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BEFORE THE ADMINISTRATOR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of the Final Operating Permit for

BP PRODUCTS NORTH AMERICA, INC.
to operate WHITING BUSINESS UNIT
located in Whiting, Indiana

Significant Permit Modification
No. 089-25488-00453

Issued by the Indiana Department of Environmental Management

PETITION REQUESTING THAT THE ADMINISTRATOR OBJECT TO ISSUANCE OF THE TITLE V OPERATING PERMIT FOR THE BP WHITING REFINERY

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On behalf of:

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Date: August 14, 2008

Pursuant to Clean Air Act ("Act") § 505(b)(2) and 40 C.F.R. § 70.8(d), Environmental Law & Policy Center, Hoosier Environmental Council, Natural Resources Defense Council, Hoosier Environmental Council, Save the Dunes, and Sierra Club ("Petitioners"), by and through counsel, hereby petition the Administrator of the United States Environmental Protection Agency ("USEPA") requesting objection to the Title V operating permit ("Permit") issued to BP Products North America, Inc. ("BP" or "Applicant") by the Indiana Department of Environmental Management ("IDEM") in conjunction with BP's "CXHO Project – Operation Canadian Crude" ("Project") at its refinery in Whiting, Indiana ("Refinery"). This petition is filed within 60 days following the end of USEPA's 45-day review period pursuant to the above provisions. Furthermore, Petitioners reserved their ability to raise these issues by submitting comments during the public comment period for the Permit, *see* Attachment 1 (without exhibits, as the exhibits are attached separately hereto), and otherwise rely on public comments submitted by other parties as noted below.[1]

Section 502 of the Clean Air Act makes it unlawful for anyone to operate a facility such as BP's Whiting Refinery without a permit issued under Title V. 42 U.S.C. § 7661a. The Act provides that "[i]f any permit contains provisions that are determined by the Administrator as not in compliance with the applicable requirements of this chapter, . . . the Administrator shall . . . object to its issuance." 42 U.S.C. § 7661d(b)(1). If the Administrator does not object within 45 days after a permit has been proposed, any person may petition the Administrator (within 60 days of the expiration of the 45-day period) to take such action and the Administrator "shall issue an objection within such period if the petitioner demonstrates to the Administrator that the permit is not in compliance with the requirements of this chapter, including the requirements of the applicable implementation plan." 42 U.S.C. § 7661d(b)(2).

The Administrator must object because the Permit fails to comply with the CAA in many respects. First, the permit application lacks emission information and

[1] Permit documents issued by the state permitting authority or submitted by the applicant are referenced directly throughout this document. These documents include the application, Technical Support Document, Technical Support Document Addendum/Response to Comments. These documents, or portions thereof, are provided as Attachment 21 in the event that the Administrator did not receive any of the materials in the course of his initial Title V review.

calculations critical for determining applicable requirements and setting appropriate limits and conditions. Second, the minor source Permit fails to comply with NSR requirements because the Project is a major modification when all project emissions are properly included. Third, the permit does not include applicable BACT and LAER limits for flares and other sources. Fourth, BP and IDEM failed to conduct the proper greenhouse gas BACT analysis. Finally, the Permit omits compliance schedules that Title V requires to ensure compliance with all applicable requirements, as supported by the Notice of Violation ("NOV") issued by USEPA to BP for its Whiting Refinery. Accordingly, the Administrator must object to the Permit based on the permit's non-compliance with the Act, remand the Permit to IDEM to correct the deficiencies as set forth below, and require a full and meaningful opportunity for public comment on any revised permit and/or permit terms.

I. INTRODUCTION

The purpose of the Project is to allow the Refinery to process additional quantities of Canadian Extra Heavy Crude Oil ("CXHO") extracted from the Canadian tar sands. This form of crude is significantly higher in pollutants than conventional crude oil, and these pollutants will result in increases in air pollution during the refining process. The pollutants from processing dirtier crude will be in addition to large amounts of air pollution from other aspects of the Project that pose a threat to human health and welfare, including but not limited to particulate matter (PM/ PM_{10} and $PM_{2.5}$), nitrogen oxides (NO_x), sulfur dioxide (SO_2), carbon monoxide (CO), and volatile organic compounds (VOCs). The Project also will emit large amounts of carbon dioxide (CO_2) and other greenhouse gases, which contribute to global climate change

The Refinery is located in Whiting, Indiana. Whiting is in Lake County, part of the densely-populated Northern Indiana-Northern Illinois region, and is adjacent to southeast Michigan. As a result, the Project will have air quality impacts for three states and the vast population that resides in the area. The Refinery also is located in a nonattainment area for $PM_{2.5}$ and ozone, and thus the Project will worsen already harmful air pollution levels. With its location of the shores of Lake Michigan, this air pollution will detract from the natural environment of one of the Nation's treasures, with additional negative consequences for tourism and recreation.

II. THE PERMIT APPLICATION OMITS EMISSIONS INFORMATION AND CALCULATIONS REQUIRED UNDER TITLE V.

The Administrator must object because the permit application lacks emission information and calculations critical for determining applicable requirements and setting appropriate limits and conditions. The omission of emissions information is not a mere procedural misstep, but a violation of a baseline requirement for issuance of a Title V permit. Moreover, as set forth in the remainder of this Petition, it is a telling precursor to a disturbing result: a major source's complete avoidance of New Source Review for all regulated NSR pollutants.

Under state and federal Title V requirements for revisions to Part 70 operating permits, an applicant must provide in its application emission information related to the change, including "*all* emissions for which the source is major and *all* emissions of regulated air pollutants" and calculations on which the emissions information is based. 40 C.F.R. § 70.5(c)(3)(i) & (viii) (emphasis added); 42 U.S.C. § 7661b(c); 326 IAC 2-2 & 2-3 and 326 IAC 2-7-10.5(c). The only basis for excluding emissions information is an EPA-approved list of insignificant activities and emissions levels which need not be included in permit applications. 40 C.F.R. § 70.5(c); 326 IAC 2-7-1(21)(A).

According to IDEM, 326 IAC 2-7-10.5(f)(4)(D) (Part 70 permit for modification with potential to emit greater than 25 tons per year of listed pollutants) applies to the Project, as well as 326 IAC 2-7-12(d)(1) (significant permit modification under Part 70). (Technical Support Document (TSD) at 11). Applications under 326 IAC 2-7-10.5(f) must comply with the information requirements described above. Furthermore, applications under subsection (f) must meet procedural requirements which forbid approval of a permit unless the state commissioner has received a complete application for a modification. 326 IAC 2-7-10.5(g)(4)(A) (citing 326 IAC 2-7-10.5(g)). In other words, a Title V permit cannot issue absent full emissions information. As these state requirements have been approved as part of Indiana's SIP, they are enforceable as federal law. 40 C.F.R. pt. 52, subpt. P.

Despite these clear and broad requirements to include emissions information in a Title V application, BP's application omits complete emissions information for numerous sources, including the majority of emissions from entire units such as flares. IDEM also failed to correct this omission by requiring the information. For these reasons, the Administrator must object to the Permit. 42 U.S.C. § 7661d(b)(2).[2]

A. The Application Omits Emissions Information and Calculations for Flares and Flaring.

Perhaps most disturbingly, the application omits any emissions information for the use of new flares and lacks critical emissions information for existing flares. The Project design includes construction of three new flares and expressly contemplates use of existing flares in connection with the Project. (*See* Permit App. at 3-16); *see also* Attachment 2, Comments of Julia May (Mar. 21, 2008) (May Comments) at 8 (listing several cases where existing flares as described as part of the Project). Therefore, the application must include complete emissions information and calculations for new and existing flares.

The purpose of refinery flares is to release and combust gases generated in the refining process that cannot be contained within the facility. *See* Attachment 3, USEPA Enforcement Alert, "Frequent, Routine Flaring May Cause Excessive, Uncontrolled Sulfur Dioxide Releases," October, 2000 ("EPA Routine Flaring"); *see also* 40 C.F.R. § 60.101a ("Flare means an open-flame fuel gas combustion device used for burning off unwanted gas or flammable gas and liquids."). Causes of refinery flaring include, among other things, planned and unplanned source startups and shutdowns, source process malfunctions, and inadequate compressor capacity. Refinery flares have consistently proven to be an enormous source of air pollution emissions. At refineries in the Bay Area, where great attention has been paid to the problem of flaring emissions, sulfur dioxide (SO_x) emissions at refineries studied frequently exceeded 10,000 pounds, and were as high as 70,000 pounds, in a *single day*. Attachment 2, May Comments at 21.

[2] Petitioners note that the claims raised in Section II pertain specifically to the application content in light of Title V application requirements. To the extent that information regarding these emissions exists and/or was available in some other form, Petitioners refer to the deficiencies in the public participation process discussed at length in Petitioners' comments. *See* Attachment 1 at 1-4.

Similarly, emissions of volatile organic compounds (VOCs) from flaring frequently exceeded thousands of pounds per day, and were recorded as high as 22,000 pounds per day. *Id.* at 23. Annually, flaring events meant SO_x emissions as high as 3,000 tons and VOC emissions over 1,800 tons. *Id.* at 20. These levels of emissions – recorded from refineries with far fewer flares than the 8 current and 3 proposed new flares at the Whiting refinery – would by themselves far exceed the NSR significance thresholds, so as to trigger BACT and LAER requirements for multiple regulated NSR pollutants.

A 2004 report documents releases from large petrochemical plants during the source refinery's "start-up, shut-down, and malfunction" (SSM) (*i.e.*, normal operation of flares). Attachment 4, Environmental Integrity Project, "Gaming the System – How Off-the-Books Industrial Upset Emissions Cheat the Public Out of Clean Air" (Aug. 2004). This review of industry-filed reports showed that for some facilities, releases from SSM events were actually *higher* than total annual "routine" emissions reported to either EPA's Toxics Release Inventory (TRI) or state emission inventories for the entire facility for the entire year.[3] The report found that more than half of the 37 facilities studied had SSM emissions of at least one pollutant that were 25% or more of their total reported annual emissions of that pollutant. For ten of the facilities, upset emissions of at least one pollutant actually exceeded the annual emissions that each facility reported to the state for that pollutant. SSM emissions of carbon monoxide (CO) from Exxon Mobil's Baton Rouge facility were almost three times its reported annual CO emissions.[4]

Increased emissions of SO_2 from flaring will also result in increased $PM_{2.5}$, due to formation of sulfates. In its recent $PM_{2.5}$ rulemaking, USEPA described the relationship between sulfur dioxide and $PM_{2.5}$, 73 Fed. Reg. 28321, 28327 (May 16, 2008). These same atmospheric interactions will occur with SO_2 from flaring. In fact, USEPA has identified control of SO_2 from flaring as a control measure for $PM_{2.5}$. Attachment 6,

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[3] In addition, studies have shown that wind and other factors can reduce flare combustion efficiencies, which means that, although refineries typically estimate flare efficiency at 98 – 99%, more pollution is actually being released to the environment instead of being destroyed during combustion. *See, e.g.*, Attachment 5, Industry Professionals for Clean Air, "Reducing Flare Emissions from Chemical Plants and Refineries – An Analysis of Industrial Flares' Contribution to the Gulf Coast Region's Air Pollution Problem" (May 23, 2005) and Robert E. Levy, Lucy Randel, Meg Healy and Don Weaver, "Reducing Emissions from Flares – Paper # 61," Industry Professionals for Clean Air (Apr. 24, 2006).

