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June 11, 2009

**VIA electronic submission**

Ms. LaDonna Castañuela
Chief Clerk, MC-105
Texas Commission on Environmental Quality
P.O. Box 13087

Re: Oak Grove Management Company LLC 's Application For HAP-57

Dear Ms. Castañuela:

Enclosed for filing, please find comments submitted on behalf of Environmental Integrity Project and Sierra Club.

Thank you for your attention to this matter. Please call me at (512) 637-9474 should you have any questions.

Sincerely,

Christina Mann

Christina Mann

Enclosures

cc: Jeff Robinson, Chief Air Permits Section, EPA Region 6 *via email*
Blas Coy, Public Interest Counsel, TCEQ *via email*

# PUBLIC COMMENTS ON THE PROPOSED AIR QUALITY PERMIT NUMBER: HAP-57 FOR OAK GROVE MANAGEMENT COMPANY LLC's PROPOSED FACILITY IN ROBERTSON COUNTY, TEXAS

The Environmental Integrity Project (EIP) and the Sierra Club understand that Oak Grove Management Company LLC (Oak Grove) submitted an application to the Texas Commission on Environmental Quality (TCEQ) on December 9, 2008 for issuance of Hazardous Air Pollutant Major Source [FCAA § 112(g)] Permit Number HAP-57, which would establish case by-case Maximum Achievable Control Technology (MACT) requirements for the two Oak Grove Steam Electric Station Boilers located approximately 12 miles north of Franklin, Texas off of FM 979 in Robertson County, Texas.

On behalf of EIP and Sierra Club, these comments are submitted in response to a notice published on May 13, 2009. In addition, EIP and Sierra Club incorporate the February 26, 2009 previously submitted by the Sierra Club in response to this application. These are attached for your convenience. The initial notice published on May 13, 2009 that first notifies the public of the existence of this application is confusing and has clear errors which are misleading to the public. Therefore we are limiting these additional comments to address the procedural missteps arising from the May 13, 2009 notice.

1. TCEQ received the application nearly 6 months before publication of any notice of any kind. Why did TCEQ wait so long to prepare any notice at all? Why was the notice of receipt of application and intent to obtain air permit (NORI) not required? Is TCEQ intending to process Hazardous Air Pollution (HAP) Major Source Permits in a different fashion from other federal air quality permits? What public participation mechanisms does TCEQ assert are or are not available during the HAP permitting process?

2. Regardless of TCEQ's position on public participation in the processing of HAP permit applications, the May 13, 2009 notice is clearly defective. It is titled "Notice of Application and Preliminary Decision for an Air Quality Permit." However, EIP and Sierra Club understand that TCEQ has not reached a preliminary decision and has not completed the technical review. The notice further states that upon the close of the comment period, the TCEQ may issue final approval of the application. However, TCEQ may not issue final approval of this application until 1) TCEQ completes an adequate technical review of the application; 2) TCEQ makes available the technical review to the public for review and comment; 3) TCEQ makes available the draft permit or determination to the public for review and comment and 4) TCEQ adequately responds to public comments. An opportunity for the public to provide comment after review of TCEQ's technical review and draft permit/determination is legally required for federal permits such as Hazardous Air Pollutant permits for major sources. In fact, 30 TEX. ADMIN CODE §116.406 specifically requires applicants to comply with the public notice requirements of Chapter 39 of Title 30 of the Texas Administrative Code.

To correct the notice deficiencies, TCEQ must require Oak Grove to publish a NORI, including an additional initial comment period. Later, when TCEQ has actually completed the technical review and prepared a draft permit or determination, Oak Grove must then publish a correct Notice of Application and Preliminary Decision, which must also include a 30 day comment period.

Sincerely,

Christina Mann

Christina Mann, Attorney
**ENVIRONMENTAL INTEGRITY PROJECT**

# Incorporated Sierra Club Comments

## Submitted: February 26, 2009

SIERRA CLUB
FOUNDED 1892

February 26, 2009

Mr. Richard Hyde, P.E.
Texas Commission on Environmental Quality
Office of Permitting, Remediation, and Registration
Air Permits Division (MC-163)
12100 Park 35 Circle
Austin, TX 78753

Dear Mr. Hyde:

I am writing on behalf of the Sierra Club, to convey our concerns regarding Oak Grove Management Company, LLC's application for a case-by-case "maximum achievable control technology" (MACT) determination, under Section 112(g) of the Clean Air Act (submitted on December 9, 2008) (the "Application"). Several elements of that application fail to meet the requirements of the Clean Air Act. While further details will undoubtedly emerge with the Commission's draft MACT determination, I am providing you with these concerns in the hope that you may be able to address them before the draft issues.

