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June 7, 2006

Mr. Michael Krause
South Coast Air Quality Management District
CEQA Section, Planning Rule Development and Area Sources
21865 Copley Drive
Diamond Bar, CA 91765-4182

Re: Comments on the Draft Environmental Impact Report for the Chevron Products Company El Segundo Refinery Heavy Crude Project

Dear Mr. Krause:

2-1

On behalf of the Steamfitters & Pipefitters Local 250, IBEW Local 11 and Boilermakers Local 92 ("Unions"), this letter provides comments on the South Coast Air Quality Management District's ("District") draft environmental impact report ("DEIR") for the Chevron Products Company El Segundo Refinery Heavy Crude Project ("Project").[1] As explained below, the District's EIR does not comply with the requirements of the California Environmental Quality Act ("CEQA").[2] Accordingly, the District may not approve the Project or grant any permits for it until the District prepares and circulates a revised EIR that addresses all of the increased air pollutant emissions that will result from the proposed project throughout Chevron's crude oil refining process.

2-2

Chevron's Project entails modifications to its El Segundo refinery which will allow Chevron to process grades of crude oil much heavier than the light crude it has historically refined. These modifications include increases in the capacity of and other changes to the No. 4 crude unit, the delayed coker, the No. 6 H_2S plant, and coke handling system. Collectively, these modifications constitute the Project. The District is the agency that holds primary permitting authority over the El

[1] South Coast Air Quality Management District (SCAQMD), Draft Environmental Impact Report, Chevron Products Company – El Segundo Refinery, Heavy Crude Project, April 2006.
[2] Public Resources Code §§ 21000 *et seq.*
1882-006a

2-2 (cont.)

Segundo refinery; thus the District is the agency taking the lead in the CEQA process for Chevron's heavy crude project. As expected, impacts to air quality predominate over all other resource impacts. Accordingly, the Unions comment solely on the severe and unmitigated significant impacts to regional air quality that will result if the Project goes forward as proposed in the DEIR.

2-3

2-4

As fully explained below, the DEIR underestimated emissions of key criteria air pollutants that will result from the proposed Project, and thus failed to identify and mitigate all significant air quality impacts. The air pollutants that will increase are: nitrogen dioxides ("NOx"), sulfur dioxide (SO_2), particulate matter with an aerodynamic diameter less than 10 microns ("PM10"), volatile organic compounds ("VOCs"), and carbon monoxide ("CO").

2-5

The members of the Unions construct and maintain commercial, residential and industrial projects in the City of El Segundo and often around the El Segundo refinery itself. The Union's members live in and use areas that suffer the impacts of the refinery and other environmentally detrimental projects. Union members breathe the same polluted air that others breathe and suffer the same adverse health and safety impacts. Because they are often in close proximity to the El Segundo refinery and other polluting sources, their exposure is often at significantly higher levels than that of the general population.

2-6

Union members also support environmentally sound land use in the Los Angeles Basin. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the Basin, and by making it less desirable for businesses to locate and people to live there. Indeed, continued degradation can, and has, caused construction moratoriums and other restrictions on growth in the Basin that, in turn, reduce future employment opportunities. Finally, Union members are concerned about projects that carry serious environmental risks without providing countervailing employment and economic benefits to local workers and communities. Therefore, the Unions and their members have a strong interest in enforcing environmental laws such as CEQA.

2-7

We have prepared these comments with the assistance of Dr. Phyllis Fox. Dr. Fox has a Ph.D. in Civil/Environmental Engineering and is a registered Professional Engineer, atmospheric scientist, certified Qualified Environmental Professional and a Board certified Environmental Engineer certified in air pollution control by the American Academy of Environmental Engineers. Dr. Fox has over 35

2-7 (cont) years of experience in the air quality field. Her comments along with her *curriculum vitae* are provided herein as Attachments A and B, respectively. Please note that Dr. Fox's comments supplement the issues addressed below, thus her comments should be addressed and responded to separately.