USEPA, "List of Potential Control Measures for $PM_{2.5}$ and Precursors," (Draft Version 1.0).

Instead of providing emissions information for the full range of emissions from flares and flaring, the application only includes flare emissions from pilot gas and purge gas at the new flares, which are the emissions that occur when the new flares are *off*. (*See, e.g.*, Permit Application Appendix C at Table C.1, "Emission Factors for Carbon Monoxide Emissions" (listing only purge and pilot process units under "New Flares")); *see also* Attachment 2, May Comments at 3. The permit application therefore impermissibly fails to provide emissions information for the *use* of new flares. In addition, the application describes the existing flares as part of the Project. *See* Attachment 2, May Comments, at 8-10 (listing specific concerns with Project emissions from existing flares), but lacks any emissions information and calculations for existing flares. (*See* Permit Appendix C (omitting reference to existing flares)).

B. The Application Omits Information and Calculations For Numerous Other Emissions.

The application also fails to include information and calculations for numerous other emissions, in violation of the application information requirements.[5] Specifically, the analysis fails to consider (1) venting of uncontrolled pressure relief devices, which can release up to 100 tons of VOCs at once; (2) residual emissions from vessel depressurization, after a portion of the contents of process vessels have been sent to refinery recovery systems; (3) increased coking, which is virtually certain to increase emissions of particulate matter, SO_x, VOCs, heavy metals, and other pollutants; (4) coke drum depressurization, which emits large amounts of PM, PM_{10}, and VOCs; and (5) fugitive emissions of reduced sulfur compounds. Petitioners set forth detail below information about several of these emissions sources, but note that all of these additional types of emissions must be accounted for in the application.

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[4] Increased CO emissions indicate incomplete flare combustion, and therefore increased emissions of hazardous air pollutants (HAPs).

[5] Petitioners note that none of these emissions appear to qualify for Indiana's insignificant activities exemption from Title V emissions requirements, which are listed at 326 IAC 2-7-1(21)(A) and Permit

Coke Drum Depressurization Emissions. In the coker, vacuum residuum is heated in three 208 MMBtu/hr feed heaters to 900 to 940 F and fed into six coke drums. The residuum remains in the coke drums under a pressure of 30 to 60 psig for about 12 hours.[6] The lighter materials boil off and are separated into byproducts. The coke drums fill up with solid coke. At the end of the 12 hours, the drums are stripped with steam to remove remaining hydrocarbons, cooled with water, and depressurized. (Permit App. at 2-2). Typically, when the coke drum pressure drops below about 5 psig, the line from the coke drum to the coker blowdown section is closed and the coke drum vent line to atmosphere is opened, venting steam and reducing the drum pressure.

The South Coast Air Quality Management District ("SCAQMD") has measured depressurization emissions from all refineries within its jurisdiction.[7] These emissions are considerable.[8] For example, a test report from Chevron/Texaco's El Segundo refinery measured 13.75 lb of total PM and 11.16 lb of VOCs per depressurization event. *See* Attachment 8, South Coast Air Quality Management District, "Volatile Organic Compound (VOC), Carbon Monoxide, and Particulate Matter (PM) Emissions from a Coke Drum Steam Vent," Source Test Report 03-194 ("Test Report").[9] The increase in the number of such events that would occur per day at BP Whiting was not reported in its application. However, the application indicates that the Project would increase coke production from 1,638 ton/day to 6,000 ton/day. (TSD at 4). Assuming 1,000 tons per drum, the Project would increase the number of depressurization events by over four per day. Thus, depressurization venting alone would increase total PM emissions by at least 10 tons per year (tpy) and VOC emissions by 8 tpy.

Actual emissions are likely much higher. The Test Report summary table notes: "All mass emissions results are biased low; See Test Critique." Attachment 8, Test Report at 3. The Test Critique explains that "the reported emissions reflect an inherent low bias and potentially a large low bias . . . . As such, the emissions should be

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[6] The actual residence time is not disclosed in the Application. This is a typical estimate.
[7] Telephone communication between Dr. Phyllis Fox and Bob Sanford, Air Quality Engineer, SCAQMD, May 11, 2006.
[8] *See* Attachment 7,E-mail chain, Sanford to various parties, March 22, 2006. Aarni say to Sanford: "the magnitude of the emissions surprised me as well." And Sanford replies to Aarni: "The Magnitude of the PM and VOC emissions during coke drum depressurization caught me by surprise."
[9] Conducted at Chevron/Texaco Refinery, El Segundo, CA, January 23, 2003.

considered as greater than reported. Furthermore . . . the emissions are at least that which was reported." *Id.* at 12.

Coke Drum VOC And PM_{10} Decoking Emissions. After the coke drums are depressurized, the tops and bottoms of the drums are removed, water is drained from the coke, and high-pressure water drilling is used to break up and remove coke from the drums. The application does not disclose that there are emissions from this process nor does it include them in the netting calculations that Petitioners can discern.

The depressurization Test Report discussed above explains that the coke drums continue to emit after they have been depressurized:

> After the blow down period [which was tested], the top drum head is removed and continues to remain open for a period of time longer than the vent period to allow further cooling. After cooling, the coke is cut from the drum. It was observed that emissions occurred during these events similar to the blow down event, as indicated by a visible steam and an emissions plume comparable in appearance and odor to those that were tested during venting. These emissions were not tested nor included in the **Results** section of this report. Based on observation of these plumes, these emissions may be significant or possibly more significant than those that were tested.

Attachment 8, Test Report at 13 (highlighting in original). Thus, PM_{10} and VOC emissions from further cooling and decoking could be roughly comparable to those from depressurization. Making the corrections discussed above, further cooling and decoking could at least double the depressurization emissions.

Fugitive Sulfur Emissions. Reduced sulfur compounds, including hydrogen sulfide (H_2S), are PSD pollutants. Fugitive sources, such as leaks from valves, connectors, flanges, pumps, compressors, and tanks are typically major sources of reduced sulfur compounds at refineries. [10] The Project will substantially increase the

[10] Fugitive emissions, to the extent quantifiable, are required to be included in, among other things, calculations for determining whether a refinery is a major stationary source, 40 C.F.R. § 51.166(b)(1)(iii)(j); baseline actual emissions, 40 C.F.R. § 51.166(b)(47)(i)(a), 326 IAC 2-2-1(e)(2)(A); and projected actual emissions, 40 C.F.R. § 51.166(b)(40(ii)(b), 326 IAC 2-2-1(rr)(2)(A)(ii) (and thus the

amount of reduced sulfur compounds formed in all existing processing units because the Project is designed to change the crude slate to process high sulfur Canadian tar sands. *See* Sections I and II.C. Further, reduced sulfur compounds including H_2S will be emitted from fugitive components in the new units. The application does not include reduced sulfur, such as H_2S, emissions from leaks from fugitive sources.

The coking process, for example, produces high concentrations of H_2S and other reduced sulfur compounds. The coke drum vapors are about 5% H_2S by weight.[11] The depressurization, cooling, and decoking operations discussed above also emit H_2S and other reduced sulfur compounds. These compounds would also be emitted in high concentrations from all fugitive components in the coker, including valves, connectors, and pumps. The application did not disclose that the coke drums would emit H_2S.

In response to Petitioners' comments, IDEM inserted a Permit requirement that emissions from the facility are to be monitored and measured to identify any exceedances of the PSD/NNSR significance thresholds after the operating permit is issued. (TSD Addendum at 111). However, applicable law does not allow this after-the-fact approach to substitute for appropriate up-front potential to emit (PTE) and netting calculations. Federal law requires a determination of the significance of emission increases prior to commencement of construction, not after. 40 C.F.R. §§ 51.165 & 51.166. In addition, the provisions described in the TSD Addendum require monitoring only, and do not specify measures by which emissions will be limited so as not to exceed PSD/NNSR significance levels should emissions be determined through monitoring to exceed those levels. Accordingly, the referenced measures do no constitute federally enforceable limits on the Project's PTE. *See* 326 IAC 2-8-4; Section III.A.

The TSD Addendum additionally specifies reasons why IDEM believes the identified emissions sources are not likely to increase significantly as a result of the Project, including, *inter alia*, modifications to the sulfur recovery unit complex and routing of vessel depressurization emissions to the flare gas recovery system. (TSD

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more conservative future potential emissions). Therefore, fugitive emissions must be reported in a Title V application, 40 C.F.R. 70.5(c), and included in netting analyses.

[11] Attachment 9, Tesoro Petroleum, Material Safety Data Sheet, Coke Drum Vapors, February 18, 2005; South Coast Air Quality Management District, Mobil Oil Corporation, Torrance Refinery, Reformulated Gasoline (RFG) Project, Environmental Impact Report, Risk of Upset, August 1993, Table 5.

Addendum at 112.) However, these measures are neither required by the Permit nor quantified as to the anticipated decrease in emissions, and hence do not constitute federally enforceable limits holding the facility's PTE below the PSD/NNSR significance thresholds. *See* 326 IAC 2-8-4; Section III.A.

C. The Application Omits Emissions Information Specific to CXHO Feedstock Crude.

The Permit is based on a substantial underestimation of sulfur in the crude stock and thus sulfur-based emissions. Crude oil extracted from Canadian tar sands has been shown to contain higher levels of sulfur and nitrogen, as well as other pollutants, than conventional crude, and in some cases than other types of heavy crude. The U.S. Department of Energy's Energy Information Administration, along with other sources, has noted that "[b]itumen, the 'oil' in tar sands, . . . can contain undesirable quantities of nitrogen, sulfur, and heavy metals."[12] The United States Geological Survey also has found that "natural bitumen" has eleven times more sulfur than conventional crude oil.[13] Sulfur in crude is converted into H_2S and other reduced sulfur compounds, like mercaptans, during processing. Thus, H_2S and reduced sulfurs compounds will be emitted in higher amounts when the refinery processes tar sands crude as compared to conventional crude, mostly from fugitive sources like tanks, valves, flanges, etc and the sulfur recovery plant.

The Permit application does not account for these sources of emissions, and so does not provide information on increases in such emissions from refining of Canadian tar sands crude. The lack of this information is a critical omission. Factoring in the higher level of pollutants from tar sands crude, to the extent that has not been done, is likely to result in increased emissions that will contribute to triggering NSR requirements,

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[12] *See* Attachment 10, U.S. Department of Energy, Energy Information Administration, "Annual Energy Outlook Analysis 2006
–Nonconventional Liquid Fuels," 2006, *available at*
http://www.eia.doe.gov/oiaf/aeo/otheranalysis/aeo_2006analysispapers/nlf.html.

[13] *See* Attachment 11, Meyer, R.F., Attanasi, E.D., and Freeman, P.A., 2007, "Heavy Oil and Natural Bitumen Resources in Geological Basins of the World: U.S. Geological Survey Open-File Report 2007-1084," USGS, 2007, at 14, tbl. 1 [hereinafter "USGS 2007"], *available at*
http://pubs.usgs.gov/of/2007/1084/OF2007-1084v1.pdf.

including those for hydrogen sulfide, reduced sulfur compounds, sulfuric acid mist and sulfur dioxide, among others.