The comments below provide, first, some (likely familiar) background regarding Section 112 and its requirements. A few specific concerns regarding the application follow.

## A. Background: Section 112 and Hazardous Air Pollutants

Section 112 of the Clean Air Act requires every major source of hazardous air pollutants to limit its emissions of such pollutants to a rate consistent with the "maximum achievable control technology" ("MACT"). 42 U.S.C. § 7412 (d)(1).

Congress enacted the present version of Section 112 to address two central concerns. First, the air pollutants addressed by Section 112 are very toxic, "pos[ing] a significant threat to public health." S. Rep. No. 101-228, 1990 U.S.C.C.A.N. 3385, 3517 (1989). When Congress amended the Act to create the currently applicable requirements, studies estimated that the "cancer incidence attributable to toxic air pollution may be as high as 500,000 fatal cases for those Americans now alive." S. Rep. No. 101-225, 1990 U.S.C.C.A.N. 3385, 3514 (1989). And hazardous air pollutants "also cause widespread environmental degradation." Lakes and rivers in more than 45 states and several tribes all across the United States are now posted with fish advisories and warnings for pregnant women and children because of high mercury levels in fish attributable to mercury emissions from coal-fired power plants.

Second, Congress amended section 112 in response to agencies' persistent failure and delay in regulating these air toxics. Congress described efforts to reduce hazardous air pollution as "a record of false starts and failed opportunities," and speculated that agency foot-dragging might be motivated by the fact that reductions might be "potentially very costly for some source categories or pollutants." *Id.* at 3517-18. Those twin legislative concerns – enormously harmful pollutants, and regulatory agencies that had persistently failed to address them – resulted in a legal framework that demands strict limitations, and provides agencies with little discretion to relax or avoid those limits.

EPA has listed oil- and coal-fired power plants as major sources of HAP, subjecting such plants (including Oak Grove) to Section 112's requirements. Regulatory Finding on the Emissions of Hazardous Air Pollutants from Electric Utility Steam Generating Units, 65 Fed. Reg. 79,825 (December 20, 2000).[1] Coal-fired plants "emit a significant number of the 188 HAP" regulated by Section 112, including mercury, arsenic, chromium, beryllium, lead, manganese, selenium, dioxins, and a variety of acid gases (including hydrogen chloride and hydrogen fluoride ). Each of those toxic pollutants poses substantial health concerns. For example, "[o]ffspring born of women exposed to relatively high levels of [mercury] during pregnancy have exhibited a variety of developmental neurological abnormalities, including delayed developmental milestones, cerebral palsy, and reduced neurological test scores." *Id.* at 79,829. There is also new epidemiological evidence that high levels of mercury result in fatal and non-fatal heart attacks among adult males.[2] Arsenic, chromium, dioxin and beryllium are all likely carcinogens. *Id.* At 79,827. And acid gases cause respiratory disease and other illnesses.

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[1] EPA unlawfully "de-listed" power plants from the 112(c) list in 2005. 70 Fed. Reg. 15,994 (Mar. 29, 2005). The United States Court of Appeals for the D.C. Circuit has vacated that decision; it has no legal effect. *New Jersey v. E.P.A.* 517 F.3d 574 (D.C. Cir. 2008). *See, e.g.*, *Environmental Defense v. Leavitt*, 329 F. Supp. 2d 55, 64 (D.D.C. 2004) ("When a court vacates an agency's rules, the vacatur restores the status quo before the invalid rule took effect."); *Environmental Defense v. EPA*, 489 F.3d 1320, 1325 (D.C. Cir. 2007) (while remanded regulations remain in effect, vacated regulations do not); *Campanale & Sons, Inc. v. Evans*, 311 F.3d 109, 127 (1st Cir. 2002) (option of vacating a regulation described as "overturning it in its entirety").

[2] Economic Valuation of Human Health Benefits of Controlling Mercury emissions from U.S. Coal-Fired Power Plants, NESCAUM, February 2005.