I. THE DISTRICT'S DEIR OMITS CRUCIAL INFORMATION AND DATA

2-8 Pervasive throughout the DEIR is the District's failure to provide information essential to a meaningful analysis of the Project and its impacts to regional air quality. Full and meaningful disclosure in an EIR is a cornerstone of CEQA.[3]

A. Inadequate Project Description

2-9 Because the DEIR omits the fact that the Project will cause numerous new emission sources, the DEIR is legally defective because, among other things, the Project description is inaccurate and misleading. An accurate, stable and finite project description is the *sine qua non* of an informative and legally adequate EIR.[4] Without it, CEQA's objective of fostering public disclosure and informed environmental decision-making is stymied. As one analyst has noted:

> The adequacy of an EIR's project description is closely linked to the adequacy of the EIR's analysis of the project's environmental effects. If the description is inadequate because it fails to discuss the complete project, the environmental analysis will probably reflect the same mistake.[5]

Here, the DEIR provides only a partial description of the actual and significant increases in operational omissions that will occur throughout the entire facility. It is well-settled that "responsibility for a project cannot be avoided by limiting the title or the description of the project."[6] The DEIR's project description must be revised to include all of the emission increases that will occur facility-wide as result of the Project.

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[3] An EIR is an informational document designed to inform decision-makers and the public of the significant environmental effect of a project, identify possible ways to minimize the significant effects, and describe reasonable alternatives to the project. (CEQA Guidelines §15121(a).)
[4] *County of Inyo v. City of Los Angeles* (1977) 71 Cal.App.3d 185, 192.
[5] Kostka and Zischke, "Practice Under the California Environmental Quality Act," p. 474 (Aug. 1999 update).
[6] *Rural Land Owners Association v. Lodi City Council*, (1983) 143 Cal.App.3d 1013, 1024-1025.
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2-10

B. The District Failed to Disclose Project Impacts

Courts have invalidated EIRs where the lead agency failed to fully discuss and analyze a crucial topic; or similarly, the information provided for important issues was so cursory the document failed to comply with the statute.[7] This is a critical issue here because the Unions' overarching comments revolve around the District's failure to analyze, calculate or disclose key information and data regarding significant increases in the Project's operational emissions from the coker, the No. 4 crude unit, No. 6 H_2S plant, and coker feed heaters. Similarly, the District failed to properly calculate emissions from the increased throughput of higher sulfur crude, coke drum depressurization and decoking, among other things detailed below.

It is well settled that courts often void an agency's ultimate decision to approve a project if the agency's decision was based upon an EIR that failed to provide the decision-makers and the public with project information required by CEQA.[8] This is because the failure to disclose becomes prejudicial when the failure includes relevant information necessary to informed decision making and informed public participation, and ultimately thwarts the statutory goals of the EIR process.[9] That is exactly what is occurring here.

The District's defects and omissions are fatal. The District must provide such crucial information to the public. Until it revises and recirculates the EIR for this project, the District may not approve the Project or grant any permits.

2-11

II. THE PROJECT WOULD RESULT IN SIGNIFICANT INCREASES IN OPERATIONAL EMISSIONS

The DEIR is inadequate because it failed to analyze and mitigate significant increases in operations emissions at the refinery as a result of the proposed Project. These increases in emissions must be included in a revised EIR. As fully explained below, although the DEIR included some analyses of operational emissions, it omitted others that are critical to a full emissions analysis. For example, the DEIR estimated emissions from coke drum depressurization and fugitive sources only. The fugitive sources analyzed were new pumps, valves, and flanges in modified

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[7] *See e.g. San Joaquin Raptor/Wildlife Rescue Ctr. v. County of Stanislaus* (1994) 27 Cal.App.4th 713; *Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal.App.3d 692, 724.
[8] *San Joaquin Raptor* at 721-722.
[9] *Id.*
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2-11 (cont.)

processing equipment.[10] With respect to coke drum depressurization emissions, the EIR greatly underestimated these. Further, the DEIR did not consider and analyze increased emissions from existing units that would, as a result of the Project, operate at a higher rate or with greater frequency than during the baseline period.

