BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of:	)
Petition for EPA Action Addressing Startup, Shutdown and Maintenance Exemptions in Revised Permits for Texas Coal-fired Power Plants	)

CITIZEN PETITION FOR ACTION TO ENFORCE THE TEXAS STATE IMPLEMENTATION PLAN AND TITLE V OF THE CLEAN AIR ACT

The Environmental Integrity Project, Air Alliance Houston, Environment Texas, Texas Campaign for the Environment, Downwinders at Risk, Neighbors For Neighbors, Public Citizen's Texas Office, and the Sustainable Energy and Economic Development Coalition petition the Administrator of the Environmental Protection Agency, pursuant to the Administrative Procedure Act, 5 U.S.C. §§ 551, 553(e), the Clean Air Act, 42 U.S.C. §7401 *et seq*, and the Act's implementing regulations, to take action to remedy violations of the federal Clean Air Act by the Texas Commission on Environmental Quality and certain electric generating companies. More specifically, TCEQ's decision to exempt the companies from emission limits during maintenance, startup, and shutdown ("MSS")[1] for more than 1,000 hours a year violates Sections 110 and 116 of the Clean Air Act, federal New Source Review requirements, specific substantive and procedural requirements of the Texas State Implementation Plan, and the federally enforceable rules for revising Title V operating permits.

[1] Texas adopted a system that differentiates between *planned maintenance, startups, and shutdowns* versus *unplanned startups, shutdowns, and malfunctions,* or "upsets." This petition addresses the former category only, i.e., the state's implementation of a permitting system to authorize emissions resulting from planned maintenance, startups, and shutdowns ("MSS"). The latter category – SSM/upsets – is the subject of a pending EPA rule, or "SIP Call" (Docket No. EPA-HQ-OAR-2012-0322; 79 Fed. Reg. 55,920 (September 17, 2014)), to eliminate the regulatory affirmative defense. As explained below in more detail, while the MSS permits at issue in this petition are supposed to address only "planned" activities, the permits are worded so broadly that they arguably cover *all* startups and shutdowns at the relevant EGUs.

Petitioners request that EPA meet its obligation to review and reverse these unlawful decisions and uphold the requirements of the Clean Air Act and the Texas SIP by taking the following actions:

1) Make a finding that the process by which the Texas Commission on Environmental Quality ("TCEQ") revised permits to authorize planned MSS emissions, as well as the substantive elimination of SIP limits during periods of MSS, constitutes widespread violation of the Texas SIP and approved Title V program; and notify Texas and affected permit holders identified in the attachments that MSS exemptions in the revised permits are unlawful and do not change SIP emission limits or other applicable federal requirements. 42 U.S.C. § 7413(a).

2) Notify Texas that its State Implementation Plan does not include adequate procedures to assure that alternative limits for maintenance, startup, and shutdown events comply with New Source Review and other applicable federal standards and assure attainment or maintenance of national ambient air quality standards. 42 U.S.C. §§ 7410(k)(5), 7413(a).

3) Require Texas to propose revisions to address these deficiencies with full opportunity for public review before EPA approves any proposal. 42 U.S.C. §§ 7410(k)(5), 7410(l).

4) Establish a Federal Implementation Plan to address emissions during maintenance, startup, and shutdown if TCEQ fails to comply within two years. 42 U.S.C. § 7410(c)(1).

5) Reopen Title V permits for the electric generating units identified in this Petition that include unlawful MSS provisions, or which eliminate emission limits or monitoring requirements during maintenance, startup, and shutdown. 42 U.S.C. § 7661d(e).

On November 10, 2010, EPA partially approved Texas's program for minimizing emissions during so-called planned maintenance, startup, and shutdown. *Approval and Promulgation of Implementation Plans; Texas; Excess Emissions During Startup, Shutdown, Maintenance, and Malfunction Activities*, EPA, 75 Fed. Reg. 68,989 (Nov. 10, 2010). But in doing so, the Agency stated clearly that TCEQ could not remove or weaken emission limits established in the State Implementation Plan (which defines important federal Clean Air Act standards that apply in Texas) without violating Section 116[2] of the Act:

[2] 42 U.S.C. § 7416 ("…if an emission standard or limitation is in effect under an applicable implementation plan…, such State or political subdivision may not adopt or enforce any

> "[W]e note that the State cannot issue any NSR SIP permit that has a less stringent emission limit than already is contained in the approved SIP. For example, the State cannot issue a NSR SIP permit that has less stringent Volatile Organic Compounds limits than those in Chapter 115 as approved into the Texas SIP, or less stringent Oxides of Nitrogen (NOx) limits in Chapter 117 as approved into the Texas SIP. The State must issue a NSR SIP permit that meets all applicable requirements of the Texas SIP. If the State wishes to issue a NSR SIP permit that does not meet the applicable requirements of the Texas SIP, then any such alternative limits would need to be submitted to EPA for approval as a source-specific revision to the SIP, before they would modify the federally applicable emission limits in the approved SIP."
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> *Id.,* at 68,995 (emphasis added).

As detailed below and in the attachments, TCEQ has ignored EPA's warning and the clear requirements of the Clean Air Act. In the meantime, EPA has failed to object to or reopen several Title V operating permits that eliminate emission limits that the Agency said could not be altered without SIP review. This is not the first time that several of the Petitioners have brought these concerns to you. *See, Citizen Petition for Action Pursuant to the Clean Air Act Regarding Inadequacies of the Texas SIP and Federal Operating Permit Program, and Failure to Enforce the Plan and State Permitting Programs,* August 28, 2008 (see, page 12, explaining that Texas authorized increases in refinery emissions for MSS without public notice; page 24, explaining the Petitioners' concern that Texas's permitting of MSS emissions violates the federal Clean Air Act in at least four ways.) *See also*, January 4, 2008, letter to Tom Diggs, EPA Region 6, from Kelly Haragan on behalf of Environmental Defense, the Environmental Integrity Project and the Galveston Houston Association for Smog Prevention (predecessor to Air Alliance Houston). *See,* Exhibits A and B. Given this long history, the time has come for EPA to act.

Texas's permitting of MSS emissions for coal plants is the most recent evidence of the State's chronic disregard of federal Clean Air Act standards. The evidence and arguments in this Petition cannot be ignored.

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emission standard or limitation which is less stringent than [the SIP]"). States may change SIPs, but only after the public notice and EPA review and approval process laid out in Section 110 of the Act. 42 U.S.C. § 7410.

I. Introduction and Summary

Attached are 26 New Source Review and preconstruction permits revised by TCEQ between November 30, 2011 and April 1, 2013 for 35 coal-fired generating units. Exhibit C. Texas coal plants are responsible for 30 percent of the particulate matter (ten microns or less), 78 percent of the sulfur dioxide, and 31 percent of the nitrogen oxides reported by all "point sources" to the Texas Emissions Inventory in 2013. As detailed below and in the attachments to this Petition, these permits have been unlawfully revised such that, during so-called "planned" maintenance, startup, and shutdown:

- At least 19 coal-fired units are exempted from a Texas SIP emission limit that prohibits hourly concentrations of particulate matter over 0.3 pounds per million British thermal units (MMBtu) at any time under 30 TEX. ADMIN. CODE ("TAC") § 111.153(b) and the SIP.[3] *See,* Exhibit D. These exemptions apply to an unlimited number of startups or shutdowns at each unit ranging from 24 to 48 hours per event; for an additional 600 to 1,200 hours annually for "extended" startups and shutdowns; and for up to 535 hours of maintenance. *See,* Exhibit H.

- At least 19 coal-fired units are exempted from the Texas SIP opacity limit that electric generators are required to meet on a continuous basis (with one six-minute exception per hour) pursuant to 30 TAC § 111.111(a) and the Texas SIP.[4] *See,* Exhibit D.

- At least 14 units no longer have to comply with preconstruction permit conditions that limit the amount of particulates (in pounds) that can be released per hour. *See,* Exhibits E and F. These revisions also removed concentration-based PM limits established under major NSR/PSD permits for at least seven units. *See,* Exhibit G. The alternative "limits" are up to 30 times higher than the ones they replace, and which are not intended to be enforceable on an hourly basis. *See,* Exhibits E and F.

- At least nine units are no longer required to meet concentration-based nitrogen oxides and/or sulfur dioxide limits established under major NSR/PSD preconstruction permits. *See,* Exhibit G.