Section 112 prohibits, *inter alia,* any person from "construct[ing] or reconstruct[ing] any major source of hazardous air pollutants," or "modify[ing]" such a source, "unless the Administrator (or the State) determines" that the source will meet the applicable MACT limits. 42 U.S.C. § 7412(g)(2). Where, as here, EPA has failed to promulgate national MACT standards for the new source, EPA or the State must determine the applicable MACT standard for the source on a "case by case basis." *Id.*

The MACT determination must result in:

> [T]he maximum degree of reduction in emissions of hazardous air pollutants (including a prohibition on such emissions, where achievable) that the permitting authority, taking into consideration the cost of achieving such emission reduction and any non-air quality health and environmental impacts and energy requirements, determines is achievable . . . .

40 C.F.R. 63.55(a)(2). *See* 42 U.S.C. § 7412(d)(2). The Act further sets a "floor," establishing the maximum emissions that may be permitted as MACT: "[The MACT] limitation must not be less stringent than the emissions limitation *achieved in practice* by the best controlled similar source . . . ." 40 C.F.R. 63.55(a)(3). *See* 42 U.S.C. § 7412(d)(3) (emphasis added).

To reach that "maximum degree of reduction," the permitting agency must examine "methods, systems, and techniques" of HAP-reduction, including, but not limited to, measures which:

> (A) reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials, or other modifications,
> (B) enclose systems or processes to eliminate emissions,
> (C) collect, capture or treat such pollutants when released from a process, stack, storage, or fugitive emissions point,
> (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification) . . .
> (E) are a combination of the above.

42 U.S.C. § 7412(d)(2).

The MACT determination, furthermore, produces a limit for each HAP emitted by the proposed facility. Section 112(d) requires "the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section." 42 U.S.C. § 7412(d)(2). And Section 112 defines "hazardous air pollutants" to include "*any* air pollutant listed pursuant to [Section 112(b)]." 42 U.S.C. § 7412(a)(6) (emphasis added). *See National Lime Ass'n v. Environmental Protection Agency,* 233 F.3d 625, 633-34 (D.C. Cir. 2000).

Under some circumstances, "surrogate" limits may be substituted for direct control of a particular HAP. *National Lime,* 233 F.3d at 637-39; *Sierra Club v. EPA,* 353 F.3d 976, 982-985 (D.C. Cir. 2004) (*Sierra Club I*). However, a regulator may not utilize a surrogate without specifically linking the surrogate to each HAP that it is intended to represent. *See Mossville Envtl. Action Now v. EPA*, 370 F.3d 1232, 1243 (D.C. Cir. 2004).[3] And furthermore:

> [A substitute limie] is a reasonable surrogate for HAPs if (1) "[the HAPs] are invariably present . . . in [the surrogate];" (2) "[The surrogate's] control technology indiscriminately captures [the target HAP] along with [the surrogate];" and (3) "[The surrogate] control is the only means by which facilities 'achieve' reductions in [the target HAP] emissions."

*Sierra Club I,* 353 F.3d at 984 (quoting *National Lime,* 233 F.3d at 639).

## B. The Application Fails to Satisfy the Above-Described Requirements.

In light of the above requirements, Oak Grove's MACT application is materially incomplete, for each of three following reasons.

### 1. The Application Fails to Include Information Sufficient to Determine the MACT Floor.

#### a. The Application Fails to Include Information Regarding the Emission Control Achieved in Practice by Other Sources.

The Application provides a MACT floor based solely on permit limits; it includes no information regarding the actual emissions of other similar sources. *E.g.,* Case-by-Case MACT Application for Oak Grove Steam Electric Station PC Boilers (December 9, 2008) ("Application") at 41, 43, 44, 45. The

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[3] The Court in *Mossville* rejected EPA's reliance on vinyl chloride as a surrogate for all HAP form PVC production facilities, ruling unambiguously that EPA was required to "establish a correlation between the surrogate and the HAP" and that to do so the agency was affirmatively required to identify each HAP that the facility would emit, and directly link each such HAP with the chosen surrogate. 370 F.3d at 1243. It was fatally insufficient for EPA to simply assert without detailed, HAP-specific analysis that vinyl chloride was an appropriate surrogate for all HAP.

MACT floor must, however, be based on the *actual* emissions of the best-performing similar source. Under the Act's implementing regulations, the MACT floor is "the emission control which is *achieved in practice* by the best controlled similar source." 40 C.F.R. § 63.43(d)(1) (emphasis added). The actual emissions "achieved in practice" by almost all plants are lower than the plants' permit limits; absent some consideration of those actual emissions, the Commission cannot establish a legally sufficient MACT limit. The Commissions should have available stack test data from, among others, the Martin Lake, Limestone, and Sandow Plants, all of which can and should inform the MACT determination for Oak Grove.

