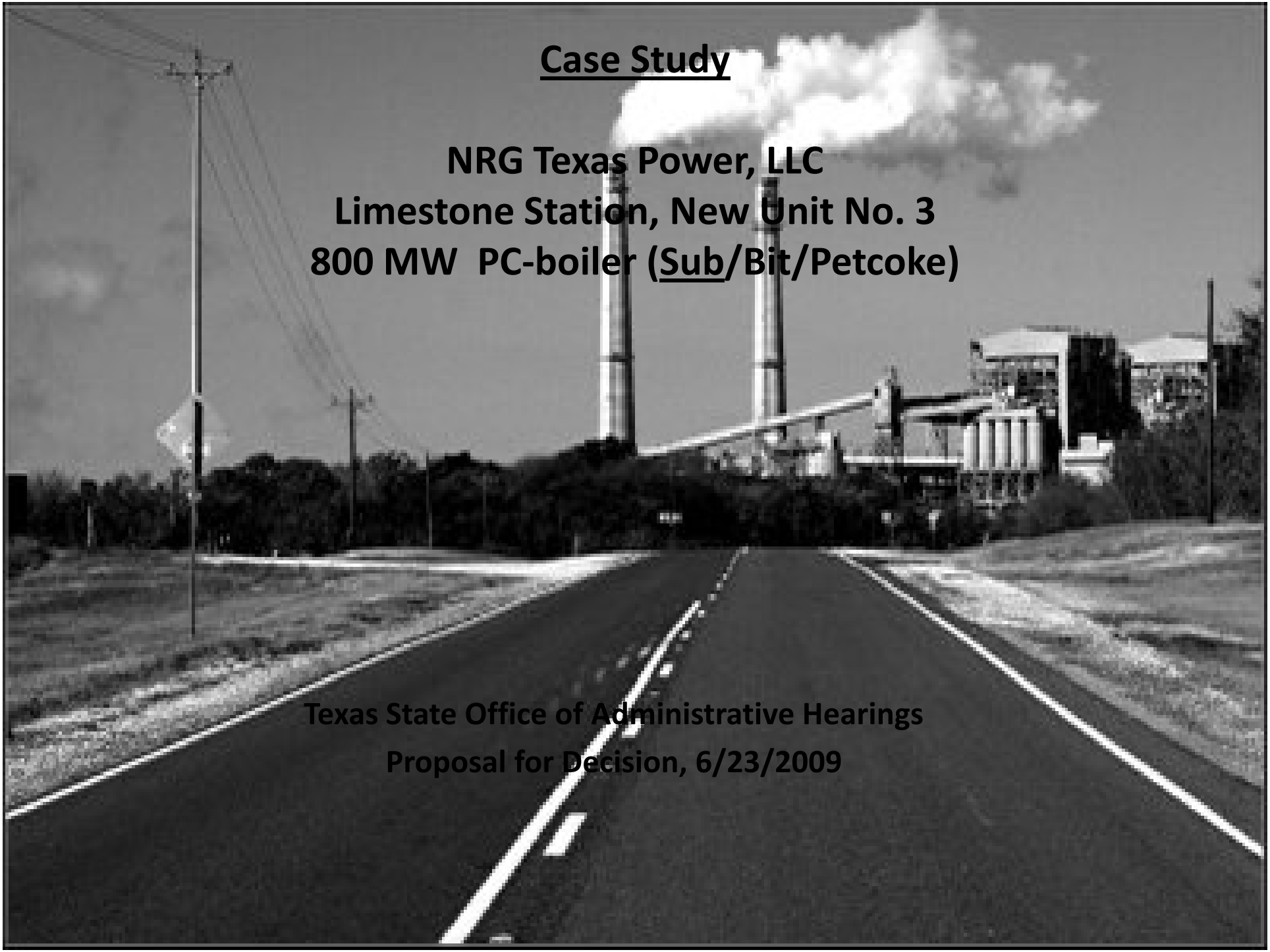
Step 1: The "MACT Floor" is the "emissions control that is achieved in practice by the best controlled similar source." 42 U.S.C. § 7412(d)(3)

Step 2: "Beyond-the-Floor" is "the maximum degree of reduction… that the Administrator, taking into account the cost… and any non-air quality health and environmental impacts and energy requirements, determines is achievable…" 42 U.S.C. § 7412(d)(2).