2-12

Specifically, the Project would increase emissions by increasing operation of the utilities required to operate the delayed coker, No. 4 crude unit, No. 6 H_2S plant, and other downstream units including hydrotreaters, the hydrogen plant, and sulfur recovery units, among others. The increased use of such equipment will increase emissions from existing boilers, cooling towers, heaters, the cogeneration unit, flares, compressors, and fugitive components. These additional emissions from existing equipment would be higher than the emissions from existing equipment operated under historic conditions. Thus, the DEIR has substantially underestimated overall Project emissions by excluding any analysis of emissions from increased operation of supporting utilities at the refinery.

2-13

A. The Proper Project Baseline Is The Project's Actual Emissions At The Time The Project Is Proposed

Exacerbating the problems presented by the underestimated omissions is the District's adoption of a misleading environmental baseline. Throughout the DEIR the District failed to meet its burden under CEQA of demonstrating that it properly investigated and evaluated the Project's significant environmental impacts in the full environmental context.[11]

2-14

More specifically, the District must evaluate the significance of emissions from a project using a three-step process. First, the emissions immediately prior to commencement of environmental review must be determined. This is the baseline. Second, the increase in emissions relative to this baseline must be determined. The increase is the difference between the post-project emissions and the baseline. Third, this increase must be compared to a significance threshold to determine if the increase is significant.

2-15

The DEIR diminishes the true increase in harmful pollutants facility-wide by using hypothetical baselines and by ignoring the increased frequency of greater

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[10] DEIR, Table 4.1-7, p. 4-20.
[11] CEQA Guidelines § 15125 (a).
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2-15 (cont.)

emissions as a result of the Project. These two approaches are contrary to the CEQA Guidelines and case law.

2-16

Under CEQA, EIRs provide an environmental baseline and significance threshold levels for particular impacts in order to provide a framework from which an agency can determine whether a project may have a significant effect on the environment.[12] A significance threshold describes the level of impact beyond the baseline that constitutes a significant environmental impact.[13]

2-17

With respect to projects involving impacts to air quality, the District's CEQA Handbook specifies that the environmental baseline for emissions for CEQA purposes is the air quality "as it exists before the commencement of the project."[14] This is consistent with CEQA itself because CEQA baselines must be based on ***actual*** emission levels prior to a proposed project, not based on hypothetical emission levels that may never have been achieved. In other words, the baseline must be representative of actual pre-project emissions at the facility.

2-18

Importantly, the CEQA Guidelines define the term "environmental setting" as "the physical environmental conditions in the vicinity of the project, ***as they exist at the time . . . environmental analysis is commenced***, from both a local and regional perspective. This environmental setting will normally constitute the baseline physical conditions by which a lead agency determines whether an impact is significant. . . ."[15] Prior to 1998 when this language was adopted, the Guidelines allowed somewhat more flexibility in setting baselines. Former section 15125(a) provided: "An EIR must include a description of the environment in the vicinity of the project, as it exists before the commencement of the project, from both a local and regional perspective." By fixing the time at which the baseline is calculated, the amendment sought to prevent baseline manipulation of the type occurring here.

2-19

In addition, recent caselaw uniformly affirms the principle that the CEQA baseline must be set at actual pre-project emission levels, not at hypothetical levels that might have been achieved under existing permits, but were not.[16]

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[12] CEQA Guidelines § 15125(a).
[13] CEQA Guidelines § 15064.7(a).
[14] SCAQMD CEQA Handbook at p. 7.1.
[15] Guidelines, § 15125(a) (emphasis added).
[16] *See e.g., Save Our Peninsula Committee*, 87 Cal. App. 4th at 122; *Fat v. Sacramento* (2002) 97 Cal. App. 4th 1270 (CEQA document for airport must set baseline based on actual airport usage prior to expansion); *Riverwatch v. San Diego* (1999) 76 Cal. App. 4th 1428, 1451 (CEQA document for quarry must set baseline based on actual quarry usage prior to expansion); *City of Carmel-by-the-Sea v. Board of Supervisors* (1986) 183 Cal. App. 3d 229, 246 (Must measure impacts of project against 1882-006a