D. The Application Omits Emissions Information and Calculations For Greenhouse Gases.

As set forth below in Section V, greenhouse gases are each regulated NSR pollutants, and thus regulated air pollutants subject to Title V emissions information requirements. By BP's own admission, the project will result in millions of tons of additional greenhouse gases per year. *See* Attachment 2, May Comments, at 51. The application, however, omits any emissions information and calculations for greenhouse gases from the refinery, such as carbon dioxide, methane, and nitrous oxide.

III. A FULL ACCOUNTING OF EMISSIONS WOULD HAVE RENDERED THE PROJECT A MAJOR MODIFICATION FOR MULTIPLE NSR POLLUTANTS.

In order to properly "net out" of NSR requirements, netting calculations must account for each and every modified or new unit at a source. In its permit application, BP omits numerous units from its netting calculations, thereby unlawfully qualifying for a minor source permit. The flaring emissions alone are sufficient to put the Project over NSR thresholds for several regulated NSR pollutants. In addition, proper inclusion of other omitted emissions will contribute significantly to triggering NSR, as will correction of an error in BP's calculation methods. The Administrator must object to the Permit based on these omissions and error, demand that BP and IDEM submit proper netting analyses based on full emissions information, and require public comment on the new analysis before any reissuance of a permit or permit terms.

A. A Title V Permit Must Be Based On Proper NSR Netting Analyses, Including Unit-by-Unit Calculations of Significant Emissions Increases.

A Part 70 operating permit itself must include "enforceable emission limitations and standards, a schedule of compliance" and other provisions "necessary to assure compliance with the applicable requirements of [the CAA and SIP]." 42 U.S.C. § 7661c(a). Regulations make clear that the term "applicable requirement" is very broad, and includes, among other things, any standard or requirement under Section 111 of the Act or "[a]ny term or condition of any preconstruction permit" or "[a]ny standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking under title I of the [Clean Air] Act." 40 C.F.R. § 70.2. "Applicable requirements" consequently includes, among other things, the duty to obtain a construction permit in keeping with the New Source Review Prevention of Significant Deterioration ("PSD") and/or Nonattainment New Source Review ("NNSR") programs. *See* 42 U.S.C. §§ 7475, 7479, 40 C.F.R. § 51.166 (PSD SIP requirements for approved states); 326 IAC 2-2 (Indiana SIP PSD provisions); 42 U.S.C. §§ 7502-03, 40 C.F.R. § 51.165 (NNSR requirements for approved states); 326 IAC 2-3 (Indiana NNSR provisions).

A "major modification" of an existing source that results in a significant increase in pollutant emissions requires a PSD permit and/or an NNSR permit. *Id.* Modifications that are not "major modifications" are exempt from PSD and NNSR permitting requirements. Determining whether a project is a major modification involves two steps. First, an applicant must calculate whether the project will result in a "significant emissions increase" of any regulated NSR pollutant. *See* 40 C.F.R. § 51.165(b)(2)(i), 326 IAC 2-2-2(d)(1); 40 C.F.R. § 51.165(a)(i)(v)(A), 326 IAC 2-3-2(c)(1). Next, the applicant must determine whether, for those pollutants showing a significant emissions increase, the project will result in a "significant net emissions increase." *Id.*

The methods for calculating a "significant emissions increase" involve a unit-by-unit summation of the difference between each unit's future emissions and its baseline emissions. *See, e.g.*, 40 C.F.R. § 51.166(a)(7)(iv)(d), 326 IAC 2-2-2(d)(4) ("a significant emissions increase of a regulated NSR pollutant is projected to occur if the *sum of the difference between the potential to emit... from each new emissions unit* following completion of the project *and the baseline actual emissions... of these units* before the project equals or exceeds the significant amount for that pollutant") (emphases added). An "emissions unit" is defined as "any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant." 40 C.F.R. § 51.166(b)(7), 326 IAC 2-2-1(u); 40 C.F.R. § 51.165(a)(1)(vii), 326 IAC 2-3-1(s). After deriving this sum for the source, the applicant compares the result to the PSD and NNSR significance thresholds. A "significant" emissions increase in pollutant emissions includes, *inter alia*, an increase in the source's emissions of 100 tpy of CO, 40 tpy of SO_2, 40 tpy of ozone precursors (VOCs or NO_x), 15 tpy of PM_{10}, and "any emission rate" increase of any "regulated NSR pollutant" not expressly listed in the governing regulations in an area not determined to be in nonattainment for that pollutant. 40 C.F.R. §.51.166(b)(23)(i) & (ii), 326 IAC 2-2-1(xx) & (yy); 40 C.F.R. § 51.165(a)(1)(x), 326 IAC 2-3-1(qq) & (rr).

A significant increase in a source's emissions as described above will trigger PSD and/or NNSR requirements for a major modification, unless one of two scenarios exists. First, in a process known as "netting," the increase in emissions of a pollutant may be offset by contemporaneous and otherwise creditable decreases in emissions of that pollutant, such that there is no "significant net emissions increase." *See* 40 C.F.R. § 51.166(a)(7)(iv)(a) & (b)(3), 326 IAC 2-2-2(d)(1) & 2-2-1(jj); 40 C.F.R. § 51.165(a)(1)(vi), 326 IAC 2-3-2(c)(1) & 2-3-1(dd). Second, the PTE for a pollutant may be limited by federally enforceable pollution control requirements. *See* 42 U.S.C. §§ 7475(a) & 7503(c), 40 C.F.R. §§ 51.165 & 51.166, 326 IAC 2-2 & 2-3; 326 IAC 2-8-4(1)(D).

In an air quality control region that has been determined to be in non-attainment for a particular pollutant, a major modification resulting in a significant net increase in emissions of that pollutant triggers NNSR provisions requiring, *inter alia*, emissions control constituting the Lowest Achievable Emission Rate ("LAER"), external offsets, internal offsets, and a demonstration of compliance at all of an applicant's existing major sources. 42 U.S.C. § 7502-03, 40 C.F.R. § 51.165, 326 IAC 2-3. In an air quality control region that has been determined to be in attainment for a particular pollutant, a major modification resulting in a significant net increase in emission of that pollutant triggers PSD provisions requiring, *inter alia*, emissions control constituting Best Available Control Technology ("BACT") and modeling to determine air quality increment consumption. 42 U.S.C. §§ 7475, 7479; 40 C.F.R. § 51.166; 326 IAC 2-2. The air quality control region in which the Project is located has been determined to be in nonattainment for 8-hour ozone and $PM_{2.5}$. 69 Fed. Reg. 23,858 (Apr. 30, 2004), 70 Fed. Reg. 943 (Jan. 4, 2005) (TSD at 2-3)

B. Inclusion of the Omitted Flaring Emissions Will Trigger NSR.

As described below, the minor source Permit is based on the improper exclusion of flaring emissions from the netting analyses. The result is the avoidance of New Source Review for multiple regulated NSR pollutants, an outcome which is particularly troubling in light of the means available for reducing flaring emissions. *See* Section IV.

i. Flaring emissions alone, if accounted for, would trigger NSR.

Flaring emissions alone are highly likely to put the Project over the significance levels for several NSR pollutants. Section I.A and Attachment 2, May Comments, provide figures on emissions that accompany flaring at other refineries. A comparison of these figures and the "netting margin," or amount needed to put the Project over NSR significance level[14] for individual NSR pollutants is as follows:

- NO_x: approx. 20 to 160 tpy from flaring[15] vs. netting margin of 68.9 tpy;
- SO_x: approx. 200 to 3,000 tpy from flaring[16] vs. netting margin of approx. 27 to 80 tpy[17];
- VOC: approx. 200 or more tpy from flaring[18] vs. netting margin of 31.3 tpy;
- CO: approx. 100 to 900 tpy from flaring[19] vs. netting margin of 123.7 tpy;
- PM_{10} as a surrogate for $PM_{2.5}$: significant unquantified emissions from flaring, see Section II.A, vs. netting margin of 56.6 tpy.

[14] Netting margins, with the exception of that for SOx, are based on the tables provided in the TSD under the heading "Permit Level Determination – PSD or Offset," (TSD at 11-14), and are equal to the amount of emissions needed to make up the difference between the reported net emissions increase/decrease and the PSD/NNSR significance level.

[15] Based on NOx emissions from the Bay Area Air Quality Management District ("BAAQMD") Flare database. Attachment 2, May Comments at 26-27. Petitioners here rely on other industry data due to the improper omission of emissions information from the BP application.

[16] Based on annual flaring emissions from, respectively, the ConocoPhillips Rodeo facility and Tesoro Avon California facility. *See* Attachment 2, May Comments, at 19-20; *see also id.* at 21-27 (emissions information for flaring at other facilities).

[17] The TSD does not provide a single figure for the net increase/decrease in SO2, but rather a narrative footnote concluding that a net decrease will occur. (TSD at 13). Therefore, Petitioners provide a lower bound based on their interpretation of footnote *** included in the TSD. The upper bound is from the application at 1-2, tbl. 1.1, "Project Net Emissions Increases and Decreases for PSD Applicability."

[18] Based on annual flaring emissions from the ConocoPhillips Rodeo facility. Attachment __, May Comments at 20.

[19] Based on NOx emissions from the BAAQMD Flare database and corresponding CO emissions. Attachment 2, May Comments at 26-27.

The failure to include emissions from the flares in the netting calculations was in error and the Administrator must object based on this omission alone.

ii. The netting analyses improperly exclude emissions from new and existing flares, even though flares are "emissions units" for netting purposes.

Flares clearly qualify as "emissions units" at the Whiting Refinery, as they are parts of the refinery that emit regulated NSR pollutants under their physical and operational design. *See* 40 C.F.R. § 51.166(b)(4) & (7), 326 IAC 2-2-1(u) & (nn); 40 C.F.R. § 51.165(a)(1)(vii) & (iii), 326 IAC 2-3-1(s) & (ii). Indeed, the Environmental Appeals Board (EAB) has recognized that flares are "among the [ ] emissions units that will contribute to the increase" in pollutants counted towards triggering NSR. *See In re: ConocoPhillips Co.*, PSD Appeal No. 07-02, Order Denying Review in Part and Remanding in Part, at 8-9 (June 2, 2008).[20] As such, all emissions from flares – whether occurring as a result of "normal" *source* operations or *source* startup, shutdown or malfunction – must be included in the determination of significant emissions increase for netting purposes. *See* 40 C.F.R. § 51.166(b)(4), 326 IAC 2-2-1(nn) ("potential to emit" means the "maximum capacity" to "emit a pollutant under [the] physical and operational design.").[21] However, in keeping with the omission of information from the application, and notwithstanding the overwhelming data concerning large-scale emissions from flares at refineries, the Permit New Source Review netting analyses assume *no* emissions associated with *use* of the three new planned Project flares and no emissions related to the Project from the existing flares.

As set forth above, the only flare emissions from the planned new flares included in the Permit netting calculations are those from pilot gas and purge gas, which are the

[20] The EAB further bolstered the requirement to treat flares as emissions units by its remand of the permit at issue to the state agency for a proper top-down BACT analysis for flares. *See In re: ConocoPhillips*, at 27-36. Requiring BACT for flares cannot be reconciled with omitting flare emissions from the NSR applicability tests in the first instance.