### b. The Application Excludes Methods of Control by Failing to Consider Plants Using Cleaner Materials and Alternative Combustion Methods.

Moreover, the Application's analysis of the MACT floor includes only facilities that burn one specific regional fuel; the Application fails to consider similar plants burning cleaner fuels. The Application assumes that the Oak Grove Plant will burn 100% Gulf Coast lignite. As an initial matter, the Application's asserted basis for distinguishing Gulf Coast lignite from other fuels – elevated concentrations of mercury – is inaccurate. Application 50-52.[4] In fact, the EPA's ICR data indicates that the concentration of mercury in Gulf Coast lignite is about the same as in Appalachian bituminous coals, and thus the same as other commonly burned coals. Further, a narrow focus on only mercury content to distinguish a fuel is unwarranted due to complex chemical reactions between mercury, bromine, and chlorine in the flue gases.[5]

And by limiting its scope to a single regional fuel, the Application's MACT analysis excludes a significant control option: using other, cleaner fuels. To set the MACT floor (and assessing potential beyond-the-floor reductions) the Commission cannot ignore emissions achieved by plants burning alternative fuels. The Clean Air Act includes "process changes" "substitution of materials," and "design" changes among the pollution-reduction methods that must be assessed as part of a MACT determination. 42 U.S.C. § 7412(d)(2). The Department cannot, consequently, define the term "similar source" to exclude the use of cleaner fuels and other similar options – especially since the U.S. EPA has concluded that the term "similar source" is meant to

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[4] The Application even rejects EPA's proposed MACT Subpart UUUUU mercury standard for lignite (5.9 lb/TBtu), because it was based on North Dakota lignite instead of Gulf Coast lignite. *Id.* at 52.

[5] The concentration of chlorine and fluorine (which become HCl and HF) are much lower in Gulf Coast lignites than other coals. Thus, if the Application's narrow focus on Gulf Coast lignite is accepted, the MACT limits for HCl and HF should be much lower than proposed.

broaden, rather than limit, the MACT-floor analysis. *See* 61 Fed. Reg. 63,384-385.

The MACT floor analysis must encompass, therefore, all plants that meet the regulatory definition of "similar source" – including plants using cleaner fuels. 40 C.F.R. 63.41. Likewise, the MACT analysis requires consideration of plants using alternative combustion methods, such as circulating fluidized bed boilers. The U.S. Environmental Protection Agency refused to set separate MACT standards for CFBs and pulverized coal units when setting Clean Air Act standards for electric-generating units. *See* 69 Fed. Reg. 4,652, 4,657 (January 30, 2004); 70 Fed. Reg. 28,606, 28,609-10 (May 18, 2005). The Application instead contains only information regarding pulverized coal units; it is therefore insufficient to set a legally sufficient MACT limit.

### 2. The Application Relies on Inadequate Surrogates.

#### a. Filterable Particulate Matter as a Surrogate for Non-Mercury HAP Metals

The Application uses filterable particulate matter (PM) as a surrogate for control of non-mercury HAP metals. It does not identify the specific HAPs that it means to include in this grouping. We presume that "metallic HAPs" includes the balance of the HAP metals, or antimony, arsenic, beryllium, cadmium, cobalt, lead, manganese, nickel, and selenium.

#### i. Non-Mercury HAP Metals Are Not Invariably Present in PM.

These elements are not all consistently present in filterable particulate matter. Exhibit 1[6] at 223-224, Exhibit 2.[7] Some are present as gases, and as such are not removed by pollution-control devices that limit particulate matter. Selenium is the most problematic; 50% to 100% of the selenium in coal exists as a vapor in exhaust gases. Up to 52% of the arsenic also may be present as a gas. Further, depending upon the fuel and control train, some of the otherwise nonvolatile trace metals, including chromium and nickel, may be present in the vapor phase. Finally, mercury controls have been demonstrated to increase the amount of chromium and nickel

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[6] Minghou Xu, Rong Yan, Chunguang Zheng, Yu Qiao, Jun Han, and Changdong Sheng, Status of Trace Element Emission in a Coal Combustion Process: A Review, Fuel Processing Technology, v. 85, 2003, pp. 215-237.