2-20

The District's analysis similarly ignored the fact that the Project is increasing the capacity of various units, thus allowing these units to operate at a higher rate for many more days per year over current operations, thus increasing emissions on an annual basis. The fact that peak daily emissions will not increase is irrelevant to the District's analysis here. The proper analysis requires the District to disclose the number of days per year that peak emissions will be reached, and in turn the number of days that ambient air quality will degrade as a result. The fact that there will be more days where the facility is firing at its peak firing rate causing an increase in emissions triggers CEQA analysis.

2-21

The historic short-term excursions to a higher level cited in the DEIR (which is not supported by any actual data in the DEIR) likely cannot be routinely sustained without modifications to refinery equipment. Further, the DEIR did not disclose when these peaks occurred or the conditions under which they occurred. They may, for example, represent anomalous operating conditions, caused violations of permit limits, or occurred in the distant past and would thus be irrelevant for purposes of establishing a CEQA baseline.

1. RECLAIM Baseline

2-22

The District establishes separate baselines for pollutants that are subject to RECLAIM -- NOx and SOx. RECLAIM is an emission trading program that uses offsets, called RECLAIM trading credits or RTCs, to offset emission increases above a declining annual emission allocation. This program assures maximum annual emissions from each facility are reduced each year from the 1994 limits, but can be increased if the facility acquires additional RTCs from other facilities that have reduced their emissions below their current year allocation.[17]

2-23

The District's baseline for NOx and SOx, instead of being the actual emissions prior to start of environmental review, is the ***1994*** initial annual allocation of emissions.[18] This is incorrect for at least three reasons. First, this RECLAIM baseline is not the actual emissions immediately prior to the commencement of environmental review, as explicitly required by CEQA.[19] Rather,

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existing environment, not against maximum build-out allowed by general plan); *Bloom v. McGurk* (1994) 26 Cal. App. 4th 1307 (baseline for categorical exemption is actual emission level from incinerator at time CEQA review was commenced).
[17] See explanation in DEIR at 4-3 to 4-4; SCAQMD Rule XX.
[18] DEIR, pp. 4-4 to 4-5.
[19] Guidelines, § 15125(a).
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2-23 (cont.) it is emission level from more than a decade ago, which has nothing to do with actual emissions immediately prior to environmental review.

2-24 Second, the District's artificial baseline significantly inflates the significance threshold because it is based on very high 1994 emissions. This fiction makes it unlikely that any project would ever exceed the significance thresholds, thus gaming the system and gutting CEQA. We are frankly astonished that an agency whose mission is protecting air quality would devise a scheme to effectively immunize the biggest polluters from a meaningful review of air quality impacts.

2-25 Third, as described more fully below, this is illegal because it relies on 1994 permitted emissions, even if the refinery never reached its permitted limit.[20]

2-26 In sum, the District would conclude that enormous increases in emissions were not significant, 12,077 pounds per day of NOx and 3,458 pounds per day of SOx, even though the refinery is currently only allocated 4,136 pounds per day of NOx and 1,723 pounds per day of SOx.[21] This is illegal because it is based on a hypothetical emission level from more than a decade ago. Such action creates an absurd result because the whole point of the RECLAIM program, and the Clean Air Act itself, is to reduce emissions over time, not sanction emission increases. Similarly, the District's actions are effectively exempting the Project from CEQA because the District's artificial baseline is elevated so far above actual emission allocations, no proposed project could ever trigger CEQA review. This outcome cannot be the one contemplated when the RECLAIM program was adopted.

2-27 Had the District used the proper significance threshold and appropriate baseline, it is clear that operational NOx and SOx emissions would exceed the significance threshold of 55 and 150 pounds per day, respectively.