[3] 40 C.F.R. § 52.2270(c) and 74 Fed. Reg. 19,144 (Apr. 28, 2009) (approving 30 TEX. ADMIN. CODE § 111.153(b) into the Texas SIP).

[4] 40 C.F.R. § 52.2270(c); 61 Fed. Reg. 20,732, 20,734 (May 8, 1996) (approving 30 TEX. ADMIN. CODE § 111.111(a) into the Texas SIP.)

As EPA has made clear, federal law requires that no changes to SIP requirements can be made without EPA review and approval, and after opportunity for public comment. Here, the Texas SIP requirements applicable to all electric generators were eliminated for most coal-fired units based on TCEQ's closed-door negotiations with the electric power industry. The MSS provisions of each of the revised permits include virtually identical boilerplate conditions drafted for TCEQ by the Association of Electrical Companies of Texas ("AECT"). After rubber-stamping the AECT language, the TCEQ inserted the numbers of hours the exemptions could be claimed each year, based on requests from each permit applicant.

In other words, the MSS exemptions allow these coal-fired boilers to release PM emissions (including fine particles) by thousands of tons more each year than would have been possible under the SIP and NSR permit conditions that they have replaced. In addition, the permit applications grossly underestimate the amount of fine particle pollution released during startup by, for example, incorrectly applying EPA's published emission factors.

About the Petitioners

This Petition is filed on behalf of the following organizations, including the thousands of Texans who are members and supporters of these organizations and who are forced to breathe polluted air as a result of the deficiencies detailed in the Petition:

- The Environmental Integrity Project is a non-partisan non-profit organization working to enforce the nation's anti-pollution laws.
- Air Alliance Houston advocates for Houston's fenceline communities by working toward a future in which no one's health or quality of life is adversely impacted by air pollution.
- Environment Texas is a statewide grassroots advocate for clean air, clean water, and open spaces.
- Texas Campaign for the Environment focuses on local and state issues, organizing award-winning campaigns to protect public health in the state.
- Downwinders at Risk advocates for clean air in North Texas through community organizing initiatives in the Dallas-Fort Worth area.

- Neighbors for Neighbors is a Central Texas community organization working for clean air and water, sustainability of natural resources, and holding local polluters accountable.
- Public Citizen's Texas Office works on environmental enforcement policies, global warming, promoting renewable/clean energy, improving state government agency operations, and other consumer, health and safety policies.
- The Sustainable Energy and Economic Development ("SEED") Coalition works for clean air, and supports affordable energy efficiency and renewable energy solutions to meet our energy needs.

II. Applicable Clean Air Act Requirements

A. State Implementation Plan Emission Limits

EPA has a longstanding policy that SIP limits apply continuously, even during periods of startup, shutdown, or malfunction in SIPs. This statutory interpretation has been expressed, reiterated, and elaborated upon in a series of guidance documents issued in 1982, 1983, 1999, and 2001, and was recently confirmed and summarized in a February 14, 2013 EPA Memo.[5] Since at least 1982, EPA has clearly stated that "SIPs are ambient-based standards and any emissions above the allowable may cause or contribute to violations of the national ambient air quality standards."[6] Even prior to the issuance of the 1982 SSM Guidance, it was the EPA's position that all excess emissions, regardless of cause, should be treated as violations.[7] This longstanding policy is grounded in the plain language of the Clean Air Act[8] and has recently been confirmed by federal courts.[9]

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[5] Memorandum to Docket EPA-HQ-OAR-2012-0322 Statutory, Regulatory, and Policy Context for this Rulemaking February 4, 2013.

[6] Memorandum from Kathleen M. Bennett, Assistant Administrator for Air, Noise, and Radiation, to the Regional Administrators, Regions I–X, Sept. 28, 1982.

[7] *See, e.g.*, 42 Fed. Reg. 58171 (Nov. 8, 1977).

[8] The term "emission limitation" is defined in CAA section 302(k) as "a requirement established by the State or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants *on a continuous basis*, including any requirement relating to the operation or maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under this Act" (emphasis added).

[9] *See, e.g.*, *Sierra Club v. Johnson*, 551 F.3d 1019 (D.C. Cir. 2008), *cert. denied*, *Am. Chemistry Council v. Sierra Club*, 130 S. Ct. 1735 (2010) (holding that the EPA itself is not authorized to

The Texas SIP prohibits coal-fired generators from emitting particulate matter ("total suspended particulate") in excess of 0.3 pounds per million British thermal units ("lbs/MMBtu) over any two hour period. 40 C.F.R. § 52.2270(c) and 74 Fed. Reg. 19,144 (Apr. 28, 2009) (incorporating 30 TAC § 111.153(b) into the SIP). This PM limit contains no exceptions, is clear on its face, and applies at all times. In addition, the regulatory history proves that this limit was established and is designed to protect ambient air quality *at all times.* 14 Tex.Reg. 3296 (July 4, 1989) (adopting the 0.3 lb/MMBtu limit as a state rule in order to protect public health and to guard against nuisance conditions).

The Texas SIP also prohibits major emission sources (which include large coal-fired plants) from exceeding opacity levels of 20 percent, or 30 percent for units constructed before January 31, 1972. Compliance is measured at six-minute intervals with continuous opacity monitors, with the limited exception of one six-minute period per hour not to exceed 6 hours within ten days, "…during the cleaning of a firebox or the building of a new fire, soot blowing, equipment changes, ash removal, and rapping of precipitators…" 30 TAC § 111.111(a). Under the approved Texas SIP, these opacity limits may be altered, but only after an "adjudicative public hearing," for sources unable to comply with "available and economically reasonable" technology, so long as all other "applicable concentration and mass based limits" are met. 30 TAC § 111.113. These substantive and procedural requirements for opacity limits are part of the approved Texas SIP. 40 C.F.R. § 52.2270(c); 61 Fed. Reg. 20,732, 20,734 (May 8, 1996) (incorporating 30 TAC § 111.111(a) and 30 TAC § 111.113 into the SIP).

B. SIP Emission Limits Removed Without EPA Review and Approval or the Public Hearings Required by Law

The Clean Air Act prohibits states from adopting or enforcing, "any emission standard or limitation that is less stringent than the standard or limitation" in its State Implementation Plan. 42 U.S.C. § 7416. States may, however, revise such plans if approved by EPA after "reasonable notice and public hearing." 42 U.S.C. § 7410(i),(l). The Texas coal plant permit revisions

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issue emission limitations that do not apply continuously given the definition in CAA section 302(k) in conjunction with CAA section 112); *see also US Magnesium, LLC v. EPA*, 690 F.3d 1157 (10th Cir. 2012) (recognizing that EPA has begun promulgation of new rules to eliminate the *technology-based* "breakdown" exemptions).

described in this Petition eliminate or weaken SIP limits without the opportunity for a public hearing or the review and approval by EPA that is required by law.

On November 10, 2010, EPA approved in concept TCEQ's proposal to establish alternate emission limits that would apply during planned startup and shutdown for facilities unable to comply with their permits during these events. But EPA cautioned that when making such revisions:

> "…the State cannot issue any NSR SIP permit that has a less stringent emission limit than already is contained in the approved SIP… If the State wishes to issue a NSR SIP permit that does not meet the applicable requirements of the Texas SIP, then any such alternative limits would need to be submitted to EPA for approval as a source-specific revision to the SIP, before they would modify the federally applicable emission limits in the approved SIP."
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> 75 Fed. Reg. 68,989, 68,995.

TCEQ has not submitted the SIP revisions to EPA for review and approval. TCEQ's decision to unilaterally eliminate SIP opacity and PM limits without EPA review ignores this legal requirement and the commitment that EPA relied on in its partial approval of the State's MSS permit program.