MACT

- "Similar Source" means: [A] stationary source or process that has *comparable emissions* and is *structurally similar* in design and capacity to a constructed or reconstructed major source *such that the source could be controlled using the same control technology*. 40 C.F.R. § 63.41

- Two criteria should be used to determine if a source is similar: (1) whether the two sources have similar emission types, and (2) whether the sources can be controlled with the same type of control technology. 61 Fed. Reg. 68,384, 68,394 (Dec. 27, 1996).



Case Study

NRG Texas Power, LLC
Limestone Station, New Unit No. 3
800 MW PC-boiler (Sub/Bit/Petcoke)

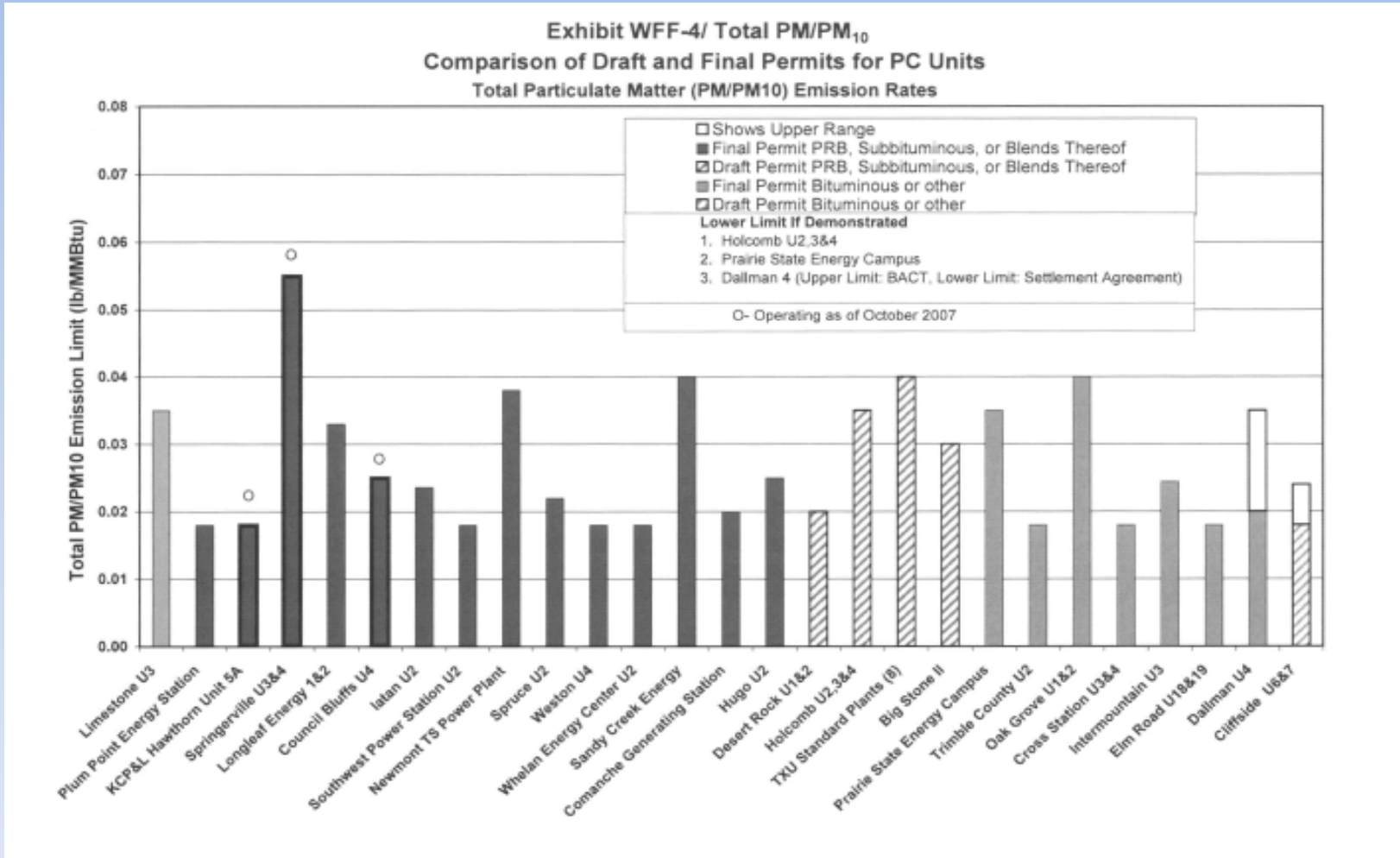
Texas State Office of Administrative Hearings