2-28 **2. *Fairview* Standard**

The District argues that "the baseline is established at the maximum allowable level of activities that has been achieved previously," based on the *Fairview Neighbors v. County of Ventura* standard.[22] This reasoning is used to avoid analyzing a number of emission increases because on a few days in the past,

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[20] Indeed, allocated RTCs in the initial years were much higher that actual emissions. *See* White Paper On Stabilization of NOx RTC Prices, South Coast Air Quality Management District (January 11, 2001).
[21] DEIR, Table 4.1-2, p. 4-5.
[22] DEIR, p. 4-2; *Fairview Neighbors*, 70 Cal.App.4th 238 (1999).
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2-28 (cont.)

the refinery had high emissions. See, e.g., coker feed heater discussion at DEIR, p. 4-13, sulfur recovery units at DEIR, p. 4-15, and truck trips at DEIR, p. 4-16. However, even assuming these assertions are correct, and the DEIR does not support any of them with actual data, this ignores the fact that the Project would increase the number of times in a year that higher emissions would occur, thus increasing the number of days when the Project would cause or contribute to violations of ambient air quality standards. According to the CEQA Guidelines, an impact is significant if it would cause or contribute to a violation of an ambient air quality standard.[23]

2-29

The District cannot rely on *Fairview* for at least five reasons. First, the *Fairview* opinion does not support the District's use of a decade old emission level that, by law, has now been reduced by 75%. Second, the *Fairview* case did not address the issue of increased violations of state and federal ambient air quality standards, which is central here. Third, the *Fairview* case is inconsistent with a large body of other case law that uniformly affirms the principle that the CEQA baseline must be set at actual pre-project emission levels, not at levels that have been achieved only several times in recent history or hypothetical levels that might have been allowed under existing permits, but have not been achieved.[24] Fourth, and related, the District errs in suggesting that *Fairview* authorizes it to employ as its baseline, permitted levels the facility has never achieved. Finally, *Fairview Neighbors* is factually inapposite from the situation presented here because the CEQA document at issue there was a subsequent EIR; not as here, an initial EIR. CEQA and reviewing courts treat subsequent EIRs completely differently than initial review EIRs.[25] This is important because the court noted that the challenged truck traffic associated with the *Fairview Neighbors* project had actually been scrutinized in an earlier CEQA document.

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[23] CEQA requires an assessment of any inconsistencies between the project and applicable general plans and regional plans. *See* CEQA Guidelines § 15125(a), (d): "Such regional plans include, but are not limited to, the applicable air quality attainment or maintenance plan (or State Implementation Plan) . . . ." An impact is significant if the project would "[c]onflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project ... adopted for the purpose of avoiding or mitigating an environmental effect." *See also* CEQA Guidelines Appendix G, section IX(b): "Environmental effects" include direct and indirect impacts to air quality. "Standards adopted by regulatory agencies for the protection of the environment can provide a reasonable benchmark for gauging the significance of an environmental impact." Kostka and Zichke, CEB, "Practice under the California Environmental Quality Act," § 6.47; p.293.

[24] *See e.g., Save Our Peninsula Committee*, 87 Cal. App. 4th at 122; *Fat v. Sacramento* (2002) 97 Cal. App. 4th 1270 (CEQA document for airport must set baseline based on actual airport usage prior to expansion); *Riverwatch v. San Diego* (1999) 76 Cal. App. 4th 1428, 1451 (CEQA document for quarry must set baseline based on actual quarry usage prior to expansion); *City of Carmel-by-the-Sea v. Board of Supervisors* (1986) 183 Cal. App. 3d 229, 246 (Must measure impacts of project against existing environment, not against maximum build-out allowed by general plan); *Bloom v. McGurk* (1994) 26 Cal. App. 4th 1307 (baseline for categorical exemption is actual emission level from incinerator at time CEQA review was commenced).

[25] CEQA § 21166; CEQA Guidelines § 15162.