EPA regulations also provide that SIP revisions "will not be considered part of an applicable [SIP] until such revisions have been approved by the Administrator in accordance with this part." 40 C.F.R. § 51.105. Yet, a federal court in Texas has refused to enforce SIP requirements after they were eliminated by TCEQ, based in part on EPA's failure to require the State to revise or reopen Title V permits that eliminate monitoring requirements during startup, shutdown, maintenance, or malfunction.[10] Electric generators have drafted and obtained these

[10] "[A] plain reading of the [Big Brown] Title V permit [CAM provision] provides that Defendants are only required to report deviations that occur outside of S[tartup] S[hutdown] M[aintenance and] M[alfunction] activities." *Sierra Club v. Energy Future Holdings Corp.*, Civil Action No. W-12-CV-108, WDTX, Doc. No. 240, (Order Granting Defendants' Motion for Partial Summary Judgment) at 12 (February 10, 2014); "Plaintiff was aware that Big Brown's Title V permit *exempted* it from PM deviations during maintenance, startup, or shutdown activities prior to filing suit, which rendered the claim meritless." *Sierra Club v. Energy Future Holdings Corp.*, Civil Action No. W-12-CV-108, WDTX, Doc. No. 305 (Order Granting Defendants' Motion for Attorney Fees) at 9 (August 29, 2014) (emphasis added).

outrageous exemptions from TCEQ because they intend to take full advantage of these loopholes. For example, facilities no longer disclose opacity exceedances of SIP limits that occur during startup or shutdown; based on TCEQ's actions, they have decided that limits no longer apply during these episodes. Broad statements that SIP requirements cannot be weakened or eliminated without EPA's review and approval mean nothing when the State and regulated industry act as if they do while the Agency stands by and does nothing.

C. Major NSR Permit Conditions Altered Without EPA Review or Approval

The State has also substantially increased both hourly, mass-based (lb/hour) emission limits on particulates, as well eliminated concentration-based (lb/MMBtu) limits for PM, sulfur dioxide and nitrogen oxides contained in federal New Source Review permits.

Texas increased hourly mass-based PM limits for at least eight coal-fired plants that were originally established in major New Source Review Prevention of Significant Deterioration ("PSD") permits. *See*, Exhibit E. These revisions also eliminated the concentration-based limits for PM, SO_2, and/or NOx established in major NSR/PSD permits for at least 12 coal-fired electric generating units. *See*, Exhibit G.

In doing so, the State relied on permit applications that seriously underestimate emissions of fine particles during startup, shutdown, or maintenance, and the likely downwind exposure to this pollution. In addition, the revised permits effectively eliminate hourly NSR emission limits during MSS events by requiring that compliance be determined based on total monthly or annual emissions. These revisions violate federal New Source Review and State SIP requirements that apply to major sources in several ways.

First, as EPA explained in a May 21, 2008, letter to TCEQ, the State cannot replace or revise existing emission limits in NSR/PSD permits without complying with the major NSR/PSD rules used to establish the original limits:

> "Reconciliations to correct terms and conditions in Prevention of Significant Deterioration/Nonattainment New Source Review permits, including adding or revising requirements for MSS activities, should undergo the same process as the original Federal Permit. <u>This process would include a Best Available Control Technology (BACT) and/or</u>

> Lowest Achievable Control Technology (LAER) review, an air quality impact analyses, and public participation requirements for all sources."[11]

In the same letter, EPA reiterated the State's obligation to follow SIP requirements for reviewing and revising permit limits:

> "As noted above, any modification of compliance obligations in current permits for periods of MSS may occur only by reopening these permits and providing public participation consistent with the public participation requirements for the initial permit."[12]

As discussed above, NSR/PSD limits were revised without the required SIP review.

Second, Texas has not met any of the requirements spelled out in EPA's May 21, 2008, letter. As explained further below, the "air quality analyses" used to justify such large increases in emission limits is based on assumptions about PM 2.5 emission rates that are unexplained, unreasonable, or plainly in error. The State did not evaluate "BACT" or "LAER" options for the control of particulates or other pollutants by, for example, reviewing generators with the lowest emission rates during startup or shutdown, or by examining options for minimizing pollution during such events. Instead, TCEQ approved as "BACT" the startup procedures that each generator described in its permit application, without reference to whether these practices reflect the lowest emission rate or best available technology for controlling MSS emissions.

D. TCEQ Permit Revisions Violate Title V Requirements

Title V of the Clean Air Act requires so-called "major sources" of emissions to obtain operating permits that incorporate all federally applicable standards, and which include monitoring sufficient to assure compliance. Certain units may be subject to "Compliance Assurance Monitoring" ("CAM") requirements that apply to emission limits that predate the requirements established under the 1990 Clean Air Act Title V program. EPA has also made

[11] Letter from Jeff Robinson, Air Permits Section, U.S. EPA Region VI, to Richard Hyde, P.E., Air Permits Division, TCEQ, regarding Permitting of MSS Emissions at Major Stationary Sources, May 21, 2008. Available at: http://www.epa.gov/region07/air/nsr/nsrmemos/tceqssm.pdf (emphasis added). Attached as Exhibit I.
[12] *Id.* (emphasis added).

clear that CAM monitoring methods in a Title V permit do not change underlying emission limits or a source's legal obligation to comply with those limits. But a federal court has ruled otherwise, based in part on EPA's failure to object to the State's elimination of CAM monitoring of PM during MSS events.

Title V permits are required to be renewed at least once every five years. In the interim, states may authorize minor revisions that do not violate any "applicable requirement," including, "…all of the requirements of 30 TAC Chapter 111 (Relating to Control of Air Pollution from Visible Emissions Visibility and Particulate Matter) as they apply to the emission units at a site." Minor revisions are intended to be used only for small and non-substantive permit changes; a minor revision is not appropriate to "…change a case-by-case determination of an emission limitation or other standard…" 30 TAC §§ 122.215, 122.10(2). While minor revisions are pending, the applicant must comply with applicable requirements that include Chapter 111 and any emission limits established under New Source Review (NSR) construction permits. 30 § TAC 122.217(b). Despite the clear language of its own federally enforceable Title V requirements, TCEQ has used its streamlined, minor revision, process to incorporate MSS exemptions into Title V permits that would eliminate SIP PM and opacity standards altogether, and increase preconstruction or major NSR/PSD permit limits by as much as thirty fold. These minor revisions have been approved for at least the following Title V permits:

Facility	**Title V Permit**
Luminant Big Brown	O65
Luminant Martin Lake	O53
Luminant Monticello	O64
Luminant Sandow 4	O54
AEP/SWEPCO Pirkey	O31

The Texas Title V rules authorize citizens to petition for EPA objection to a Title V permit when it is first issued, and when renewed or significantly revised by TCEQ. But, Texas's rules do not authorize citizens to petition for objection to minor permit revisions.

E. EPA Has the Authority and the Obligation to Reverse TCEQ's Unlawful Actions

The information and evidence contained in this Petition demonstrate widespread violations of the Texas SIP and the State's approved Title V program. As such, EPA must take action and notify Texas and permit holders of these deficiencies pursuant to 42 U.S.C. § 7413(a). The Administrator is required to give public notice within 90 days after notifying a state of any "widespread" failure to enforce the SIP or permit requirements. 42 U.S.C. § 7413(a)(2).

EPA should order Texas to revise deficient permits that purport to eliminate preconstruction or SIP emission limits, including Title V permits that have incorporated all or part of the unlawful MSS exemptions. 42 U.S.C. § 7413(a). Faced with the State's brazen attempt to nullify longstanding health-based requirements of federal law, EPA has no choice but to order TCEQ to reverse its unlawful attempt to revise the SIP, and to establish a Federal Implementation Plan if the State refuses to comply. 42 U.S.C. § 7410(c)(1).

III. TCEQ Unlawfully Exempted Coal Plants from SIP Limits During "Planned Maintenance, Startups, and Shutdowns"

A. TCEQ Exempted Power Plants from Texas SIP Limits for Particulate Matter (30 TAC § 111.153(b)) and Opacity (30 TAC § 111.111) Without Required SIP Review and Approval

Coal-fired generators in Texas may not emit particulate matter (filterable and condensable) in concentrations greater than 0.3 pounds per million British thermal units (lbs/MMBtu). 30 TAC § 111.153(b). This limit applies at all times and has been incorporated into the Texas SIP. 40 C.F.R. § 52.2270(c) and 74 Fed. Reg. 19,144 (Apr. 28, 2009).

- The revised permits for at least 19 of the largest coal-fired units eliminate the SIP PM limit at 30 TAC § 111.153 during MSS events. *See,* Exhibit D. The limit is not listed as an applicable requirement for the remaining 16 units, suggesting that those units enjoy the same exemption.