[21] While the regulatory definition of "potential to emit" references "sources," the use of the term PTE in numerous provisions relating to units makes clear that the concept is applicable to units as well as sources. *See, e.g.*, 326 IAC 2-2-1(b)(3) (actual emissions of an emissions that has not begun normal operations "shall equal the potential to emit of the unit"); *id.* 2-2-1(e)(3) (baseline actuals at a new unit shall equal the "unit's potential to emit" following initial construction and operation); *see also id.* 2-2-1(rr)(2)(B).

emissions that occur when the flares are *off*. BP and IDEM therefore assume for purposes of the netting calculation that the flares will never be used. This assumption is factually unsupportable and legally incorrect given the known significant emissions that result from refinery flaring in the absence of stringent control measures. *See* Section II.A. The Permit netting calculations also do not include any increased emissions from the existing flares at the refinery, even though the Permit in multiple places expressly specifies that the existing flares are to be used in conjunction with the Project, thereby increasing the use of those flares and the volume of gas to be vented through them. *See id.*; Attachment 2, May Comments at 7-10.

The Permit application documents, and other documents available to Petitioners and other members of the public, do not include sufficient data to calculate with precision the emissions from either the three new Project flares or from increased use of existing flares associated with the Project. Indeed, this is the crux of Petitioners' claim in Section II. However, the known levels of pollutant emissions associated with flaring recorded at other refineries as referenced above, *see* Section II.A., are comparable to the Whiting refinery from a conservative comparison standpoint. These refineries, in fact, generally have far fewer flares than the Whiting refinery's eight existing and three planned new Project flares. Thus, it is highly likely that the flaring emissions at the Whiting refinery would by themselves exceed the NSR significance thresholds for multiple regulated pollutants, so as to trigger BACT and/or LAER requirements and other PSD and/or NNSR requirements for those pollutants.

In its response to public comments, IDEM acknowledges that it failed to include emissions from use of the flares in its netting calculations. (TSD Addendum at 106). According to the TSD, upset SSM flaring emissions are excluded from both the emissions baseline and calculated emissions increases. IDEM references inclusion in TSD Appendix E of flaring emissions associated with planned startup and shutdown in the TSD Addendum, but incorrectly identifies these emissions as part of the Project emissions calculation. The emissions in question are associated with separate contemporaneous projects. Furthermore, even these emissions are assessed as unrealistically small. (*See* Permit Appendix E).

IDEM furthermore acknowledges in its response to comments that some use of the flares at the facility will likely occur as a result of the Project, from SSM upset events and other causes. Specifically, it states that the Project design "adds redundancy to existing processes that will eliminate the need for *frequent or excessive* flaring." (TSD Addendum at 106 (emphasis added)). It also states that "BP included several safety features that eliminate the need to flare during *some* start-up or shut-down procedures." (*Id.*).

In addition, IDEM states in the TSD Addendum that the Project "is a modernization of the refinery and will result in the installation of several new units designed to operate more efficiently and with fewer malfunctions or maintenance problems," and that as a result "the number of flaring events will decrease." (*Id.*). However, IDEM provides no information as to the nature of the efficiency measures or specific basis for the conclusion that fewer malfunctions will occur, no quantification estimate of the decrease in frequency of these events, and no quantification of the resulting decrease in flaring emissions. BP and IDEM may not rely on such vague references to expected reductions, as Title V requires submission "emissions" and "calculations" on which the emissions information is based, 40 C.F.R. § 70.5(c)(3)(viii) (emphasis added), not unsupported narrative discussion of events associated with emissions.

IDEM states that purported flaring emissions reductions from the redundancies, "safety features," efficiency strategies, and measures to reduce the frequency of malfunction purportedly being used by BP to reduce flaring emissions are not factored into the Permit emissions analysis. (TSD Addendum at 106). The response to public comments includes a general contention that inclusion of flaring emissions in the calculation would, had it been done, have resulted in a net emissions decrease from flaring as a result of these purported emissions reduction measures, but provides no facts or calculations in support of that statement. *Id.* Again, such vague conclusions do not meet Title V requirements to provide emissions information and calculations supporting determinations on applicable requirements. 40 C.F.R. § 70.5(c) ("[A]n application may not omit information needed to determine the applicability of, or to impose, any applicable requirement" . . . "A permit application shall describe all emissions of regulated air pollutants emitted from any emissions unit . . . The permitting authority *shall* require additional information related to the emissions of air pollutants sufficient to verify which requirements are applicable to the source" (emphasis added)).

Furthermore, the Permit does not include any requirement that the "redundancies," "safety features," efficiency strategies, or measures to reduce the frequency of malfunction referenced in the TSD Addendum be implemented. Accordingly, these processes and cannot constitute federally enforceable emissions limitations necessary to hold PTE below the applicable PSD and NNSR significance thresholds. 42 U.S.C. §§ 7475(a) & 7503(c); 40 C.F.R. §§ 51.165 & 51.166; 326 IAC 2-2 & 2-3; 326 IAC 2-8-4(1)(D). Nor does the Permit specifically define the "redundancies," "safety features," efficiency strategies, or measures to reduce the frequency of malfunction through which flaring emissions will purportedly be reduced. The only information provided is a general reference to a "flare gas recirculation system" and backup compressor on some but not all of the new flares (TSD Addendum at 107), without further definition of the capacity of these systems, quantification of the reductions in flaring that they would achieve, or description of flare minimization measures at the flares that lack these systems.

A Federally Enforceable State Operating Permit ("FESOP") is the only lawful means of obtaining a minor source permit where PTE from all sources (including flaring) exceeds PSD/NNSR significance thresholds. 326 IAC 2-8-4, Sec. 4(1)(D). Therefore, a FESOP would be required to expressly address emissions from emergency upset events (startup, shutdown, and emergency bypass) on a case-by-case basis, and mandate specific measures to minimize them. The final Permit contains an insufficient blanket statement that Permit limits "shall ensure that the net emissions increases. . .for the [expansion project] remain below the significant levelst [sic]." (Permit Condition D.35.1(g)). "Restrictions contained in state permits which limit specific types and amounts of actual emissions ('blanket' restrictions on emissions) are not properly considered in the determination of a source's potential to emit." *United States v. Louisiana-Pacific Corp.*, 682 F. Supp. 1141, 1160 (D. Col. 1988). However, the actual emission limits contained in the Permit address only pilot gas and purge gas emissions, which occur when the flares are off; and IDEM makes clear in its response to public comments that flare upset emissions are not addressed by the Permit conditions. (TSD at 110). The Permit as drafted is accordingly incapable of limiting flare emissions from use of flares to below applicable PSD and NNSR significance thresholds. The statement therefore constitutes an unenforceable blanket emissions limitation.

In its response to public comments, IDEM states that it was not required to consider emissions from use of the refinery flares on the ground that "[o]perations during periods of startup, shutdown or malfunction are not considered 'normal operation,'" and "[a]s a consequence, emissions during such periods have not historically been required to be included in netting calculations." (*Id.* at 107.) Exclusion of flaring emissions on this basis is unlawful. As described above, flares are emissions *units* whose normal operation is defined as including operation in connection with the *source's* SSM events. Thus, under the clear language of the netting regulations, these units must be included in the netting calculations for determining whether the Project is a "major modification." See Section III.A. The specific proper purpose of a flare is to vent refinery gases that cannot be captured and recycled through normal use of compressors and flare gas recovery. *See* Attachment 3, EPA Routine Flaring. CAA regulations prohibit routine combustion of substantial H_2S through flares during normal operation of a refinery, allowing such combustion only during upset events. 40 C.F.R. § 60.104(a)(1). Accordingly, exclusion of flare emissions on the ground that flares are not used during "normal operation" of the Refinery is improper, as this reasoning would necessarily exclude emissions from "normal operation" of the flares.[22]

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[22] Even if IDEM were correct that flare emissions are to be counted as emissions from SSM, applicable law expressly requires that startup, shutdown, and malfunction emissions be factored into netting calculations. See 40 C.F.R. § 51.166(b)40)(ii)(b)("projected actual emissions" for PSD purposes "[s]hall include . . . emissions associated with startups, shutdowns, and malfunctions"); 326 IAC 2-2-1(rr)(2)(A)(ii) (same); 326 IAC 2-3-1(mm)(2)(A)(ii) (NNSR). BP claims that it used future potential emissions for netting purposes, which are "more conservative" than projected actual emissions. (Permit App. at 3-2). As such, future potentials must include all emissions required for projected actuals, and thus specifically SSM emissions.

Moreover, the case cited by IDEM is distinguishable from the case at hand and does not in fact apply to netting, as the agency tries to claim. In *Louisiana-Pacific Corp.*, the question before the court was how to interpret "potential to emit" for purposes of determining whether the *source* was a "major stationary source." *United States v. Louisiana-Pacific Corp.*, 682 F. Supp. 1141, 1154-55 (D. Col. 1988) (questions presented are whether the two facilities had the potential to emit 250 tpy of a regulated NSR pollutant under 40 C.F.R. 52.21(b)(1)(i)(b)). The NSR regulations clearly differentiate between the means for determining "major stationary source" and "major modification" status. Netting is a concept relevant to "major modification," *see, e.g.*, 40 C.F.R. 51.166(a)(7)(iv)(a), that does not have a parallel with regards to

For these reasons, the Administrator must object and remand the Permit to BP and IDEM for a proper netting analysis. BP and IDEM must then determine whether the increased emissions associated with the Project in the absence of control measures exceeds the significance thresholds for PSD/NNSR regulated pollutants using a calculation that includes all emissions from use of the three new flares and increased use of the existing flares associated with the Project, including but not limited to flaring associated with source SSM events.

C. The netting analyses improperly omit other significant project-related emissions which, if included, would contribute to triggering NSR.

Again following the application omission, the netting calculations performed by IDEM in connection with the Permit also failed to factor in the numerous additional emission sources listed in Section II.B. Exclusion of these emission sources from PSD/NNSR calculations was unjustified and unlawful. *See* Section II.B; *see also* Section III.A (netting requires a unit-by-unit analysis involving calculation of each emissions unit's maximum potential to emit under its design). Inclusion of the anticipated emissions from these excluded sources would contribute to triggering (along with flaring

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"major stationary source," *see, e.g.*, 40 C.F.R. 51.166(b)(1). Netting requires a unit-by-unit method looking at each unit's potential to emit. See Section III.A.

Nor does Alabama Power counsel against including emissions from flares in netting calculations, as it too was interpreting the major stationary source (or major emitting facility) threshold. *See Alabama Power Co. v. Costle*, 204 U.S. App. D.C. 51, 636 F.2d 323, at 352-353 (D.C. Cir. 1979). Furthermore, using the Alabama Power holding regarding the need to incorporate reductions from *air pollution control equipment* into the potential to emit calculation, id. at 353, to omit emissions from the operation of flares would run directly contrary to the justification underlying the court's decision – that Congress wanted permits to issue "before major amounts of emissions were released into the air." *Id.* Air pollution control equipment reduces emissions and thus the concern with applying for a permit, while flares increase emissions and thus increase the need to apply for a major modification construction permit. In addition, flares are part of the facility's and the Project's design and their use during source SSM events is both expected and quantifiable, and thus emissions from them must be included under Alabama Power.