[7] William P. Linak and Jost O.L. Wendt, Trace Metal Transformation Mechanisms During Coal Combustion, Fuel Processing Technology, v. 39, 1994, pp. 173-198.

in stack gases, compared to no mercury control. Exhibit 3.[8] Particulate matter cannot, therefore, serve as a viable surrogate for the above-described HAP.

### ii. Particulate Control Does Not Indiscriminately Capture HAP Metals

Metallic HAP that are present in particulate matter are, as a general matter, volatilized in the boiler, and condense as very fine particulate matter or nanoparticles (typically smaller than 1 micron) in the pollution control train. Exhibits 2, 4.[9] The highest concentrations of most metallic HAPs are consistently found in the smallest particles. Exhibits 5-8.[10] Particulate-matter control devices do not capture these smaller particles as efficiently as they do larger particles. Exhibits 9 (Table 1.1-6), 10 (Fig. 8).[11] The larger particles contain far less metallic HAPs than smaller particles. As a result, particulate matter controls do not "indiscriminately" capture HAP metals at the same rate as other particulates; they favor the larger, non-metallic HAP-laden particles. For example, one study found that particles smaller than 1 micron made up 5% of the total particle mass before the particle control device while after the device, they made up 50% of the mass. Exhibit 3.

A filterable particulate matter limit could be met by removing larger particles, without removing (or less efficiently removing) the smaller particles where the metallic HAPs are found. The removal efficiency of

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[8] McIlvaine Hot Topic Hour, Hazardous Air Pollutants, May 15, 2008, Presentation of John Pavlish, EERC. Voice recording also available online to subscribers of McIlvaine Power Plant Knowledge System and available for purchase.

[9] R.C. Flagan and S.K. Friedlander, Particle Formation in Pulverized Coal Combustion – A Review, In: *Recent Developments in Aerosol Science*, D.T. Shaw (Ed.), 1978, Chapter 2 (Exhibit 4); A.S. Damale, D.S. Ensor, and M.B. Ranade, Coal Combustion Aerosol Formation Mechanisms: A Review, Aerosol Science & Technology, v. 1, no. 1, 1982, pp. 119-133. See also: S.K. Friedlander, *Smoke, Dust, and Haze. Fundamentals of Aerosol Dynamics*, 2nd Ed., Oxford University Press, 2000.

[10] Richard L. Davidson and others, Trace Elements in Fly Ash, *Environmental Science & Technology,* v. 8, no. 13, December 1974, pp. 1107-1113 (Exhibit 5); E.S. Gladney and others, Composition and Size Distribution of In-State Particulate Material at a Coal-Fired Power Plant, *Atmospheric Environment*, v. 10, 1976, pp. 1071-1077 (Exhibit 6); John M. Ondov, Richard C. Ragaini, and Arthur H. Biermann, Emissions and Particle-size Distributions of Minor and Trace Elements at Two Western Coal-fired Power Plants Equipped with Cold-side Electrostatic Precipitators*, Environmental Science & Technology*, v. 13, 1979, pp. 946-953 (Exhibit 7); W.P. Linak and others, Comparison of Particle Size Distributions and Elemental Partitioning from Combustion of Pulverized Coal and Residual Fuel Oil, *J. Air & Waste Manage. Assoc.*, v. 50, 2000, pp. 1532-1544 (Exhibit 8).

[11] U.S. EPA, Compilation of Air Pollutant Emission Factors, September 1998, Section 1.1, Coal Combustion (Exhibit 9); M.W. McElroy and others, Size Distribution of Fine Particles from Coal Combustion, Science, v. 215, no. 4528, January 1, 1982 (Exhibit 10).

the two most common particulate matter control devices  (fabric filter baghouses and electrostatic precipitators) have much higher control efficiencies for big particles than small particles. Thus, the most commonly used particulate control devices, including the device proposed here to comply with MACT (a conventional baghouse designed to remove total filterable particulate matter) capture a large fraction of coarse particulates, but are far less effective in capturing finer particulates where the non-mercury metallic HAPs are found, thus providing low total particulate emissions but high metallic HAP emissions.

The Application's proposed MACT limit on total filterable PM, as a result, provides no reliable MACT limitation on metallic HAP. If particulate matter is used as a surrogate for some non-mercury metallic HAP, it should be based on the smallest size fraction feasible.  Methods have been developed to measure particulate matter smaller than 2.5 microns or PM2.5, which is a better surrogate for metallic HAPs than PM or PM10.