The Texas SIP also prohibits coal-fired generators from exceeding an opacity limit of either 20 percent or 30 percent, depending on the unit's date of construction, subject to no more than one six-minute exception per hour or six hours within a 10 day period. 30 TAC § 111.111(a)(1)(A),(B),(E). Continuous opacity monitors are used to measure compliance with

this standard,[13] and generators are required to take prompt action to bring opacity levels back down if the standard is exceeded. This standard was approved by EPA into the Texas SIP in 1996. 40 C.F.R. § 52.2270(c); 61 Fed. Reg. 20,732, 20,734 (May 8, 1996)

Both EPA and TCEQ have long recognized that high opacity levels indicate that control equipment is not working well and that PM emissions are likely higher than the permit allows. Especially in Texas, where most coal plants are not required to undergo PM stack tests, opacity is often the only information available to the public that can be used to identify PM emission spikes.

- The revised NSR permits authorize unlimited opacity from 19 coal-fired plants during maintenance, startup, and shutdown, as the opacity limits at 30 TAC § 111.111(a) no longer apply to these events. *See,* Exhibit D.

- These changes were approved by TCEQ between November 30, 2011 and April 1, 2013 and were never submitted to EPA for review and approval as required by law.[14]

B. TCEQ Violated Specific Requirements for Changing SIP Opacity Limits

The State violated both the substantive and procedural prerequisites for changing opacity limits, which are set forth in 30 TAC § 111.113. That rule requires an "adjudicative public hearing" before the SIP opacity limits found at 30 TAC § 111.111(a) can be altered, and authorizes a higher limit only for units that continue to meet "…all applicable concentration and mass based limits…" for PM and other pollutants." This provision, allowing an alternate opacity limit to be established under certain circumstances, was approved by EPA as part of the Texas SIP in 1996. 61 Fed. Reg. 20,732 (May 8, 1996). Thus, while the State can establish alternate SIP opacity limits, it can only do so under the approved SIP process. But, instead of following the SIP process for increasing opacity limits during planned MSS, Texas instead:

[13] 30 TAC § 111.111(a)(1)(C)

[14] 42 U.S.C. §§ 7410(i),(l); 7416. *See also,* 75 Fed. Reg. 68,989, 68,995 (November 10, 2010) ("…any such alternative limits would need to be submitted to EPA for approval as a source-specific revision to the SIP, before they would modify the federally applicable emission limits in the approved SIP.")

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- Removed the SIP opacity limits from NSR permits for at least 19 coal-fired units without providing any opportunity for an adjudicative public hearing required by 30 TAC § 111.113; and

- At the same time, TCEQ eliminated the "concentration and mass based limits" for particulates and other pollutants that are supposed to remain intact under 30 TAC § 111.113 when opacity limits are changed.

The table below compares TCEQ's actions to the requirements of 30 TAC § 111.113:

30 TAC § 111.113	**MSS Permit Conditions**
Authorizes "alternate opacity limit" in lieu of opacity requirements of § 111.111 based on specific criteria.	Completely eliminate opacity requirements of 111.111 during MSS events.
Requires "adjudicative public hearing" with hearing record.	No adjudicative hearing prior to approval.
Alternate opacity limit approved only if "all applicable concentration and mass limitations" are met.	Completely eliminate PM concentration based standard (0.3 lb/MMBtu) applicable to all power plants at all times under § 111.153. Replace "mass limitations" (lb/hr) in existing NSR permits with much higher emission limit for PM.

C. Exemptions Apply to Unlimited Number of Startups and Shutdowns

Texas excused at least 19 coal-fired units from compliance with hourly emission limits for an unlimited number of startups and shutdowns, lasting anywhere from 24 to 48 hours each. (Exhibit H). The exemptions extend for as much as 1,200 hours per unit to cover startups and shutdowns that take longer than 24 to 48 hours, and include up to 535 hours per year for online and offline maintenance at each unit. TCEQ provided no documentation to justify the extraordinary length of these exemptions, which do not reflect actual operating experience.

For example, Permit No. 4980/PSD-TX-28M1, Condition 20(E), exempts Luminant's Sandow Unit 4 in Milam County from having to meet either the SIP opacity limit at 30 TAC § 111.111(a) or the particulate matter limits at 30 TAC § 111.153(b) during any "planned" startup or shutdown that does not exceed 48 hours. The exemption also applies to startups or shutdowns that exceed 48 hours, so long as the total increment of additional time is not more than 300 hours per year for startups, and 300 hours per year for shutdowns. Both the particulate matter and opacity limits also do not apply during the first 535 hours of online or offline maintenance. The

amount of time that Sandow 4 could claim this exemption and avoid permit requirements could exceed 1,000 hours a year.

Importantly, while the MSS permits are supposed to apply to only "planned startup" and "planned shutdown," the permits define these terms in such a way that they could arguably cover *any* startup or shutdown at the plants identified in this petition — including "unplanned" shutdowns necessitated by an equipment failure.[15] For example, the MSS permit for Luminant's Big Brown plant defines a planned shutdown as "the period that begins when the electrostatic precipitator is partially or completely de-energized due to reaching its minimum operating temperature and ends when a temperature has been reached that allows personnel to enter the structure and conduct maintenance activities." (Special Condition 8(A)(2)). In fact, in a Clean Air Act citizen suit in the U.S. district court for the Western District of Texas, Luminant argued (and the court agreed) that the MSS permit completely excused *all* of the Big Brown plant's thousands of opacity exceedances during periods of startup, shutdown, maintenance, and malfunction — even though many of the exceedances occurred during shutdowns necessitated by equipment failures at the plant such as boiler tube leaks.[16]

[15] In its recent rulemaking and SIP call related to various states' treatment of excess emissions during startup, shutdown and malfunction, EPA noted that "unplanned events" in the Texas regulations "are what are more commonly referred to as malfunctions, as confirmed by the state at the time the EPA approved these provisions as part of the SIP." 79 Fed. Reg. 55,920, 55,945 (Sept. 17, 2014).

[16] 2014 WL 2153913, at *19-20 ("As noted above, TCEQ amended Big Brown's Air Permit No. 56445 in December 2011 to specifically permit and regulate the type of MSS emissions events at issue in this case . . . Thus, the current version of Air Permit No. 56445 authorizes and makes lawful the very MSS activity that Sierra Club asks this Court to enjoin…Because Permit No. 56445 now authorizes and regulates the MSS emissions, the Court will not enjoin them as Sierra Club requests."); at p. *25 ("As noted above, TCEQ amended Big Brown's Air Permit No. 56445 in December 2011 to specifically permit and regulate the type of MSS emissions events at issue in this case . . . Thus, the current version of Air Permit No. 56445 authorizes and makes lawful the very MSS activity that Sierra Club asks this Court to enjoin.")

IV. TCEQ Unlawfully Exempted Power Plants from New Source Review Permit Limits for PM, Nitrogen Oxides, and Sulfur Dioxide

A. Major NSR/PSD Permit Limits Altered Without Required Review

Since 1972, the Clean Air Act has required companies to obtain New Source Review permits before construction or major modification of power plants and other large sources of air pollution. NSR permits include hourly and annual limits on emissions of particulate matter, sulfur dioxide, nitrogen oxide and other pollutants that are determined based on performance of the best available control technologies. These limits are federally enforceable, because they are limits pursuant to the approved State Implementation Plan, and also because they have been incorporated into plants' Title V permits. In Texas, these NSR permit limits typically limit the total amount (in pounds per hour) of each pollutant the source is expected to emit when operating at its maximum capacity, but may also restrict the amount that can be released per unit of heat input (lb/MMBtu).

As summarized in Exhibits E and F, TCEQ's "planned MSS" permit amendments eliminated preconstruction permit conditions that limit the amount of particulates (in pounds per hour) for at least 14 electric generating units. These permit revisions also removed concentration-based PM limits (pounds per MMBtu) established under major NSR/PSD and preconstruction permits for at least seven units. *See*, Exhibit G. The alternative "limits" are up to 30 times higher than the ones they replace, and which are not intended to be enforceable on an hourly basis. *See*, Exhibits E and F.

TCEQ also eliminated nitrogen oxides and/or sulfur dioxide limits established under major NSR/PSD and preconstruction permits for at least seven generating units. (See Exhibit G).

These changes were made despite clear legal requirements and EPA's explicit warnings that TCEQ could not authorize MSS emissions without complying with the applicable BACT/LAER, air quality analysis, and public and EPA review requirements. As noted above and discussed further below, TCEQ has ignored these requirements.

B. Revised MSS Hourly Limits Much Higher than Original Preconstruction Limits

TCEQ authorized new hourly emission limits that supposedly apply during planned MSS events. These new limits allow emissions up to 30 times higher than the short-term standards they replaced. For example:

- Luminant's Sandow Unit 4 is authorized to emit 3,763 pounds of PM per hour during MSS events, or more than six times the 569 pound per hour limit previously in effect.