Finally, a long line of decisions from the Environmental Appeals Board makes clear the concern under the NSR program with increased emissions from SSM, as BACT continues to apply to these emissions. *See In re Indeck-Elwood*, PSD Appeal No. 03-04, at 66 (EAB Sept. 27, 2006) ("It is well established that BACT requirements cannot be waived or otherwise ignored during periods of startup and shutdowns); *In re Indeck-Niles Energy Center*, PSD Appeal No. 04-01 (EAB Sept. 30, 2004); *In re Tallmadge Generating Station,* Order Denying Review in Part and Remanding in Part, PSD Appeal No. 02-12 (EAB May 21, 2003) ("BACT requirements cannot be waived or otherwise ignored during periods of startup and shutdown"); *In re Rockgen Energy Center*, PSD Appeal No. 99-1 (Aug 25, 1999); *see also* Memorandum from John B. Rasnic to Linda M. Murphy (Jan. 28, 1993), Memorandum from Kathleen M.

emissions) PSD/NNSR significance thresholds for VOCs, PM_{10}, and/or H_2S. *See* Section II.B (identifying over 20 tpy of additional total PM emissions, more than 16 tpy of additional VOC emissions, and significant additional emissions of sulfur compounds from fugitive and other sources).

D. The netting analyses fail to account for the refining of CXHO crude which, if included, would contribute to triggering NSR.

In addition to the above omitted sources of emissions, the netting analyses, like the application, failed to use emissions information appropriate for CXHO crude. *See* Section II.C. The minor source Permit therefore fails to adequately account for increased emissions from the higher level of sulfur in tar sands crude. Pollutants affected for netting purposes by the change in feedstock include sulfur dioxide and sulfuric acid mist, both regulated NSR pollutants.

IV. THE PERMIT DOES NOT INCLUDE PROPER BACT/LAER LIMITS FOR FLARES AND OTHER SOURCES.

The faulty netting analyses alone are grounds for a full remand of the Permit. As documented in the previous section, with corrected netting calculations, the Project will undoubtedly trigger full NSR for numerous regulated NSR pollutants. The Project therefore will be subject to BACT and LAER requirements, as well as requirements for air quality modeling. Currently, the Permit does not include emission limits and/or controls equal to BACT/LAER for flaring, or for other components of the Project. Petitioners thus provide information relevant to setting BACT/LAER for flaring, one of the most egregious sources of pollutants from the expansion that can be controlled through readily available measures, and briefly summarize other BACT/LAER deficiencies.

Bennett to Regional Administrators, Re: Policy on Excess Emissions During Startup, Shutdown, Maintenance, and Malfunctions, (Feb. 15, 1983).

A. BACT/LAER for Flaring

The EAB, as discussed above, has clarified the requirement that emissions from refinery flares be considered as part of PSD/NNSR analysis. In addition, the EAB has explained what considerations are to be included in a BACT analysis for refinery flares:

> [The Permitting Agency] should explain how it derived BACT for CO emissions from flaring, using either the NSR methodology or some other method that demonstrates that all the statutory and regulatory criteria were considered and applied appropriately. This demonstration should include the identification and consideration of all available options for control of CO emissions from flaring. To the extent that the minimization of flaring is the best or only option, IEPA should demonstrate that it identified and fully considered all available methods for minimizing flaring. To the extent that more stringent controls are available, but not selected, IEPA should explain why these controls are infeasible based on the statutorily defined factors. CAA § 169(3), 42 U.S.C. § 7479(3). Further, IEPA should explain how the emissions limit for CO was derived and should indicate whether it reflects the best emission rate achievable through application of IEPA's selected BACT, as set forth in the permit and in accordance with CAA § 169(3), 42 U.S.C. § 7479(3).

In re: ConocoPhillips, at 35-36.

For the most part, emissions from flares cannot be effectively controlled through end-of-pipe emissions controls, and can only be effectively reduced through prevention of flaring events. The specific measures that BP and IDEM have failed to implement concerning flare minimization performance are available, as evidenced by other refineries that have actually implemented the type of stringent measures required as BACT and LAER. The Bay Area refineries where enormous flare emissions were recorded have succeeded in achieving large and quantifiable reductions in flare emissions through readily available measures to prevent flaring. These measures include structural improvements such as additional compressor capacity; other flare prevention measures to be established in an enforceable flare minimization plan, including work practices that reduce the frequency of flaring events; and heightened monitoring and observation requirements essential to the efficacy of flare prevention measures. *See* Attachment 2, May Comments at 31-41.[23]

In particular, the Tesoro-Avon refinery was able to drastically reduce its flare emissions through imposition of such readily-available measures. *Id.* at 19. Similarly, the Shell refinery in Martinez, California has significantly reduced flaring and maintained lower flaring levels through implementation of such measures. In 2004, following implementation of those measures, Shell Martinez had *no* flaring events with SO_x emissions greater than 1,000 lbs, and only one event with flaring emissions more than 500 lbs. *Id.* at 21. Shell also had no flaring events with VOC emissions greater than 300 lbs. Shell's low flaring emissions *included* emergency flaring. In later years, Shell reduced flaring even further. *Id.* The flare control measures implemented at Shell Martinez – in conjunction with the Bay Area Air Quality Management District (BAAQMD) and other similar regulations requiring those measures – should, at minimum, be considered as BACT or LAER for reduction of flare emissions.

Moreover, the permit must either establish numeric BACT and/or LAER limits for flares, or include a design, equipment, work practice, operational standard or combination thereof accompanied by a numeric evaluation of emissions reductions expected to be achieved through such a standard. *See* 40 C.F.R. § 51.166(b)(12); 326 IAC 2-2-1(i)[24]; *see also In re Indeck-Elwood, LLC*, PSD Appeal 03-04 (Sept. 27, 2006). In the *Indeck-Elwood* case, the EAB reiterated the principle that SSM events are not only subject to BACT analysis, but that numeric BACT limits must be imposed unless the permitting authority specifically sets forth (a) justifications for not imposing a numeric BACT limit, and (b) the emission reductions expected to be achieved by the work

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[23] Effective observation and monitoring requirements are in additionally necessary to ensure the enforceability of any flare minimization measures that may be imposed. USEPA New Source Review Workshop Manual ("NSR Manual") at B.56. USEPA itself has acknowledged: "In the absence of effective monitoring, emissions limits can, in effect, be little more than paper requirements. Without meaningful monitoring data, the public, government agencies and facility officials are unable to fully assess a facility's compliance with the Clean Air Act." Initial Brief of Respondent United States Environmental Protection Agency, *Appalachian Power Co. v. EPA*, No. 98- 1512 (D.C. Cir., Oct. 25, 1999), *quoted at* 71 Fed. Reg. 75,422, 75,425 (Dec. 15, 2006).

[24] Where a "technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emissions standard infeasible," BACT consists of a "design, equipment, work practice, operational standard or combination thereof" accompanied by, "to

practices approach, including "a comparative analysis of the emission reductions expected from the approach [the permitting agency] adopted and the reductions expected from the application of numeric limits." *In re Indeck-Elwood,* at 31. Although the Permit contains a number of provisions that concern flaring, it contains no actual limits of any kind on the frequency with which flares may be used, or on flaring emissions. These omissions are in violation of the BACT and LAER requirements. Moreover, these omissions also fail to limit the potential to emit to the assumed zero emissions assumed in the netting analysis.

B. Other BACT/LAER Issues

The draft Permit fails to require all practical and economically feasible control methods for virtually all new emission units and modifications of existing emission units. These include the following:

- Selective Catalytic Reduction (SCR) should be used on all combustion sources with a firing rate of 50 MMBtu/hr or more, designed to remove 90% of the NO_x;
- SCR should be used on FCUs regenerator gases, designed to remove 90% of the NO_x;
- Oxidation catalysts should be used on all combustion sources with a firing rate of 50 MMBtu/hr or more, designed to remove at least 90% of the CO and 50% of the VOC;
- Pall filters should be used on the FCU regenerator gases, designed to remove 99.99% of the PM;
- A scrubber should be used on the FCU regenerator gases, designed to remove >95% of the SO_2;
- Fuel sulfur content should be limited to no more than 20 ppmv total sulfur, expressed as H_2S on a 4-hour average, achievable using Sulfatreat and other sulfur removal technologies;
- Cooling towers should be equipped with drift eliminators, designed with a 0.0005% drift rate;
- A wet electrostatic precipitator should be used to control sulfuric acid mist emissions from the sulfur recovery units;

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the degree possible, . . . the emissions reduction achievable by implementation of such design, equipment, work practice or operation," and provision "for compliance by means which achieve equivalent results."

- Leakless components should be used where available;
- Tanks should be vented to a vapor recovery system designed to remove >99% of the hydrocarbon vapors.

In addition, BP must demonstrate, as required by NNSR, that all of its exiting major sources are in compliance with all applicable emission limitations and standards, or with a federally enforceable compliance schedule. 326 IAC 2-3-3(a).

In sum, the Administrator must object to the Permit and remand with the requirement that BACT/LAER be applied to not only the new flares, but also all new emission units and modifications of existing emission units. The Administrator must also object based on the lack of a demonstration that all of BP's existing major sources are in compliance.

V. THE PERMIT DOES NOT INCLUDE BACT LIMITS FOR GREENHOUSE GASES.

BP must meet CAA requirements to assess the quantity of GHGs from the expansion and conduct BACT analyses for each GHG covering all sources at the Refinery. As discussed below, the expected increase in GHG emissions is greater than the PSD significance threshold, which is *any* emission of each GHG. IDEM nonetheless failed to include BACT limits on any of the increases in GHGs expected from the expansion. Indeed, the Permit contains no GHG reduction commitments at all. This failure is in violation of the CAA, even more so following the U.S. Supreme Court's recent decision in *Massachusetts v. EPA*, 127 S.Ct. 1438, 1460 (2007), holding that CO_2 and other greenhouse gases are "pollutants" under the CAA.

BP's failures to comply with these requirements and to implement measures that will curtail GHG emissions from the Project are particularly unfortunate in light of the Company's pronouncements concerning not only the importance of limiting GHG emissions that cause global warming, but also (as discussed below) the availability of measures by which to do so at its refineries. The Permit may not issue without BACT limits for GHGs.

A. The Project Will Result in Greenhouse Gas Emissions.

The Project will result in a very large increase in emission of greenhouse gases, most notably CO_2, in part because of the processing of heavy crude oil extracted from the Canadian tar sands. Tar sands, with their long carbon chains, require more energy to refine than conventional crude oil. BP did not conduct any greenhouse gas (GHG) emission analysis in its application for the Project. However, the company has publicly admitted that post-project emissions of GHGs will be 5.8 million tons annually, including an increase in carbon dioxide of 1.5 to 2 million tons per year from the expansion alone. Attachment 2, May Comments at 51 (citing Chicago Tribune article). Via the Project, the Whiting facility is effectively moving to a much more energy-intensive process to create the same product and in so doing, generating more GHGs.