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2-30

In *Fairview*, the lead agency set the baseline for truck trips to and from a mining operation as the maximum allowed under its permit. The lead agency determined the maximum trips by looking at the facility's maximum capability, and found that traffic flow fluctuated between 810 and 837 trips per day depending on facility production levels.[26] The court upheld the baseline of 810 trips because it was based on actual traffic that had been achieved at the facility.[27]

2-31

B. Coker Emissions Were Underestimated

The coker processes heavy vacuum residuum produced by the crude units into lighter products that are further refined in downstream units. The vacuum residuum is heated to 900° to 940° F and fed into coke drums, where it cracks into lighter materials under pressures of 30 to 60 psig. These lighter materials boil off and are separated into raw gasoline, raw jet fuel, raw diesel fuel, and gas oil. These separated byproducts are further refined in downstream units. Coke is left behind in the coke drums, reclaimed, and exported.[28] This process results in emissions from a number of sources, including combustion emissions from increased firing of the feed heaters, depressurization steam venting, decoking the drums, and fugitive emissions from pumps, values and flanges, etc.

2-32

The Project will increase the capacity of the coker from 60 (million barrels per operating day) to 80 MBD, or by approximately 33%. (DEIR, p. 2-12.) This will increase coke production from 3,950 tons per day to 4,460 tons per day, or by 15%. (DEIR, p. 2-12.) The proposed Project will also increase the amount of liquid coking byproducts, e.g., naphtha, raw gasoline, but the DEIR does not disclose any details regarding these byproducts.

2-33

1. Increase in Combustion Emissions From Increased Firing of Coker Feed Heaters

The coker uses three identical heaters -- F501A, F501B, and F-501C -- rated at 176 MMBtu/hr each to heat the residuum.[29] The DEIR omitted proper discussion of the increased combustion emissions as a result of increased use of these heaters. There is no doubt that the proposed modifications to the coker unit, of which the

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[26] *Id.* at 243.
[27] *Id.*
[28] DEIR, p. 2-11.
[29] In 1992, Chevron retrofitted these heaters with a selective catalytic reduction ("SCR") unit to comply with the district's Phase II of Rule 1109.
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2-33 (cont.) feed heaters are part, increase the coker's throughput, which will increase emissions from the three coker heaters. None of this is properly addressed in the DEIR. CEQA requires analyses of the increase in pollutants emitted as a result of increased heater firing.

2-34 This omission is puzzling given evidence that Chevron itself understood that the heater emissions would be fully analyzed in any EIR for the proposed Project. According to minutes from Chevron's first project meeting with the District, Chevron's view was that, "[c]hanges in the actual firing rate of the furnaces in the No. 4 Crude Unit, the Coker and any fired steam boilers need to be analyzed as part of the CEQA process."[30] (See Attachment C.)

2-35 Significantly, the DEIR acknowledges, "changes in emissions from the Coker feed heaters resulting from an increase in the fuel combustion rate by the heaters" and "the increase in vacuum residuum feed rate to the Coker will lead to an increase in the annual average firing rate (quantity of fuel burned per year) of the furnace...".[31] In this same vein, an administrative draft of the DEIR stated: "Therefore, the proposed increase in the Coker feed heater firing rates will not cause an increase in CO, VOC, NOx or PM10 pollutant emission rates."[32] In response, the District made a handwritten note next to this text: "Cannot verify that there is no increase in CO, VOC, NOx, & PM10 emissions without technical support."[33] These statements show that District staff was well aware that increased firing throughout the facility would potentially cause significant adverse impacts to air quality, and further analysis was necessary.[34] These facts *per se* trigger CEQA analysis.