- NRG Limestone's two coal-fired units in Limestone County are authorized to emit as much as 7,616 pounds of PM per hour during MSS events – more than 30 times the limit of 256 pounds per hour established under its NSR permit.

- American Electric Power's Oklaunion coal fired unit near Vernon, Texas is authorized to emit up to 1,440 pounds per hour of PM – seven times the previous NSR limit of 205 pounds per hour.

Exhibit E contrasts the hourly limits for particulate matter that apply during maintenance, startup or shutdown events – which can exceed 1,000 hours a year under the permit conditions TCEQ has approved – to the pre-existing hourly PM limits they replaced.

C. MSS Permits Unlawfully Authorize Hourly PM Emissions up to 25 Times Higher than the SIP PM Limit Would Allow

As previously explained, the Texas SIP prohibits any solid fossil fuel-fired electric generating unit from emitting particulates in excess of 0.3 lbs/MMBtu. Exhibit F estimates the emissions (in pounds per hour) that would result if coal plants continued to meet these standards during startup, based on maximum heat rates determined from each permit application.

For example, Sandow Unit 4's permit application indicates a maximum coal feed rate of 40 tons per hour during startup. The U.S. Energy Information Administration "Form 923" records compiled monthly from industry reports show that coal shipments to Sandow 4 in 2012 had heat values of up to 13 MMBtu per ton, which should result in a maximum hourly heat rate of 520 MMBtu/hour during startup (40 tons/hour x 13 MMBtu per ton = 520 MMBtu/hour). Under these conditions, compliance with the SIP standard of 0.3 lbs/MMBtu would limit PM

emissions to no more than 151 lbs/hour (0.3 lbs/MMBtu x 520 MMBtu/hour). That is approximately 4 percent of the *3,763 pounds an hour* authorized under the Sandow 4 power plant's new MSS authorization.

V. MSS Hourly Permit Limits for PM Are Not Enforceable

A. The Law Requires that SIP Permitting Requirements be Enforceable as a Practical Matter

Generally, state permit programs approved by EPA and incorporated into a federally enforceable SIP must assure that permit terms and conditions are enforceable as a practical matter.[17] As explained below, the MSS hourly PM limits are not enforceable as a practical matter, and, therefore, do not satisfy even this most basic EPA requirement.

B. Permit applicants: Hourly Limits "should not be considered enforceable"

The hourly PM emission limits that appear in each MSS permit are based on calculations in permit applications that supposedly represent "worst case" emissions during startup. These representations are incorporated by reference into the NSR permits that include the revised limits that apply to MSS events. But at least some MSS permit applications state that their estimates of maximum emissions during startup are not meant to be enforceable, and that actual emissions could be even higher.

For example, the revised NSR permit for NRG's Limestone plant includes a PM emission limit of 7,616 pounds per hour during MSS events, which reflects the "worst case" estimates that NRG presented in its application. But the same application also warns that:

> "Due to the variety of activities, the lack of emission methodology for these activities, and the variability in potential activities, the individual emissions events per event, events per hour, and events per year should not be considered restrictions, but a means of

[17] *See*, June 13, 1989 policy memo from John Seitz re "Limiting Potential to Emit in New Source Permitting;" 54 Fed. Reg. 27274 (June 28, 1989); *United States v. Louisiana Pacific*,682 F. Supp. 1122 (D. Colo. 1987), 682 F. Supp. 1141 (D. Colo.1988). *See also*, "Use of Long Term Rolling Averages to Limit Potential to Emit," from John. B. Rasnic to David Kee, February 24, 1992; "Limiting Potential to Emit;" from Mamie Miller to George Czerniak, August,1992; "Policy Determination an Limiting Potential to Emit for Koch Refining Company's Clean Fuels Project", from John B. Rasnic to David Kee, March 13, 1992; and "3M Tape Manufacturing Division Plant, St. Paul, Minnesota" from. John B. Rasnic to David Kee, July 14, 1992.

estimating emissions from these activities as a whole and should not be considered enforceable as to the magnitude and/or frequency of these activities."[18]

Since this representation is considered part of the MSS permit, it is not clear how TCEQ means to enforce a limit which adopts an estimate that NRG has said, "should not be considered enforceable," and after the company has warned that "actual emissions could be even higher."

C. Revised Permits Unlawfully Replace Hourly Emission Limits with Monthly or Annual Emission Limits

The revised permits contain alternate standards that appear to limit PM emissions by the hour during MSS events. But permit holders are directed to certify compliance with these hourly limits by estimating total *monthly* emissions, as in this excerpt from the AEP Pirkey plant's Permit No. 6269, Special Condition 16(B):

> "…the permit holder shall calculate the pollutant's emissions during all occurrences of each type of planned MSS activity for each calendar month using the frequency of the planned MSS activity identified in work orders or equivalent records and the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application."

These directions provide no basis for determining whether an hourly emission limit has actually been met. This boilerplate "compliance" provision was supplied by the Association of Electric Companies of Texas (AECT) and appears in every coal plant MSS permit we have reviewed.

D. Permit Holders May Avoid Use of Continuous Monitors to Measure MSS Emissions

Large electric generating units are required to measure nitrogen oxides and sulfur dioxide with continuous emission monitors (CEMS). But the revised permits require continuous monitoring of MSS emissions only if the, "CEMS…has been certified to measure the pollutant's emissions over the entire range of a planned MSS activity." It is not clear what this language

[18] Permit Application Amendment for TCEQ Permit Nos. 8576 & 8579, Incorporation of Maintenance, Startup, and Shutdown (MSS) Emissions, NRG Texas Power LLC, January 4, 2011.

(also drafted by AECT) means, or whether it complies with federal requirements for continuously monitoring and reporting emissions of these pollutants.

Facilities that do not have a CEMS that meets this vague certification standard may estimate their emissions based on an unlimited menu of options, so long as they maintain "records supporting their determination."

E. Companies May Obtain Emission Limits based on a Method Generating the Highest Emission Estimate, then Certify Compliance Based on a Method Generating Much Lower Emission Estimates

The revised permits include the following boilerplate language, which is an explicit invitation to certify compliance based on methods that generate very different (and much lower) emission estimates than the methodology that each power plant used to obtain its MSS permit limits:

> "In lieu of using the emissions of the pollutant during the planned MSS activity as represented in the planned MSS permit application to calculate such emissions, the permit holder may determine the emissions of the pollutant during the planned MSS activity using an appropriate method, including but not limited to, any of the methods described in paragraphs 1 through 4 below…"

VI. MSS Permits Increase Allowable Emissions Above Threshold for New Source Review

NSR permits for power plants include hourly emission limits that were determined based on the maximum output or heat rate for each unit. The annual limits were obtained by multiplying short-term emission limits by 8,760, or the number of hours in a year. Because the existing annual limits were left intact when TCEQ eliminated the original hourly limits for particulate matter, the agency assumed that the MSS permit revisions would not increase "annual

allowable emissions." That assumption is incorrect. Increasing allowable short-term limits also increases annual emissions, as further explained below.[19]

Power plants do not operate at maximum capacity around the clock. If they did, there would hardly be a need to rewrite permits to accommodate all the startup, shutdown, and maintenance exemptions the power companies requested. As the following examples illustrate, the total emissions allowed in any year will be limited by the actual number of hours and capacity at which each unit operates. Thus, increasing hourly allowable PM effectively increases a plant's annual emissions.

Whether these changes increase short- or long-term emissions, TCEQ may not revise permits to authorize higher emission limits during startup, shutdown or maintenance without first complying with same BACT/LAER, air quality analysis and public review requirements that guided development of the original permit conditions.[20]

A. Annual Emissions Are Limited by Actual Operating Time

Power plants do not operate around the clock for 365 days a year, and so a plant's actual operating time is one important constraint on emissions. For example, the annual PM emission limit for Luminant's Sandow Unit 4 is 2,492 tons per year (based on 8,760 hours per year times the original NSR short-term limit of 569 pounds per hour). EPA's Acid Rain database indicates the unit ran for only 6,277 hours in 2010; in that year, annual emissions could not legally exceed 1,786 tons (or 6,277 hours times 569 pounds per hour). But the revised NSR permit issued in 2011 raises the hourly PM limit to 3,763 pounds during planned MSS events. Had Sandow 4 emitted at these higher levels for just 200 of the hours it operated in 2010 (the MSS permits

[19] In addition, "grandfathered" coal units, including Luminant's Big Brown Units 1 and 2, have never had an annual PM limit. TCEQ authorized MSS hourly PM emissions for these units, without considering this plant's potential to emit on an annual basis.