B. The US Supreme Court Has Held That CO_2 is a CAA "Pollutant."

On April 2, 2007, the United States Supreme Court issued its landmark ruling in *Massachusetts v. EPA*, overturning USEPA's long-held position that GHGs are not CAA "pollutants." 127 S.Ct. at 1460. Because USEPA believed that Congress did not intend it to regulate substances that contribute to climate change, the agency maintained that carbon dioxide is not an "air pollutant" within the meaning of the provision. The Court found that the statutory text forecloses USEPA's reading. The Act's sweeping definition of "air pollutant" includes "*any* air pollution agent or combination of such agents, including *any* physical, chemical . . . substance or matter which is emitted into or otherwise enters the ambient air . . . ." 42 U.S.C. § 7602(g) (emphasis added). On its face, the definition embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word "any." Carbon dioxide is without a doubt a "physical [and] chemical ... substance which is emitted into ... the ambient air." The statute is unambiguous. In ruling that carbon dioxide is a pollutant, and therefore "subject to regulation under the Act," the Court also made clear the obligation for permitting agencies to include carbon dioxide and other GHG emission limits in PSD permits. 40 C.F.R. § 51.166(b)(49)(iv).

C. The CAA PSD Provisions Require BACT for Each Pollutant "Subject to Regulation."

The Clean Air Act prohibits the construction of a new major stationary source of air pollutants except in accordance with a PSD construction permit. 42 U.S.C. § 7475(a); 40 C.F.R. § 51.166(a)(7)(iii). A PSD permit must include a BACT limit "for each pollutant subject to regulation under [the CAA]" for which emissions exceed specified significance levels. 42 U.S.C. §§ 7475(a), 7479; 40 C.F.R. § 51.166(b)(1), (b)(2), (b)(12), (b)(49), (j)(2). BACT is further required "for each regulated NSR pollutant that [a source] would have the potential to emit in significant amounts." 40 C.F.R. § 51.166(j)(2). For any regulated NSR pollutant that is not listed in the table at 40 C.F.R. § 51.166(b)(23)(i), a significant rate is "*any* net emission increase." 40 C.F.R. § 51.166(b)(23)(ii) (emphasis added).

Section 51.166(b)(49), in turn, defines "Regulated NSR pollutant" as:

> (i) Any pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the Administrator (e.g., volatile organic compounds are precursors for ozone);
> (ii) Any pollutant that is subject to any standard promulgated under Section 111 of the Act;
> (iii) Any Class I or Class II substance subject to a standard promulgated under or established by title VI of the Act; or
> (iv) Any pollutant that otherwise is subject to regulation under the Act; except that any or all hazardous air pollutants either listed in section 112 of the Act or added to the list pursuant to section 112(b)(2) of the Act, which have not been delisted pursuant to section 112(b)(3) of the Act, are not regulated NSR pollutants unless the listed hazardous air pollutant is also regulated as a constituent or precursor of a general pollutant listed under section 108 of the Act.

40 C.F.R. § 51.166(b)(49); *see also* 326 IAC 2-2-1(uu). The regulatory definition of BACT similarly applies to all air pollutants "subject to regulation" under the Act:

> Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction *for each pollutant subject to regulation under Act* which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into

> account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

40 C.F.R. § 51.166(b)(12) (emphasis added); *see also* 42 U.S.C. § 7479(3); 326 IAC 2-2-1(i) & (uu). In short, a PSD permit must include a BACT limit for each pollutant *subject to regulation*.

D. The Significance Level for Carbon Dioxide and Other GHGs is Any Amount Above Zero.

The significance level triggering PSD applicability for a regulated NSR pollutant, other than the 15 listed in 40 C.F.R. § 51.166(b)(23)(i), is *any* net increase. 40 C.F.R. § 51.166(b)(23)(ii). CO_2 is not among the 15 pollutants listed in 40 C.F.R. § 51.166(b)(23)(i), nor does the list include other GHGs. Therefore, because CO_2 and other GHGs are regulated NSR pollutants, as shown below, *any* increase in emissions is significant and requires a BACT limit. 42 U.S.C. §§ 7475(a)(1), (4), 7479(3); 40 C.F.R. §§ 51.166(j)(2), 51.166(b)(23)(ii). The Project will have the potential to significantly increase emissions of CO_2 – clearly meeting the requirement for "any" emission rate increase – and to increase other GHGs, also meeting the "any" emission increase bar.

E. Carbon Dioxide is a Pollutant That is "Subject to Regulation" Under the CAA.

As discussed above, CO_2 is a "pollutant," as that term is used in the CAA and the PSD regulations. *Massachusetts v. EPA*, 127 S.Ct. at 1460 (emphasis in original). Additionally, the term "subject to regulation," as that term is used in the Act and the PSD regulations, means not only pollutants that are currently regulated, but pollutants for which EPA and the states possess but have not exercised authority to impose requirements. Notably, CO_2 meets either test – it is currently regulated and is potentially regulated even further under the Act.

i. CO2 is currently regulated under the CAA Acid Rain provisions.

Even if the term "subject to regulation" in the Act and 40 C.F.R. § 51.166(b)(49) were limited to pollutants that are currently regulated under an existing Clean Air Act provision, a BACT limit for carbon dioxide is required. CO_2 is currently regulated under the Clean Air Act's acid rain provisions.

Section 821 of the CAA Amendments of 1990 directed EPA to promulgate regulations to require specified sources to monitor CO_2 emissions and report monitoring data to EPA. 42 U.S.C. § 7651k. In 1993, USEPA promulgated such regulations, which are set forth at 40 C.F.R. Part 75. The regulations generally require monitoring of CO_2 emissions through the installation, certification, operation and maintenance of a continuous emission monitoring system or an alternative method (40 C.F.R. §§ 75.1(b), 75.10(a)(3)); preparation and maintenance of a monitoring plan (40 C.F.R. § 75.33); maintenance of certain records (40 C.F.R. § 75.57); and reporting of certain information to EPA, including electronic quarterly reports of CO_2 emissions data (40 C.F.R. §§ 75.60 – 64). Section 75.5 prohibits operation of an affected source in the absence of compliance with the substantive requirements of Part 75, and provides that a violation of any requirement of Part 75 is a violation of the CAA. 40 C.F.R. § 75.5. Thus, CO_2 is already regulated under the Act as part of the Acid Rain provisions. *See Buckley v. Valeo*, 424 U.S. 1, 66-67 (1976) (finding record keeping and reporting requirements to be regulation, albeit permissible regulation, of political speech).

Typically, "identical words used in different parts of the same statute are . . . presumed to have the same meaning." *Merrill Lynch v. Dabit*, 547 U.S. 71, 86 (2006). Therefore, by requiring "regulation" of CO_2 in Section 821, Congress clearly made CO_2 "subject to regulation" for purposes of the other sections of the CAA.

ii. CO_2 is subject to further regulation under the CAA.

Moreover, a current limit on CO_2 is unnecessary for it to be "subject to" regulation under the CAA. By using the phrase "subject to regulation," the Clean Air Act applies BACT requirements not only to pollutants for which regulatory standards have been developed, but also to pollutants for which the U.S. EPA and states possess as yet unexercised authority to regulate. For example, in evaluating whether an employee is "subject to deduction" in pay for purposes of the Fair Labor Standards Act, the U.S. Supreme Court has rejected the contention that such phrase requires a showing that the employee's pay was actually deducted. *Auer v. Robbins*, 519 U.S. 452, 460-61 (1997); *see also Kennedy v. Commonwealth Edison*, 410 F.3d 365, 371 (7th Cir. 2005); *Klein v. Rush-Presbyterian – St. Luke's Medical Center*, 990 F.2d 279, 286 (7th Cir. 1993).

Also, USEPA has previously interpreted the phrase "subject to" in the context of the Resource Conservation and Recovery Act (RCRA) and Clean Water Act as meaning "should" be regulated, as opposed to currently regulated:

> RCRA section 1004(27) excludes from the definition of solid waste "solid or dissolved materials in … industrial discharges which are point sources subject to permits under [section 402 of the Clean Water Act]." For the purposes of the RCRA program, EPA has consistently interpreted the language "point sources *subject to permits* under [section 402 of the Clean Water Act]" to mean point sources that *should have* a NPDES permit in place, whether in fact they do or not. Under EPA's interpretation of the "subject to" language, a facility that should, but does not, have the proper NPDES permit is in violation of the CWA, not RCRA.

Memo from Michael Shapiro and Lisa Friedman (OGC) to Waste Management Division Directors, *Interpretation of Industrial Wastewater Discharge Exclusion from the Definition of Solid Waste* at 2, (Feb. 17, 1995) (emphasis added).

The same principle applies to interpretation of the Clean Air Act. USEPA itself has recognized the general principle that "[t]echnically, a pollutant is considered regulated once it is *subject to regulation* under the CAA. A pollutant *need not be specifically regulated* by a section 111 or 112 standard to be considered regulated. (See 61 FR 38250, 38309, July 23, 1996)." 40 C.F.R. pt. 70 (Change to Definition of Major Source), 66 Fed. Reg. 59,161, 59,163 (Nov. 27, 2001) (emphasis added). Had Congress wished to limit the applicability of BACT to pollutants that are "actually regulated," it could have done so. Its decision not to do so should be given full effect.[25]

[25] Indeed, this principle only makes sense. For example, section 112(b) of the Act specifically lists more than 180 chemicals to be regulated as hazardous air pollutants from stationary sources under section 112. However, whether or not EPA ever adopts any stationary source rule with actual emission limitations for an individual chemical, all of these chemicals are "subject to regulation" under the Act (they are however

Under both Sections 111 and 202, CO_2 can be regulated and, indeed, should be regulated. Section 202 of the CAA requires USEPA to set standards applicable to emissions of "any air pollutant" from motor vehicles, and Section 111 requires USEPA to establish standards of performance for emissions of "air pollutants" from new stationary sources, where air pollution "may reasonably be anticipated to endanger public health or welfare." 42 U.S.C. § 7411(b)(1)(A); 42 U.S.C. § 7521(a)(1).

There can be no question that GHG emissions "may reasonably be anticipated to endanger the public health and welfare." *See Massachusetts v. EPA*, 127 S. Ct. at 1459-63 (requiring regulation if such a finding is made). As an initial matter, this standard, reflecting the precautionary nature of the Clean Air Act, does not require proof of actual harm. Congress directed that regulatory action taken pursuant to an endangerment finding would be designed to "precede, and, optimally, prevent, the perceived threat." *Ethyl Corp. v. EPA*, 541 F.2d 1, 13 (D.C. Cir. 1976); *see also Industrial Union Dep't v. American Petroleum Institute*, 448 U.S. 607, 656 (1980) (plurality) (agency need not support finding of significant risk "with anything approaching scientific certainty," but rather must have "some leeway where its findings must be made on the frontiers of scientific knowledge," and "is free to use conservative assumptions in interpreting the data," "risking error on the side of overprotection rather than underprotection"). The 1977 Clean Air Act Amendments confirmed and adopted the precautionary interpretation enunciated in *Ethyl*, enacting special provisions, Pub. L. No. 95-95, § 401, 91 Stat. 790-91 (Aug. 7, 1977), designed to "apply this interpretation to all other sections of the act relating to public health protection." H.R. Rep. No. 294, 95th Cong., 1st Sess. 49, 51 (1977) (amendments are designed inter alia to "emphasize the precautionary or preventive purpose of the act (and, therefore, the Administrator's duty to assess risks rather than wait for proof of actual harm)"). Congress rejected the argument that, "unless conclusive proof of actual harm can be found based on the past occurrence of adverse effects, then the standards should remain unchanged," finding that this approach "ignores

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expressly excluded from NSR/PSD). In the wake of the Supreme Court's recent decision, CO_2 must similarly be understood as "subject to regulation." *See Friends of the Chattahoochee, Inc. v. Couch*, Docket No. 2008CV146398, slip. op. at 7 (Ga. Sup. Ct. June 30, 2008) ("[T]here is no question that CO2 is 'subject to regulation under the Act.'").

the commonsense reality that 'an ounce of prevention is worth a pound of cure.'" *Id.* at 127.