Proposal for Decision, 6/23/2009

NRG Limestone Station, New Unit No. 3
800 MW PC-boiler (Sub/Bit/Petcoke)
Emission rates in lb/mmBtu

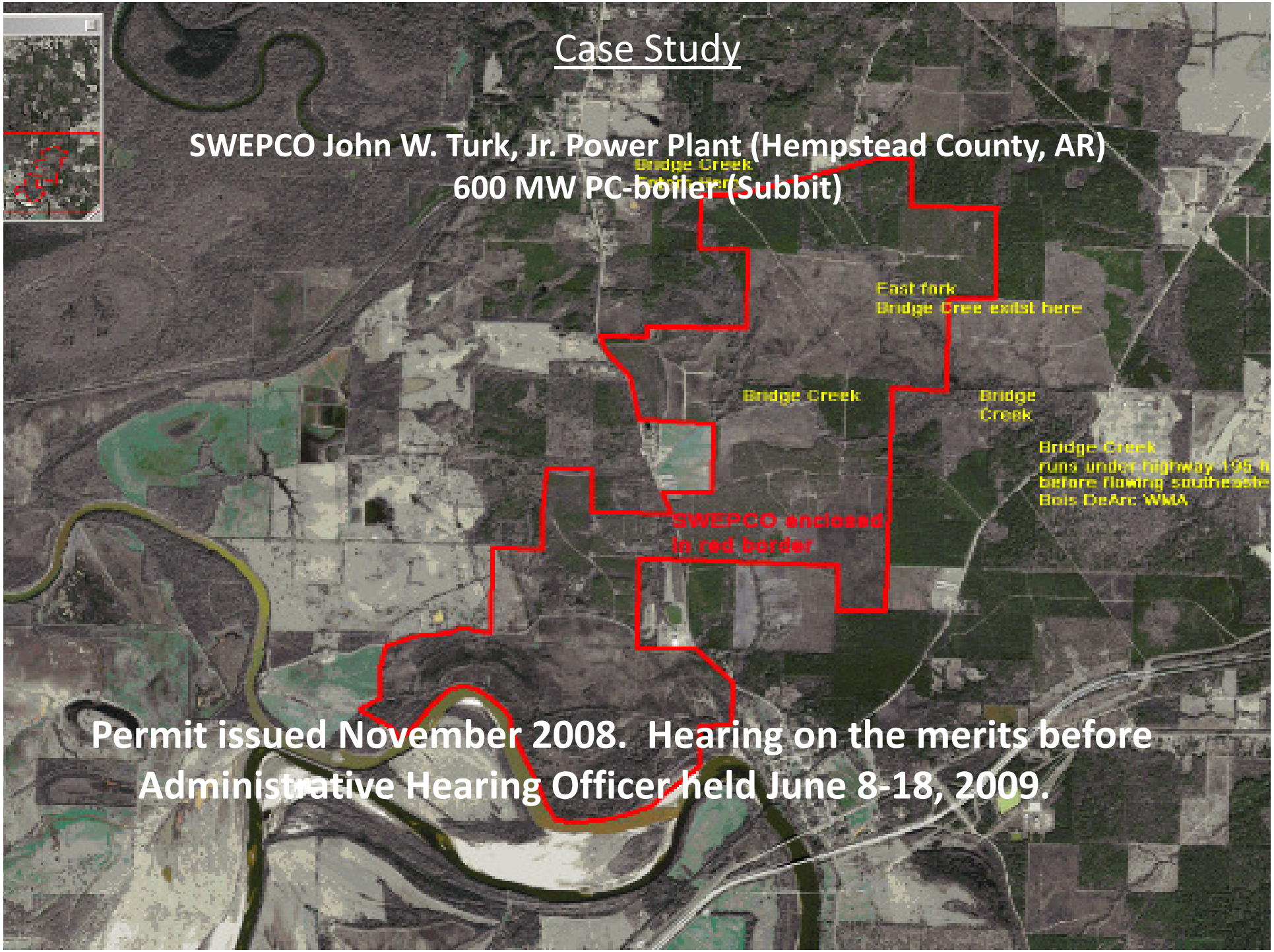
Pollutant	PSD Application 6/06	Technology	Draft PSD Permit 11/07	DRAFT HAP Permit 7/08	ALJs' Proposed change 6/09	Compliance Method
NOx	0.07 (30-day) 0.05 (annual)	SCR, low NOx burner	0.07 (30-day) 0.05 (annual)		**0.06** (30-day)	CEMS
SO_2	0.10 (30-day) 0.06 (annual)	Wet FGD	0.10 (30-day) 0.06 (annual)			CEMS
PM/PM_{10}	0.015 filterable 0.040 total	Fabric filter	0.015 filterable 0.035 total	0.012 filterable	**CEMS** **0.025** total	Stack test
CO	0.15 (annual)	Good combustion	0.15 (30-day)		**0.12** (30-day)	CEMS
VOC	0.0045 (annual)	Good combustion	0.0036 (annual)			Stack test
H_2SO_4	0.015 (annual)	FF/WFGD; Sorbent injection when co-firing bit/petcoke	0.0075 (annual)			Stack test
HF HCl	HF 0.00070 HCl to 0.0023	WFGD	HF 0.0007 HCl 0.0023	0.0005		Stack test Stack test
Hg	0.02 lb/GWh (annual)	SCR, fabric filters, wet FGD. "…will also evaluate sorbent injection, alkali, or other additives… if necessary."	0.02 lb/GWh (annual)	0.012 - 0.015 lb/GWh based on fuel		CEMS