[20] Letter from Jeff Robinson, Air Permits Section, U.S. EPA Region VI, to Richard Hyde, P.E., Air Permits Division, TCEQ, regarding Permitting of MSS Emissions at Major Stationary Sources, May 21, 2008. Available at: http://www.epa.gov/region07/air/nsr/nsrmemos/tceqssm.pdf

apply for much longer periods), its annual PM emissions would have increased by more than 300 tons. ((3,763 – 569) x 200 = 638,800 lbs or 319.4 tons).

B. Annual Emissions Are Limited by Capacity Factors

The NSR permits for some electric generators include PM limits based on heat input. For example, the NSR permit for AEP's Welsh Unit 1 limits annual PM emissions to 2,258.3 tons per year, but the original NSR permit also included a limit of 0.075 lbs/MMBtu that had to be met at all times. The unit could emit no more than 517 pounds per hour at its maximum hourly heat rate of 6,893 MMBtu, and would be required to emit proportionately smaller amounts at lower heat rates.

Because the total annual heat input from Welsh Unit 1 in 2012 was 35.33 million MMBtu, its PM emissions that year could not exceed 1,325 tons (35.33 million MMBtu x .075 lbs/year), or less than 60 percent of the annual emission limit in its permit. The 0.075 lb/MMBtu limit no longer applies during planned maintenance, startup, or shutdown, and units can now emit up to 880 pounds per hour during these episodes, regardless of its actual heat input. Welsh Unit 1 can significantly increase both hourly and annual releases of particulate matter, because its emissions are no longer constrained by heat input for MSS events that can exceed more than 1,000 hours per year under its revised NSR permit.

C. MSS Permits Will Increase Emissions from Grandfathered Units

Several "grandfathered" units, e.g., two large boilers at Luminant's Big Brown plant, have never been subject to federal New Source Review and have never had any preconstruction or NSR permits that limit PM emissions on a *pound per hour* or a *ton per year* basis. But the units have always been subject to the Texas SIP's limit of 0.3 lbs/MMBtu. That rate would effectively cap PM emissions to 2,370 lbs/hour at Unit 1's maximum heat rate of 7,901 MMBtu

per hour.[21] The revised NSR permit allows up to 4,788 pounds per hour during MSS events, when heat rates are typically much lower.

It is unclear how TCEQ determined that "allowable" annual emissions would not increase from Big Brown and other grandfathered units that have never had an annual PM emission limit. But as with Luminant's Monticello Units 1 and 2, and AEP's Welsh Unit 1, TCEQ effectively authorized both short- and long-term emissions increases when it eliminated the concentration-based (lb/MMBtu) limit and authorized huge hourly emissions during periods of maintenance, startup, and shutdown.

D. TCEQ Arbitrarily Decided That Coal Plants' MSS Authorizations Do Not Trigger New Source Review Applicability Determinations

For coal plants, TCEQ decided that as long as no *annual* limits are increased, the State could authorize massive increases in *hourly* emission limits without triggering federal New Source Review. This approach is arbitrary for the reasons explained above. Authorizing new, massive hourly PM emissions, while at the same time eliminating concentration-based (lb/MMBtu) SIP and preconstruction permit limits, effectively authorizes significant emissions increases on an annual basis.

Moreover, when TCEQ issued MSS authorizations for the chemical industry (three years prior to the coal plants), the State clearly understood the obligation to conduct New Source Review applicability determinations. TCEQ told the chemical industry:

> "It is not sufficient to say that the emissions are not new to avoid a federal NSR review. You should determine federal NSR applicability as follows: (a) The project emission increase may be assumed to be zero for each facility that you can verify existed before the federal NSR program (approximately 1975) and has not been modified since that time so that MSS emissions would have increased. (b) For facilities that do not meet that criterion, baseline emissions may be determined using compliant MSS emissions demonstrated under 30 TAC Chapter 101 and reported in a timely manner in the emissions inventory. These emissions must also be reduced by what is determined to the

[21] EPA Air Markets Program Data from Acid Rain Program (ARP), http://ampd.epa.gov/ampd/. EPA's AMPD database defines the maximum hourly heat input as "the design heat input capacity (in MMBtu/hr) for the unit or the highest hourly heat input rate observed in the past five years, whichever is greater."

> Best Available Control Technology (BACT) in this permit review. If the project emission increase is significant, contemporaneous period netting must be submitted. We will consider other approaches on a case by case basis. A full retrospective analysis is always an option for determining federal NSR applicability but this demonstration must not only focus on past changes in MSS emissions but on the impact they would have had on federal applicability for all projects completed since that time." (Letter from TCEQ Air Permits Division, to BP Products North America, Re MSS Authorization, Permit No. 47256, obtained from TCEQ Remote Document Server, and attached as Exhibit J)

TCEQ included this warning in letters sent to numerous Texas chemical plants when they obtained MSS permits in the years preceding the coal plant authorizations. It is unclear why Texas flipped its position for the utility industry.

Because annual limits are set unrealistically high for baseload coal plants (i.e., limits are based on maximum capacity, or full load, and round-the-clock operations for 365 days a year), actual emissions never approach annual limits. In fact, as shown in Exhibit K, over the past 10 years for which Emissions Inventory data is available, no Texas coal plant has ever reported PM emissions anywhere close to its annual allowable limit. For example, Luminant's three Martin Lake coal units are each allowed to emit 3,736 tons of particulate matter per year. Yet, the most any of the units has reported actually emitting over a 10-year period is 810 tons, in 2011. Thus, relying on inflated annual allowable limits to avoid New Source Review is arbitrary and unreasonable. Even worse, at least five previously grandfathered units (Luminant's Big Brown and Martin Lake plants) have *never* had an annual PM limit, so TCEQ's argument – that annual allowables are not increasing – is nonsensical.

VII. TCEQ Underestimated Total PM/PM 2.5 Emissions and Air Quality Impacts

Each of the MSS permit applications estimate maximum potential emissions during startup, based on maximum coal feed rates during these events, the heat value and ash content of the coal, and AP-42 emission factors. These estimates of total particulates and fine particle fractions were revised downward based on several factors, and then used to establish permit limits meant to apply during startup and shutdown, and to evaluate the impact these higher MSS emission rates would have on air quality. But, TCEQ grossly underestimated emissions of both coarse and fine particles.

These erroneous analyses and miscalculations do not come close to satisfying the air quality impacts reviews that are required before emission limits in federal NSR/PSD permits can be altered.

A. Assumed "Dropout" of up to 73 Percent of PM 2.5 is not explained and cannot be justified

Permit limits for 12 of the 18 coal-fired units identified in Exhibit F assume that between 50 percent and 73 percent of the particulates would "drop out" of the flue gas passing through electrostatic precipitators (ESP's) during startup, in the hours before this control equipment has been energized (i.e., effectively turned on). These assumptions cannot withstand scrutiny for several reasons.

First, no data was provided to justify these calculations in the permit applications, although footnotes sometimes reference "engineering studies." The Petitioners were unable to obtain these studies or any information explaining the basis for these calculations from TCEQ in response to a Public Information Act request.

Second, the permit applications do not explain how ESPs can absorb thousands of pounds of particulate dust every hour of startup before controls are engaged without serious damage that impairs the ESP's effectiveness or creates a safety hazard. Nor do they explain whether or how all of this "dropout" is actually removed from the ESP. Fly ash from the low sulfur subbituminous coal and lignite burned in Texas power plants is notoriously sticky; their higher levels of "resistivity" make it more likely that this fly ash will coat ESP's with dust that will be re-entrained and reenter the atmosphere:

> "High resistivity also tends to promote rapping problems, as the electrical properties of the dust tend to make it very tenacious. High voltage drop, through the dust layer and the retention of electrical charge by the particles make the dust difficult to remove because of its strong attraction to the plate. In addition to the reduced migration and collection

> rate associated with high resistivity dust, greater rapping forces usually required to dislodge the dust may also aggravate or cause a rapping reentrainment problem."[22]

Also, it is common practice at Texas power plants to turn blowers on when a boiler is offline for maintenance to drive dust (i.e., particulates) out of control equipment and up the stack. Similarly, power plants commonly rely on exhaust fans to speed the cooling of a boiler to give maintenance personnel access after a shutdown following an upset. Opacity levels during these offline events frequently reach 90 percent. These extreme opacity events will no longer be reported under the MSS permits Texas has approved. But the suggestion that many particulates that accumulate inside ESPs during startup are not eventually released to the atmosphere is false.