### iii. Facilities Achieve Reductions in HAP Metal Emissions By Means Other Than Particulate Matter Control.

Particulate matter control is not the only means by which facilities achieve reductions in metallic HAP. As the D.C. Circuit Court of Appeals has observed, in order for particulate matter to serve as an adequate surrogate for metal HAP:

> other inputs [such as fuel type] must "affect HAP metal emissions in the same fashion than they affect the other components of [particulate matter.]" Put another way, "[particulate matter] might not be an appropriate surrogate for HAP metals if switching fuels would decrease HAP metal emissions without causing a corresponding reduction in total [particulate matter] emissions. The reason is clear: if EPA looks only to [particulate matter], but HAPs are reduced by altering inputs in a way that does not reduce [particulate matter], the best achieving sources, and what they can achieve with respect to HAPs, might not be properly identified.

*Sierra Club I,* 353 F.3d at 985 (quoting *National Lime,* 233 F.3d at 639).

Several "other inputs" affect HAP metal emissions in a different fashion than they affect particulate matter emissions. *Id.*  First, "switching fuels would decrease HAP metal emissions without causing a corresponding reduction" in total particulate matter. *Id.*  Different fuels contain different quantities of metallic HAP but the same amount of ash, so that the particulate residue that results from burning different materials can contain more, or less, metallic HAP, Accordingly, utilizing a cleaner fuel can reduce metallic HAP emissions, without reducing particulate emissions.

#### iv. Conclusion

For all of these reasons, the Application does not provide a legally sufficient MACT limit for non-mercury HAP metals. Any use of particulate matter as a surrogate for trace-metal HAP would, first, need to be limited to only those HAP that are consistently present in particulate matter. Second, it would need to be based on the fine fraction of PM (PM less than 2.5 microns in diameter).[12] As set forth above, including larger particulates disrupts the necessary relationship between the surrogate (particulate matter) and the regulated HAP (trace metals). In order to use particulate matter as a surrogate, accordingly, the Department should, first, utilize PM2.5 rather than total particulates or PM10. And third, surrogate limits must be continuously monitored, and serve as a continuous indicator of HAP emissions. The Commission must include monitoring methods that accurately measures $PM_{2.5}$. And finally, any surrogate emission limit for metallic HAPs must be expressed in mass-based limits for PM2.5 (for example, in units of mass of PM2.5 in lb per million Btu input or in lbs per GW-hr of output), in order to properly capture HAP reductions resulting from increased electrical production efficiency.

### b. Carbon Monoxide is Not an Adequate Surrogate for All Organic HAP.

#### a. Organic HAPs Are Not Invariably Present in Carbon Monoxide.

The Application proposes the use of carbon monoxide as a surrogate for organic HAP; it does not, however, provide an adequate basis to utilize that surrogate. First, organic HAP are not "present" in CO at all. Carbon monoxide emissions indicate incomplete combustion, and thus provides an indicator of whether a facility is operating at a high combustion rate. Such an "operational standard" may be substituted for limits on actual HAP emissions only where the permitting authority determines that "it is not feasible to prescribe or enforce" HAP limits. 42 U.S.C. § 7411(h). As a result, a CO-based limit – which is, in essence, a surrogate for an operational standard – cannot be used here, where HAP limits are feasible.

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[12] Kilgroe, J.D. et al. *Control of Mercury Emissions from Coal-Fired Electric Utility Boilers: Interim Report*, EPA-. 600/R-01-109, December 2001.

Moreover, there are three classes of organic HAPs that behave differently during combustion: (1) volatile organic compounds, which are gases; (2) semi-volatile organic compounds, which may be gases or solids, depending on where in the exhaust gas train they are; and (4) particulate organic compounds, such as polynuclear aromatic compounds and dioxins, which are present in the particulate fraction. A single indicator, CO, cannot be used as a surrogate for these three diverse groups of chemicals as they are chemically and physically dissimilar.

### b. CO Control Does Not Indiscriminately Capture Organic HAPs, and Facilities Achieve eductions in Organic HAP Emissions By Means Other Than CO Control.