Not only does the precautionary nature of the Clean Air Act create a low threshold, there is also compelling evidence that global climate change presently endangers and will continue to endanger public health and welfare. Evidence of dramatic changes in Earth's climatic system abounds. Changes in climatically sensitive indicators support the inference that the average temperature in the Northern Hemisphere over the last half-century is likely higher than at any time in the previous 1,300 years, while ice core records indicate that the polar regions have not experienced an extended period of temperatures significantly warmer than today's in about 125,000 years.[26] Meanwhile, the Intergovernmental Panel on Climate Change reports "numerous long-term changes in climate" observed at "continental, regional and ocean basin scales," including "changes in arctic temperatures and ice, widespread changes in precipitation amounts, ocean salinity, wind patterns and aspects of extreme weather including droughts, heavy precipitation, heat waves and the intensity of tropical cyclones."[27] Such changes will have profound effects on human health and welfare.[28] Many of these effects will be specific to Indiana and the Great Lakes region. Among other things, water levels in Indiana are expected to decline in both inland lakes and Lake Michigan as a result of climate change, as more moisture evaporates due to warmer temperatures and less ice cover.[29] Moreover, reduced summer water levels are likely to diminish the recharge of groundwater and cause small streams to dry up – thereby increasing the pressure to extract more water from the Great Lakes.[30] The duration of summer stratification of lakes will increase, adding to the risk of oxygen depletion and formation of deep-water "dead zones" for fish and other organisms.[31]

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[26] Attachment 12, Intergovernmental Panel on Climate Change, *Working Group I Summary for Policymakers*, at 9.
[27] *Id.* at 7.
[28] *See, e.g.*, U.S. Envtl. Prot. Agency, *Climate Change, Health and Environmental Effects, at* http://www.epa.gov/climatechange/effects/index.html (last visited Mar. 14, 2008); Attachment 13, Intergovernmental Panel on Climate Change, *Working Group II Summary for Policymakers*, at 7-14
[29] Attachment 14, George L. King et al., "Confronting Climate Change in the Great Lakes Region," Executive Summary, Union of Concerned Scientists 2003 and Indiana State Summary.
[30] *Id.*
[31] *Id.*

USEPA's failure, thus far, to establish specific emission limits for CO_2 under these two programs is not determinative of whether these GHGs are "subject to regulation." However, it is notable that this failure to establish emission limits is the subject of pending legal actions against the agency. For example, USEPA's failure to establish CO_2 emission limits for stationary sources under Section 111 is pending before the United States Court of Appeals for the District of Columbia. *State of New York, et al. v. EPA*, No. 06-1322.

Additionally, on May 14, 2007, President Bush issued an Executive Order confirming the Supreme Court's ruling that USEPA can regulate greenhouse gases, including CO_2, from motor vehicles, nonroad vehicles and nonroad engines under the Clean Air Act.[32] The Executive Order directs USEPA to coordinate with other federal agencies in undertaking such regulatory action. The President's action indicates the Chief Executive is also of the opinion that carbon dioxide is subject to regulation under the Clean Air Act.

iii. Other GHGs such as methane and nitrous oxide are also subject to regulation.

The *Massachusetts v. EPA* decision was not limited to carbon dioxide, but recognized that all greenhouse gases are "air pollutants" under the CAA. 127 S. Ct. at 1460 ("On its face, the definition [of air pollutant] embraces all airborne compounds of whatever stripe, and underscores that intent through the repeated use of the word 'any.' Carbon dioxide, methane, nitrous oxide, and hydrofluorocarbons are without a doubt 'physical [and] chemical . . . substance[s] which [are] emitted into . . . the ambient air.' The statute is unambiguous."). Thus, for the same reasons as put forth above with regards to carbon dioxide, III.D.2, all greenhouse gases are subject to regulation. Indeed, nitrous oxide and methane emissions are of equal concern, especially since nitrous oxide is 310 times as potent a greenhouse gas as CO_2[33] and methane is 21 times as potent a

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[32] *See* Attachment 15, White House Office of the Press Secretary, Fact Sheet: Twenty in Ten: Strengthening Energy Security and Addressing Climate Change (May 14, 2007).

[33] USEPA, *Nitrous Oxide: Science*, *at* http://www.epa.gov/nitrousoxide/scientific.html (last visited Aug. 12, 2008).

greenhouse gas as CO_2.[34] The Indiana NNSR program includes a significance level for "nitrous oxides." 326 IAC 2-3-2(f).

In other contexts, USEPA has specifically acknowledged that the impact of methane on global warming is an important consideration for potential new sources. *See* Attachment 16, Letter from EPA Region 8 to Charles Richmond, Forest Supervisor Gunnison National Forest (June 1, 2007). This letter relates to an Environmental Impact Statement regarding a proposal to drill 168 methane drainage wells at the West Elk Mine in Gunnison County, Colorado. In this letter, the Deputy Regional Administrator explains:

> The draft EIS does not present information on the amount of methane that is expected to be released from the proposed action . . . As indicated on EPA's website, methane is a greenhouse gas that remains in the atmosphere for approximately 9-15 years and is over 20 time more effective in trapping heat in the atmosphere than carbon dioxide (CO_2) over a 100-year period. Methane's relatively short atmospheric lifetime, coupled with its potency as a greenhouse gas, makes it a candidate for mitigation global warming over the near-term (i.e., next 25 years or so). . . Given the project's release of significant quantities of methane, there is an important economic and environmental opportunity here to capture and utilize the methane resource. . . . [W]e recommend that the final EIS analyze measures for capturing all or part of the methane to be vented from the mine. . . . Methane capture and reuse is a reasonable alternative to the proposal of venting the methane to the atmosphere, and thus, we recommend that it be analyzed. . . . EPA believes that the information in the DEIS is insufficient and the missing information and analyses are substantial issues which must be resolved and disclosed in the Final Environmental Impact Statement.

F. BP Must Account for GHGs Emissions and the Permit Must Include Appropriate BACT Limits for GHGs.

As CO_2 is currently regulated under both the acid rain provisions of the CAA and the Indiana SIP, it is a pollutant "subject to regulation" under the CAA. Additionally, because GHGs can and should be regulated under one or more additional Clean Air Act programs, including section 111 and 202, because they "may reasonably be anticipated to

[34] USEPA, *Methane: Science*, *at* http://www.epa.gov/methane/scientific.html (last visited Aug. 12, 2008).

endanger public health or welfare," they are "subject to regulation" under the Act. 42 U.S.C. §§ 7411(b)(1)(A), 7521(a)(1). Accordingly, the Permit for the Project should have included BACT limits for all GHGs that the project will emit in "any" amount.

G. Measures Are Readily Available To Control GHGs at the Whiting Refinery.

Refinery companies themselves, including BP, have recognized that GHGs can be reduced at refineries. These reductions are available in particular through flare minimization which, as discussed above, is eminently achievable using available technology. A BP official made the following statement at Stanford University more than ten years ago:[35]

> Our carbon dioxide emissions result from burning hydrocarbon fuels to produce heat and power, from flaring feed and product gases, and directly from the process of separation or transformation.
>
> Now we want to go further.
>
> We have to continue to improve the efficiency with which we use energy. . .
>
> We have already taken some steps in the right direction.
>
> In Norway, for example, we've reduced flaring to less than 20% of 1991 levels, primarily as a result of very simple, low cost measures.
>
> The operation there is now close to the technical minimum flare rate which is dictated by safety considerations.
>
> Our experience in Norway is being transferred elsewhere - starting with fields in the UK sector of the North Sea and that should produce further progressive reductions in emissions.
> Our goal is to eliminate flaring except in emergencies.

According to the Climate Registry, a private non-profit organization originally formed by the State of California that serves as a voluntary GHG registry, flares account for approximately 3 percent of GHG emissions from a refinery. *See* Attachment 18, California Climate Action Registry, "Petroleum Refining Protocol Discussion Paper." Still, three percent of 2 million tons per year means approximately 60,000 tons per year of GHGs, not an insignificant number.

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[35] Attachment 17, *Climate Change Speech*, John Browne, Group Chief Executive, British Petroleum (BP America), Stanford University (May 19, 1997).

The main sources of GHGs from refineries are stationary combustion, FCCU catalyst regeneration, and hydrogen process vent. *Id.* Numerous opportunities exist for reduction of GHGs from these and other sources. A useful starting point is the GHG mitigation measures from the Final Environmental Impact Report for the Chevron Energy and Hydrogen Renewal Project in Richmond, California. Attachment 19,[36] A list of measures relevant to the Whiting Refinery is as follows:

- Engage energy efficiency engineers to conduct a thorough audit of fuel, electricity and natural gas use at the Refinery to identify potential energy savings and energy efficiency improvements, and implement those feasible measures identified.
- Replace stationary, non-emergency diesel internal combustion engines.
- Retrofit or replace old process heaters to use new high efficiency burners, oxyfuel (use of oxygen instead of air), advanced controls, and/or more heat recovery
- Add/improve heat exchangers.
- Replace existing CoGens with higher-efficiency units, or add CoGen units.
- Replace stationary, non-emergency internal combustion engines with high efficiency electric motors. Implement process efficiencies (e.g., control fouling in crude unit preheater train).
- Initiate carbon sequestration, capture and export.
- Any reduction measures recommended by the state agency for refineries.

To the extent that these measures have not or are not being conducted at the refinery or as a part of the expansion project, they should be considered in the required BACT analyses for GHGs, along with any other identified control options. Such audits, retrofits and equipment installations can provide much-needed jobs to the Indiana economy.

VI. THE PERMIT FAILS TO INCLUDE A SCHEDULE OF COMPLIANCE FOR THE VIOLATIONS IDENTIFIED IN THE NOV ISSUED TO BP IN CONNECTION WITH THE WHITING REFINERY.

The Permit omits compliance schedules that Title V requires to ensure compliance with all applicable requirements, as supported by the Notice of Violation ("NOV") issued by USEPA to BP for its Whiting Refinery. As such, the Administrator must object to the Permit. On remand, BP must submit compliance schedules in keeping with the statutory and regulatory requirements.

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[36] The attachment provides an excerpt from the Response to Comments dated January 2008. The full FEIR documents are available at www.ci.richmond.ca.us/index.asp?NID=832.

Under Title V and associated regulations, IDEM was required to mandate submission of a schedule of compliance addressing these violations, and to include the schedule in the Permit. Notwithstanding EPA's determination of ongoing violations, IDEM did not require BP to submit a schedule of compliance, in violation of the CAA. Section 504 of the Clean Air Act provides that each Title V permit: "shall include enforceable emission limitations and standards, *a schedule of compliance*, [submission of the results of any required monitoring], and such other conditions *as are necessary to assure compliance with applicable requirements* of this chapter . . ." 42 U.S.C. § 7661c(a) (emphasis added). Section 503(b) of the Act requires that the implementing regulations include a provision that the permit applicant "submit with the permit application a compliance plan describing how the source will comply with all applicable requirements." 42 U.S.C. § 7661b(b)(1). As such, 40 C.F.R. § 70.5(c)(8)(iii)(C) states that a permit application must include the following:

> A schedule of compliance for sources that are not in compliance with *all* applicable requirements at the time of permit issuance. Such a schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the source is subject.