Third, permit applications assume that fine particles "drop out" at the same rate as do much larger and heavier coarse particles (e.g., those weighing more than 2.5 microns). Neither the applicants nor TCEQ provide any scientific basis to support that erroneous assumption. Thus, TCEQ did not adequately consider the impacts of $PM_{2.5}$ emissions during MSS, nor did TCEQ consider that Texas coal plants are likely emitting more fine particles than they represented.

B. MSS Permit Limits Are Based on Erroneous Application of AP-42 Standards

MSS permit applications estimated that online scrubbers or partial operation of ESPs during startup would reduce PM emissions from 30 percent to 90 percent. As with "dropout" factors, these applications incorrectly assume that both coarse and fine particles would be reduced by the same percentages. The applications cite to Table 1.16 of the AP-42 factors, but either misrepresent or misunderstand the directions for estimating fine particle emissions from flue gas controlled by scrubbers or ESPs.

For example, the application for the San Miguel coal-fired unit uses the AP-42 factor from Table 1.16 for uncontrolled emissions to estimate PM, PM_{10}, and $PM_{2.5}$ during startup, then assumes that its scrubber will reduce all PM emissions by 85 percent during startup, regardless of

[22] "Operations and Maintenance Manual for Electrostatic Precipitators," Air and Engineering Research Laboratory, US Environmental Protection Agency, EPA/625/1-85/017 (September 1985) p. 4-25.

particle size. But Table 1.16 makes clear that scrubbers would remove only half (49 percent) of particles 2.5 microns or smaller. Readers are directed to estimate $PM_{2.5}$ emissions from scrubbers by multiplying 0.3 times the ash content of the coal, which is 30 percent, according to the permit application. Applying the AP-42 factors correctly, the San Miguel unit would emit 355 pounds an hour of $PM_{2.5}$ during startup, not the 135 pounds per hour assumed in the permit application.

The actual MSS permit limits for 15 of the 18 units addressed in Exhibit E apply to all particle sizes, and do not set lower limits for $PM_{2.5}$, which suggests that these facilities are unwilling to stand behind the representations made in their permit applications.

C. Air Quality Analyses are Based on Inaccurate Emissions and Ignore Aggregate Impacts

At least some permit applicants apparently modeled air quality impacts associated with the much higher hourly PM emission limits that apply during MSS events. These analyses did not include an evaluation of the annual increases in emissions that result from the higher short-term limits that TCEQ has authorized. The analyses do not support TCEQ's conclusion that these permit changes will not significantly affect air quality for at least three reasons.

First, as explained above, permit applicants underestimated $PM_{2.5}$ emissions by as much as a factor of three, based on incorrect assumptions about the rate at which these finer particles will be removed through scrubbers or through "dropout" in un-energized ESPs.

Second, the emission limits for 15 of the 18 coal-fired units apply to all particle sizes, i.e., a power plant is not required to meet a lower limit for fine particles. The air quality modeling is, however, based on unenforceable (and incorrect) assumptions in the permit applications that result in artificially low $PM_{2.5}$ estimates.

Third, the impact of each MSS permit limit appears to have been evaluated in isolation from the other increases that TCEQ authorized, which means the combined effect of increasing permit limits for the largest $PM_{2.5}$ emission sources in Texas was not evaluated.

VIII. MSS Permit Limits and Work Practices Do Not Reflect Best Available Control Technology

The best available control technology ("BACT") for minimizing MSS emissions should reflect what the best performing power plants achieve in practice. Instead, the MSS permits approved by TCEQ are based entirely on the self-serving statements of permit applicants.

The applications provide a very brief synopsis of standard operating procedures that are so vague they are meaningless. For example, Luminant's MSS application for its Sandow 4 unit promises to "minimize" startup through the use of "proper startup procedures" and by engaging its electrostatic precipitators, "as soon as it is technically practicable to control PM emissions." Other applicants promise to follow their own standard operating procedures, or those recommended by the manufacturer of pollution control equipment purchased decades ago.

Under Texas rules, BACT refers to air pollution control methods that are "technically practicable and economically reasonable." 30 TAC § 116.10(1). But neither the applications nor TCEQ's technical review evaluate any control technologies, alternative fuels, work practice standards, or operating procedures not already in place at each generating unit. And there are no data or other benchmarks to define what is economically reasonable, allowing each permit applicant to decide for themselves how much they are willing to pay to control emissions.

There is no explanation whatsoever as to why a unit that has the best available control technology should need to be excused from PM and opacity standards established more than 20 years ago and which are meant to apply continuously, because it cannot meet these standards during an unlimited number of 24 or 48 hour startup and shutdown events, for an additional 1,200 hours (combined) for longer startups and shutdowns, and for up to 525 hours of online and offline maintenance.

While permit applications state that these time periods are based on "historical experience," there are no data at all in either the permit applications or in the records obtained from TCEQ to support those claims. Electric generators are required to identify exceedances of the SIP opacity standards at 30 TAC §111.111 in quarterly Title V reports, including those resulting from startup, shutdown, and maintenance. According to dozens of Title V reports filed by Texas power plants, the number of hours that these generators have reported exceeding

opacity limits in the past does not come anywhere close to the virtually unlimited duration the exemptions are available under the MSS permits. There is no evidence that TCEQ ever looked at these reports or any other records to determine whether past experience justified eliminating opacity requirements for 525 hours online and offline maintenance, or for up to 600 hours for startups lasting more than 48 hours. Nor has the agency explained how "historical experience" is relevant to a BACT analysis that should be based on the best performing controls and work practices available today.

IX. The MSS Permits' Incorporation of the Texas Affirmative Defense Is Unlawful and Makes the Permits Even Less Enforceable

For certain periods of MSS not covered by the exemptions and higher limits in the MSS permits, the permits refer back to the provisions of the Texas regulations that provide affirmative defenses for exceedances from unplanned and planned events, 30 TAC § 101.222. For example, the MSS permit for Luminant's Sandow 4 plant, Special Condition 20(E), provides: "For periods of maintenance, startup, and shutdown other than those subject to Paragraphs A - C of this condition [laying out the duration limits for opacity exceedances due to 'planned' MSS], 30 TAC § 111.111, 111.153, and Chapter 101, Subchapter F apply." Texas's rules establishing an affirmative defense to penalties for violations (Section 101.222) is found in Subchapter F of Chapter 101.

While Subchapter F also contains certain reporting and other requirements other than the affirmative defenses, the MSS permits incorporate all of Subchapter F and do not differentiate between the affirmative defenses and the other provisions of the subchapter. To the extent this overbroad permit condition sweeps in an affirmative defense for exceedances due to either planned or unplanned MSS, it is unlawful. As upheld by the Fifth Circuit, EPA disapproved Texas's affirmative defense for planned MSS events. *Luminant Generation Co. LLC v. EPA*, 714 F.3d 841 (5th Cir. 2013). Further, the Texas regulations specifically provide that plants with MSS permits cannot take advantage of the affirmative defense for planned MSS. 30 TAC § 101.222(i). As for exceedances due to unplanned events (i.e., upsets), as explained above, affirmative defenses are unlawful and EPA has already initiated a SIP Call to remove these unlawful provisions from the state's rules.

As discussed above, while they may appear to cover only "planned" MSS, the permits are written so broadly that they could be read to cover all MSS activity. The distinction between "planned" and "unplanned" MSS is even more ambiguous and confusing given that the MSS permits refer back to the unlawful provisions of the Texas regulations that provide affirmative defenses for *both* unplanned and planned MSS events. Texas has allowed the utility industry to blur the line between "planned" and "unplanned" startups and shutdowns.