2-36 Despite clear evidence that the proposed Project would increase emissions of criteria pollutants facility-wide, the DEIR did not analyze emission increases resulting from additional firing of the heaters, apparently because the peak daily firing rates "are not anticipated to increase beyond the maximum allowable daily firing rates achieved in the past."[35]

2-37 However, the peak daily firing rate is irrelevant for purposes of the District's analysis here. The proper analysis requires the District to disclose the number of

[30] Chevron /AQMD Meeting on Permits for High Sulfur Heavy Crude Project (January 11, 2005).
[31] DEIR, pp. 4-12, 4-13
[32] District Memorandum from Pang Mueller to Susan Nakamura, Attachment C (March 17, 2006).
[33] *Id.*
[34] See Pub. Res. Code §21068; CEQA Guidelines § 15382.
[35] DEIR, p. 4-13.
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2-37 (cont.) days ambient air quality will now degrade, and disclose the frequency in which no-violation days become violation days. In short, the mere fact that there will be more days where the facility is firing at its peak firing rate causing an increase in emissions triggers CEQA analysis.

2-38 The District must revise the EIR and include analyses of increased emissions. In a revised EIR, the District can estimate these increases in the heaters' average firing rates by reviewing typical utility requirements for delayed cokers published in standard industry reference texts. The total utility requirement for any delayed coker consists of two separate parts: The first is continuous utility demands; and the second is the intermittent utility demands. The typical continuous firing rate to supply heat to the coker is about 5.1 MMBtu/hr of fuel per 1,000 BPD of feed.[36] The Project would increase the throughput of the coker by about 20,000 BPD. Thus, about 102 MMBtu/hr of fuel must be combusted to heat the 20,000 BPD increase to coking temperatures. The resulting increase in emissions from combusting 102 MMBtu/hr of fuel in the three coker heaters, based on a source test conducted on these heaters,[37] is summarized in Table 1.

[36] Robert A. Meyers (Ed.), Handbook of Petroleum Refining Processes, 2nd Ed., 1996, Chapter 12.2. FW Delayed-Coking Process, p. 12.78 and Robert E. Maples, Petroleum Refinery Process Economics, PennWell Books, Tulsa, OK, 1993, Chapter 10. Delayed Coking, p. 112. 7.

[37] Application 448241, Furnace Repairs, August 16, 2005, Attachment captioned Permit to Operate, Air Pollution Control System Common to and Serving Coker Furnaces F-501A, F-501B and F-501C, September 16, 1992, pp. 2-3. The emission factors are 7 lb/MCFH for VOC; 16.9 lb/MCFH for Sox; 0.414 lb/MMBtu for CO, 0.015 lb/MMBtu for NOx; and 1.75 lb/hr for the three heaters combined. The average heating value of the refinery fuel gas is 1050 Btu/ft^3.

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2-38 (cont.)

Table 1
Increase in Emissions from
Increased Firing of Coker Feed Heaters

	Increase In Emissions (lb/hr)	Increase In Emissions (lb/day)	Increase In Emissions (ton/yr)	CEQA Significance Threshold[38] (lb/day)
CO	42.23	1013[39]	185	550
SOx	1.64	39[40]	7.2	150
NOx	1.53	37[41]	6.7	55
PM	1.01	24[42]	4.4	150
VOC	0.68	16[43]	3.0	55

This table indicates that the increase in CO emissions from increased firing of the coker feed heaters alone will exceed the District's daily CEQA significance threshold of 550 lb/day for CO by nearly a factor of two. Annual CO emissions exceed the Clean Air Act's prevention of significant deterioration ("PSD") significance threshold of 100 ton/yr for CO, triggering PSD review, and requiring a federal permit from the Environmental Protection Agency ("EPA"). The DEIR omitted the above analysis and failed to disclose that the Project would require a federal PSD permit.[44]

2-39

Table 1 also shows that the increase in PM10 and VOC emissions from the increase in firing of these two heaters plus other operational emissions reported in the DEIR, Table 4.1-7, exceed the CEQA significance thresholds for PM10 (128+24=152) and VOC (45+16=61). Finally, the increase in NOx and SOx emissions from increased firing of the coker heaters plus other operational emissions omitted from the DEIR, but discussed below, exceed the CEQA significance thresholds for these pollutants.