Recently Permitted PM Limits for New Coal-Fired Power Plants – NRG Texas Power LLC (Applicant's Exhibit)



Case Study

SWEPCO John W. Turk, Jr. Power Plant (Hempstead County, AR)
600 MW PC-boiler (Subbit)



Permit issued November 2008. Hearing on the merits before Administrative Hearing Officer held June 8-18, 2009.

SWEPCO John W. Turk, Jr. Power Plant (Hempstead County, AR)
600 MW PC-boiler (Subbit)
Emission rates in lb/mmBtu

Pollutant	PSD Application 8/06	Technology	Draft PSD Permit June 2007	Final Permit 11/08	Compliance Method
NO_x	0.07 (30-day, excluding SUSD	SCR	0.07 (30-day, excl SUSD) 0.05 (12-mo rolling) 420 lb/hr (24-hr during SUSD)	0.067 (24-hr) 420 lbs/hr (24-hr) 0.05 (annual)	CEMS
SO_2	0.10 (30-day, excluding maintenance)	DFGD	0.10 (30-day, excluding main-tenance) 600 lb/hr (3-hr during SUSD)	0.08 for coal w/ S content > 0.45% by weight (30-day) 0.065 for coal w/ S content ≤ 0.45% by weight (30-day) 480lbs/hr (24-hr)	CEMS
PM/PM_{10} (filterable)	0.015 (3-hr)	Baghouse	0.012 (3-hr) filterable 0.025 (3-hr) total	0.012 (3-hr) filterable 0.025 (3-hr) total	Stack test
CO	0.15 (30-day)	Proper Design/ Operation	0.15 (30-day)	0.15 (30-day)	CEMS
VOC	0.0036 (3-hr)	Proper Design/ Operation	0.0036 (3-hr)	0.0036 (3-hr)	Stack test
H_2SO_4	0.006 (3-hr)	DFGD with a Baghouse	0.006 (3-hr)	0.0042 (3-hr)	Stack test
HF HCl		DFGD		0.0002 (3-hr) 0.0006 (3-hr)	Stack Test
Hg		DFGD and Baghouse		1.7 lb/TBtu (annual)	CEMS
Pb	2.6E-05 (3-hr)	Baghouse	2.6E-5 (3-hr)	2.6E-5 (3-hr)	Stack Test

Developments

PM 2.5 limits – monitoring and modeling issues resolved.

Lower PM (filterable) and Total PM levels achieved in practice.

Use of surrogates for HAP (e.g., selenium).

Compliance Monitoring – CEMS

- PM (routine EPA comment; req'd on many plants; filterable only)
- HCl and HF CEMS – Florida DEP, Seminole plant; 6/12/09