X. MSS Permit Conditions and Emission Limits Were Written by the Association of Electric Companies of Texas, and Violate SIP and NSR/PSD Public Hearing Requirements

On October 25, 2010, the Association of Electric Companies of Texas (AECT) provided TCEQ with "model permit conditions" for MSS events on behalf of the State's electric generators. TCEQ inserted the text provided by AECT into the power plants' MSS permits, along with the specific permit limits and exemption periods requested by each applicant. Another AECT letter dated August 26, 2010, provides the "maintenance tables" that were also pasted into MSS permits. Petitioners have been unable to identify any changes made to permit conditions or emission limits that were made by TCEQ to the model conditions the industry prepared for the agency.

The correspondence contained in permit application files and the boilerplate permit language show that TCEQ collaborated with power companies and their trade association to eliminate Clean Air Act requirements in federally enforceable New Source Review permits and the State Implementation Plan. This was done behind closed doors, without the public participation required by the Clean Air Act, and without the review and approval by the EPA that is required before federal SIP and NSR requirements can be eliminated.

Federal law requires public hearings before SIP or major NSR/PSD limits can be altered. These hearing requirements are not for show, but help to establish the record for judicial review of any revisions to these standards. The closed door process that TCEQ and the industry's trade association used to erase federally enforceable SIP and NSR/PSD emission limits violates these long-standing requirements.

XI. EPA's Failure to Object to MSS Permits and Related Title V Permits is at Odds with the Agency's Statutory Duty and Previous Commitments

More than four years ago, EPA stated unequivocally that permits for planned maintenance, startup, and shutdown could not change federally applicable requirements, including emission limits in the Texas SIP, without the Agency's review and approval. 75 Fed. Reg. 68,989, 68,995 (November 10, 2010). Prior to that, in 2008, EPA informed Texas that any permits authorizing planned maintenance, startup, and shutdown at major sources must comply with all federal New Source Review requirements, including the requirements to comply with best available control technology, ambient impacts (including NAAQS and PSD increments) analyses, and 30-day public notice.[23] But, the Agency's actions since then are at odds with that commitment.

Between November 2011 and April 2013, TCEQ revised permits for power companies to eliminate federal emission limits for opacity and particulate matter that were established in the Texas SIP and in federally enforceable permits. These exemptions cover an unlimited number of planned MSS events between 24 and 48 hours each, with an additional 300 to 600 hours for startups or shutdowns that take longer; and for up to 525 hours of online or offline maintenance. The revised permit conditions were written by power companies and adopted without change by TCEQ and without the public review required by the Clean Air Act; understate emissions of fine particles and misuse AP-42 standards; rely on inaccurate analyses of air quality impacts; would allow both hourly and annual emissions of particulate matter to increase; ratify the use of air pollution control devices that are ineffective in controlling MSS emissions and which do not reflect the best available technologies; and were written to be vague and unenforceable.

The Agency has declined to object to TCEQ's blatantly unlawful revisions to Title V permits to accommodate MSS exemptions from SIP PM and opacity standards and emission limits for PM, nitrogen oxide, and sulfur dioxide.

[23] Letter from Jeff Robinson, Air Permits Section, U.S. EPA Region VI, to Richard Hyde, P.E., Air Permits Division, TCEQ, regarding Permitting of MSS Emissions at Major Stationary Sources, May 21, 2008.

On December 16, 2011, the MSS permit for Luminant's Sandow 4 generating station was rolled into that facility's Title V permit. Although the comment period had already expired, the Environmental Integrity Project and Sierra Club petitioned EPA to request that the Agency exercise its authority to reopen the permit and remove the language that eliminated the SIP opacity and PM requirements of 30 TAC § 111.111(a) and § 111.153(b), respectively. EPA declined to object, and as a result, these federal standards no longer apply during MSS events at Sandow 4.

At Luminant's request, TCEQ revised the Title V permits' Compliance Assurance Monitoring provisions for the Big Brown, Martin Lake, Monticello and Sandow 5 power plants to eliminate opacity monitoring to determine compliance with the SIP PM limit during all maintenance, startup, shutdown (as well as malfunctions).[24] This revision was done as a Title V "minor revision," in violation of Texas's Title V rule that explicitly prohibits minor revisions to change either monitoring requirements or emission limits. A Texas federal district court found that these supposedly "minor" revisions to CAM provisions eliminated the SIP PM limit during MSS events, even though the PM SIP limit itself contains no exemption.[25] The court cited EPA's failure to object to these revisions in explaining its decision.[26] On January 23, 2015, EPA denied a petition to object to three Luminant Title V permits and chose not to correct this error.

Starting in January of 2012, the Big Brown, Martin Lake, and Monticello power plants stopped reporting exceedances of the SIP opacity limit in quarterly Title V compliance reports. That omission is apparently based on the assumption that the 30 TAC § 111.111(a) opacity limits are no longer federally enforceable during MSS events. Some of the Petitioners brought this

[24] The operative language inserted into the CAM text is: "For each valid 2-hour block that does not include boiler startup, shutdown, maintenance, or malfunction activities, if the opacity exceeds [20%, 10 % for Sandow 5 boilers, 20% for Big Brown boilers, Monticello Unit 3, and Martin Lake boilers, 30 % for Monticello Units 1 and 2.] % averaged over the 2 hour block period, it shall be considered and reported as a deviation."

[25] Supra n.10.

[26] *Sierra Club v. Energy Future Holdings Corporation*, Civil Action No. W-12-CV-108, WDTX, Doc. No. 240, (Order Granting Defendants' Motion for Partial Summary Judgment) at 10 (February 10, 2014) ("After considering the arguments, it is clear that Plaintiff is challenging the TCEQ and EPA's decision of passively approving the minor modifications to Big Brown Plant's Title V permit.") Id at 13 ("Should a permit deficiency go unnoticed for a period of time, the appropriate procedure would be for the EPA or the states to reopen the permit and add an omitted 'applicable requirement,' or amend any defect in the permit approving process.")

matter to EPA's attention through Title V petitions filed on February 24 and March 3, 2014. Although this specific issue was later dropped in return for an expedited response to another issue, EPA has not exercised its own authority to reopen the permits to require reporting of all exceedances of the SIP opacity limit.

Texas agreed to assume responsibility for issuing and enforcing federal Clean Air Act permits based on its promise to abide by the terms of the State Implementation Plan that it negotiated with EPA. Texas has broken this promise more than once, and in the most obvious ways. When a state agency systematically exempts large power plants from the requirements of its own SIP and EPA fails to respond, the exemptions acquire a life of their own. Although Petitioners believe the case was wrongly decided, a Texas federal district court has already ruled that EPA's silence amounts to *de facto* approval of TCEQ decisions that violate some of the Clean Air Act's most important requirements.

XII. Conclusion

As documented above, TCEQ's permit actions have removed federally enforceable SIP opacity and emission limits during maintenance, startup or shutdown events for hundreds or even thousands of hours a year for more than 20 coal-fired units. These actions were taken without either public hearings or the review and approval by EPA that is required by law, while also ignoring EPA's clear warning to abide by these requirements when authorizing changes to SIP and NSR limits.[27] TCEQ has also violated its own federally enforceable procedures for changing SIP opacity limits.

The State has also substantially increased hourly concentration and mass based emission limits in federal major New Source Review permits for particulates, sulfur dioxide, or nitrogen oxide for at least 11 coal-fired units. These actions will also significantly increase annual releases of these pollutants, and were taken without complying with the requirements for revising these permits that EPA identified in its May 21, 2008, letter to TCEQ. In particular, the State relied on permit applications that seriously underestimate emissions of fine particles during startup, shutdown, or maintenance, and the likely downwind exposure to this pollution. These inaccurate and incomplete estimates do not comply with the procedures for determining the air

[27] 75 Fed. Reg. 68,989, 68,995 (Nov. 10, 2010).

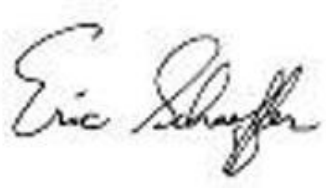
quality impact of NSR permit revisions. In addition, the revised permits effectively eliminate hourly NSR emission limits during MSS events by requiring that compliance be determined based on total monthly or annual emissions.

TCEQ has violated federal law and its own rules by approving MSS exemptions from SIP and preconstruction permit emission limits as "minor" revisions to Title V operating permits, and by eliminating monitoring requirements that are supposed to apply at all times.

As a result, the permit revisions will leave Texans exposed to higher levels of fine particulates on both a short- and long-term basis, and may contribute to violations of federal health based air quality standards for fine particles.

Thank you for considering this Petition, and we look forward to your reply.

Respectfully submitted, on May 27, 2015,

By: 

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