The Act defines "compliance schedule" as "a schedule of remedial measures, including an enforceable sequence of actions or operations, leading to compliance with an applicable implementation plan, emission standard, emission limitation, or emission prohibition." 42 U.S.C. § 7661(3).

Regulations make clear that the term "applicable requirement" is very broad, and includes, among other things, any standard or requirement under Section 111 of the Act or "[a]ny term or condition of any preconstruction permit" or "[a]ny standard or other requirement provided for in the applicable implementation plan approved or promulgated by EPA through rulemaking under title I of the [Clean Air] Act." 40 C.F.R. § 70.2. "Applicable requirements" consequently include, among others, NSPS standards under Clean Air Act Section 111, PSD and NNSR requirements, and requirements contained in the state implementation plan. 40 C.F.R. § 70.2. One of the purposes of this requirement is for everyone – the pollution source, the U.S. EPA, and the public – to have easy access to a source's obligations, which will aid in determining whether the source is meeting them. *New York Public Interest Research Group, Inc. v. Johnson*, 427 F.3d 172, 176 (2d Cir. 2005) ("*NYPIRG*"). The regulations also provide that "[a]ll part 70 permits shall contain . . . [a] schedule of compliance." 40 C.F.R. § 70.6(c)(3).

In *NYPIRG*, the court made clear that, where non-compliance has been demonstrated, agencies are obligated under the CAA to require a schedule of compliance in a Title V permit regardless of whether there has been an adjudicated determination of liability. The court found that an NOV was sufficient evidence of violations to require a schedule of compliance, as an NOV is based on EPA's finding that the facility has violated the Clean Air Act. *Id.* at 181. The Court explained:

> … DEC, as the administering agency, has a certain expertise which distinguishes its NOVs and complaints from, for instance, allegations by a private citizen or by a non-profit organization. . . . [T]he agency is required to reach certain conclusions and to make certain findings before it may take enforcement action. . . .
>
> Since we are confident that the DEC does not issue NOVs lightly, we see no reason why its findings for purposes of issuing NOVs… do not suffice to demonstrate non-compliance for purposes of objections under § 7661d(b)(1).

Id. The Court concluded that a private citizen is not required to duplicate complicated and expensive effort by conducting its own fact-finding where the enforcement agency had issued an NOV. *Id.* at 182.

NYPIRG remains the governing law on the significance of an NOV issued prior to a Title V permit and cited in a Title V petition, as a recent decision by the Seventh Circuit on Title V compliance schedules indicates. In *Citizens Against Ruining the Environment v. EPA*, the court held that the evidence of ongoing violations provided in the petition did not rise to the level of demonstrating the need for compliance plans. *See Citizens Against Ruining the Env't v. EPA*, slip op. at 14-16 (Jul. 28, 2008). The court specifically distinguished the case from *NYPIRG* because the NOV setting forth the violations was issued after both the Title V permit and the Title V petition deadline. *Id.* at 12 ("[O]ur case differs significantly from *NYPIRG v. Johnson* because the NOV here came *after* the Administrator's decision and therefore was not part of the record he reviewed."). Here, however, since the NOV was issued well before the Title V permit and Petitioners are citing the NOV in this petition, the law is clear that the violations set forth in the NOV must be addressed through a schedule of compliance, as the *NYPIRG* court held.

On November 29, 2007, USEPA Region 5 issued to BP an NOV documenting extensive violations of CAA requirements at the Whiting facility. Attachment 20. The letter accompanying the NOV stated "the U.S. Environmental Protection Agency (EPA) has determined that the BP Products North American, Inc. facility at 2815 Indianapolis Boulevard, Whiting, Indiana (BP Whiting) is in violation of the Clean Air Act (CAA) and associated state or local pollution control requirements." Specifically, the NOV found that (1) BP failed to obtain a permit when it made major modifications to its fluidized catalytic cracking unit that caused significant increases of nitrogen oxide (NO_x), sulfur dioxide (SO_2), particulate matter (PM_{10}), and carbon monoxide (CO) emissions in violation of NSR requirements; (2) installed and modified flares, exceeded SO_2 emission limits, and failed to monitor emissions from several sources in violation of the New Source Performance Standards for Petroleum Refineries; and (3) failed to conduct timely performance tests of its catalytic reforming units to determine hydrogen chloride emissions in violation of the Refinery MACT II.

The NOV further documented the health impacts of these violations, which include, among other things, respiratory illness, heart disease, lung damage, and premature death. In addition, deviation reports concerning flaring submitted to IDEM indicate repeated violations of current flare emissions limitations. Specifically, BP repeatedly exceeded the H_2S 159 parts per million (ppm) 3-hour limit, meaning that too much H_2S was burned in the flare. EPA limits H_2S burned in the flare because when burned, H_2S turns into harmful sulfur oxide emissions to the atmosphere.

In its Response to Comments, IDEM provides its purported justifications for not including a compliance schedule in the permit despite the violations documented in the

NOV.[37] None of these justifications provide valid grounds for omitting the required compliance schedule. IDEM states "Because the past alleged violations were intermittent and because the cause of these emission limit exceedances will be addressed by the OCC project, IDEM contends that a schedule of compliance is not necessary for the past alleged violations of sulfur dioxide and reduced sulfur compounds limit." (TSD Addendum at 57.) IDEM thus admits that the violations occurred. This fact, standing alone, triggers the requirement for a compliance schedule. The statutory requirements cannot be more clear on this: where there are violations, a compliance schedule is required. In addition, IDEM's statement that the violations were intermittent is completely without basis. At least two of the violations detailed in the NOVare ongoing: (1) failure to obtain a permit when making a major modification; and (2) installation and modification of flares in violation of NSPS requirements. Assuming arguendo that the emissions exceedances were intermittent, such major modifications to emissions units are ongoing violations. Furthermore, IDEM's claim that the cause of these emission limits violations will be remedied by the OCC project is nothing more than an empty assurance, and is certainly no substitute for a compliance schedule. Failure to adhere to a compliance schedule is a violation of a permit that may be enforced, thus providing a concrete level of assurance not provided by illusory claims about the OCC project. Indeed, the very purpose of the Title V program is that it delivers this type of practical enforceability. If, in fact, there are in concrete elements of the OCC program that will address the violations, it is those very things that can and must be documented and included as steps in a compliance schedule. Doing so would pose no extra burden on the permittee beyond the actions IDEM claims the permittee already plans to undertake.

IDEM goes on to state that "BP has completed performance testing and submitted results of its HCl emissions from Ultraformers 2 and 4 as required by the Refinery MACT II therefore a compliance schedule is not indicated." (TSD Addendum at 57). However, the MACT requirements and the Title V compliance schedule requirements are housed in independent statutory programs. Adherence to one does not constitute, or substitute for, adherence to the other – in the same manner that staying within the speed

[37] IDEM summarizes the comments raising the need for a compliance schedule in Technical Comment

limit provides no shield to a misdemeanor charge of failure to obey a traffic signal. Thus, compliance with the MACT requirements does not negate the requirement for a Title V compliance schedule.

IDEM's additional assertion that so-called "placeholder language" in the permit substitutes for a compliance schedule has no basis in law. (*See* TSD Addendum at 57 ("IDEM has developed and U.S. EPA Region V has approved placeholder language that effectively serves the purpose of a compliance schedule as contemplated by Title V of the Clean Air Act.")). To begin with, IDEM's statement is effectively an admission that the permit does not comply with the terms of the Act. By stating that the placeholder language "serves the purpose of" a compliance schedule, IDEM is admitting that it is in fact *not* a compliance schedule, which is what the law requires. There is no room to interpret the compliance schedule provisions to allow for placeholder provisions devoid of meaningful content. Simply put, placeholder language cannot, by any stretch, serve the same purpose as a "schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the source will be in noncompliance at the time of permit issuance." 40 CFR § 70.5(c)(8)(iii)(C).

Finally, IDEM punts its permitting duties to later enforcement. "If it is determined that major New Source Review violations have occurred then IDEM will reopen and revise the permit to include BACT, LAER, NSPS or NESHAP emission limits and milestones for achieving compliance." (TSD Addendum at 57). However, the determination that NSR violaions have occurred has *already been made* with the issuance of the NOV: "[i]ssuance of . . . NOVs and commencement of the suit is a sufficient demonstration to the Administrator of non-compliance for purposes of the Title V permit review process." *NYPIRG*, 427 F.3d at 180. The statutory provision authorizing the EPA to issue an NOV, or commence civil action, is premised on the agency first finding that the facility is in violation of an applicable requirement. 42 U.S.C. § 7413(a)(1). Thus, USEPA has already made the finding of violations, and this finding triggers the requirement for the inclusion of a compliance schedule in the permit.

No. 15. In response, IDEM refers back to its response to EPA Comment 6

BP failed to submit the required schedule of compliance; IDEM failed to require one, and consequently, the Title V permit modification does not include one. The Administrator must object to BP's Title V, remand the permit to IDEM, and require incorporation into the permit of a schedule of compliance to address all violations identified in the USEPA NOV.

VII. CONCLUSION

WHEREFORE, for the reasons set forth above, Petitioners respectfully request that the Administrator timely object to the Permit and remand it to the agency for full compliance as set forth herein.

Respectfully submitted,

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By: /s/____________________

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BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of the Final Operating Permit for BP PRODUCTS NORTH AMERICA, INC. to operate WHITING BUSINESS UNIT located in Whiting, Indiana	Significant Permit Modification No. 089-25488-00453

Issued by the Indiana Department of
Environmental Management

CERTIFICATE OF SERVICE

STATE OF ILLINOIS)
) SS
COUNTY OF COOK)

I hereby certify that the foregoing Petition for Objection has been served upon the following individuals and parties of record or party by United States Certified Mail with Return Receipt Requested, this 14th day of August, 2008:

The Indiana Office of Environmental Adjudication
Attn: Executive Secretary
100 North Senate Avenue
Indiana Government Center North
Room 1049
Indianapolis, Indiana 46204

Mr. Thomas W. Easterly, Commissioner
Indiana Department of Environmental Management
Indiana Government Center-North
100 N. Senate Ave.
Indianapolis, IN 46204

BP Products North America, Inc.
Whiting Business Unit
2815 Indianapolis Blvd
Whiting, IN 46394
Attn: Natalie Grimmer

Office of Legal Counsel
Indiana Government Center North
Room 1306
100 North Senate Avenue
Indianapolis, IN 46204

Stephen L. Johnson
Administrator
USEPA
Ariel Rios Building
1200 Pennsylvania Ave, NW
Washington, DC 20460

By:

Faith E. Bugel
Meleah A. Geertsma
Environmental Law and Policy Center
35 East Wacker Drive, Suite 1300
Chicago, IL 60601
312-673-6500
fax: 312-795-3730
fbugel@elpc.org
mgeertsma@elpc.org

Signed and sworn to before me
on this 14th Day of August, 2008

Notary Public

JACLYNN JUTTING
OFFICIAL SEAL
Notary Public, State of Illinois
My Commission Expires
September 18, 2010