There are pollution-control methods that would reduce the Oak Grove Station's organic HAP emissions, without producing a corresponding reduction in the plant's carbon monoxide (CO) emissions. Combustion optimization is the only means by which the Application proposes to control carbon monoxide (and therefore organic HAP). This includes changes in combustion residence time, turbulence, and temperature. Combustion optimization will increase some organic HAPs (such as polynuclear aromatic hydrocarbons), reduce some organic HAPs (such as VOCs), and have no significant effect on certain other organic HAPs (such as dioxin). Other carbon monoxide controls, such as substituting alternative fuels (natural gas, or distillate oil) would reduce organic HAPs at a far higher rate than carbon monoxide.

### c. Conclusion

For the reasons set forth above, CO cannot be used as a surrogate for organic HAP. Carbon monoxide is an acceptable surrogate, first, for only those HAP (if any) for which actual limits are not feasible. Second, the Plant should be required to perform additional testing to confirm that reduced CO emissions results in negligible amounts of organic HAP emissions, and to identify the organic HAP that are controlled by combustion optimization. The Plant should be required to test and assess the relationship between CO, combustion temperatures, and HAP emissions, placing special emphasis on evaluating and quantifying the relationship between combustion temperatures and the concentrations of CO and organic HAPs. The Plant's dioxin emissions, in particular, need to be quantified and addressed, because of dioxin's high toxicity even at low concentrations. Third, any surrogate MACT limit for CO must be based on short-time average (of the order of one hour). Organic HAP are produced at very high "hot spot" rates when combustion is poor. Very large quantities of HAP can be produced, therefore, during very short periods of incomplete combustion. As a result, low long-term average CO emissions may still not protect against very high HAP emissions.

### 3. The Application Fails to Include an Adequate Beyond-the-Floor Analysis.

The Application fails to identify and evaluate technologies that could be used to lower HAPs below the proposed "floor" levels. The Application contains no information regarding a variety of individual control technologies, including: new multipollutant control technologies such as ReACT and ECO; coal blending; coal washing; mixing the coal with a bromine additive; using a more effective Hg absorbent; increasing the amount of Hg absorbent injected per unit of flue gas; increasing the removal efficiency of the scrubber for HAPs; selecting a scrubber that enhances HAP removal, such as the Chiyoda bubbling jet reactor; selecting a filtration media with a higher removal efficiency for submicron particles, particularly those smaller than 0.1 micron; or selecting an SCR catalyst designed to maximize the oxidation of mercury, among other viable control options. These controls would all result in lower beyond-the-floor HAP limits than proposed by the Applicant.

Moreover, the Application relies on coal quality data to determine MACT but does not contain any coal quality data.[13] The Application should be modified to include the concentration of mercury, chlorine, fluorine, and non-mercury metal HAPs in the design basis coal and to report the range of each. Similarly, the Application relies on the ability of controls selected to satisfy BACT to remove HAPs,[14] but fails to disclose what performance level is assumed and in fact contains no performance data for these conventional controls for any HAP. A proper MACT determination will require the design basis of the conventional controls that are relied upon to satisfy MACT, including the SCR, baghouse, FGD, and sorbent injection system. That design basis should include the design coal composition, inlet and outlet concentrations for each subject criteria pollutant and HAP, the mercury oxidation rate of the SCR catalyst, the type of filtration media that will be used in the baghouse, the PM control efficiency of the proposed filtration

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[13] See, e.g., Ap. at pdf 26 ("The mercury emission factor was developed through consideration of the long term expected mercury content of the lignite…"); pdf 52 ("The annual mercury emissions limit…is based on the mercury content of Gulf Coast lignite…").

[14] See, e.g., Ap. At pdf 26 ("The mercury emission factor was developed through consideration of the …performance of the sorbent injection in conjunction with the suite of other post-combustion controls."); pdf 52 ("The annual mercury emissions limit…is based on…the emission reduction expected from the application of the conventional suite of controls (including SCR) with the addition of sorbent injection.").

media as a function of particle size for particles sized from 0.01 micron to greater that 20 micron in standard increments,[15] and all vendor guarantees.

4. The Application Includes Inadequate Testing

We note, finally, that the testing proposed by the Application is insufficient to ensure compliance with the proposed limits. Particulate-matter and HCl compliance should be demonstrated with continuous emissions monitoring systems. The Application's compliance method for mercury measures only measures gaseous mercury, leaving particulate mercury unaccounted for. And the Application includes no requirement to demonstrate the relationship between PM and non-mercury metals, or CO and VOC HAPs.

Do not hesitate to contact me if you have any questions or concerns.

Sincerely,

Sanjay Narayan
Sierra Club Environmental Law Program

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[15] See, e.g., Ap., pdf 60.