2-40

In sum, these increases in emissions of CO, SOx, NOx, PM, and VOC from increased firing of the coker feed heaters alone (CO) or combined with emissions

[38] South Coast Air Quality Management District, Air Quality Significance Thresholds, January 2006.
[39] Daily increase in CO emissions: (0.414 lb/MMBtu)(102 MMBtu/hr)(24 hr/day) = 1013.5 lb/day.
[40] Increase in SOx emissions: (16.9 lb/MCFH)(102 MMBtu/hr)/(1050 Btu/CF)(24 hr/day) = 39.4 lb/day.
[41] Increase in NOx emissions: (0.015 lb/MMBtu)(102 MMBtu/hr)(24 hr/day) = 36.7 lb/day.
[42] Increase in PM emissions: (1.75 lb/hr per heater)/176 MMBtu/hr)(102 MMBtu/hr)(24 hr/day) = 24.3 lb/day.
[43] Increase in VOC emissions: (7 lb/MMCFH)(102 MMBtu/hr)/(1050 BTU/hr)(24 hr/day) = 16.3 lb/day.
[44] DEIR, Table 2-3.
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2-40 (cont.) from other sources are new significant air quality impacts that were not disclosed in the DEIR, and would not be mitigated by the Project as proposed. Analysis of this issue alone warrants the District revising and recirculating its EIR to include full analysis and mitigation of these impacts.

2-41 Finally, other continuous utility demands must be properly analyzed in the DEIR. These include up to 500 gallons per minute of cooling water, 17,850 gallons per day of raw water, and 3,000 kw of electricity. In addition to these continuous utility demands, intermittent utilities are required for the decoking and coke drum blowdown systems. These include about 695 kw of electricity and 125 gallons per minute of cooling water.[45] Providing these additional utilities would increase emissions of VOC, PM10, NOx, SO_2, and CO. The DEIR included the increase in emissions of PM10 from providing the cooling water (p. 4-14), but omitted the increase in emissions from the other added utilities. The emissions associated with electricity demand are discussed below. These issues must likewise be addressed in a revised EIR.

2-42

2. Coke Drum Depressurization VOC and PM10 Emissions Were Underestimated

The vacuum residuum is heated in the feed heaters to 900° to 940° F and fed into coke drums. The residuum remains in the coke drums under a pressure of 30 to 60 psig for 12 hours. The lighter materials boil off and are separated into raw jet fuel, raw diesel fuel, and gas oil. 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.[46] When the coke drum pressure drops below 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 to 0.[47]

2-43 The District's permitting file indicates that the District has measured depressurization emissions from all refineries in the South Coast Air Basin and is proposing to initiate a rulemaking by December 2006 to control these emissions.[48]

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[45] Estimates based on Meyers 1996, pp. 12.78 to 12.79; Continuous utilities based on 150 kW of electricity per 1000 BPD; 25 gal/min of cooling water per 1000 BPD; and 35 gal/day of raw water per short ton per day of coke, assuming an increase of 20,000 BPD of residuum and 510 ton/day of coke.
[46] DEIR, p. 2-11.
[47] Additional Information Request Responses, p. 3; (March 14, 2006); Response, No. 2.
[48] Telephone communication with Bob Sanford, May 11, 2006.
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2-43 (cont.)

Even the District staff views these emissions as considerable.[49] The DEIR included coke depressurization emissions in the operational emission inventory (Table 4.1-7) which assumed the Project would increase the number of depressurizations from 4.8 per day currently to 6 per day with the Project.[50] Such depressurization emissions were based on District measurements made in 2003.[51]

2-44

But the District failed to disclose the nature and magnitude of depressurization air quality impacts. As a result, the DEIR underestimated both PM10 and VOC emissions, it failed to disclose that the stack test it relied upon reported minimum emissions and that actual emissions are higher, and the DEIR did not include the full increases in coker capacity in its calculations. Given that such details would all be considered necessary to making an informed decision regarding Project impacts and mitigation measures, the DEIR's omissions are all the more glaring.

2-45

The District measured PM10 and VOC emissions during depressurization of Chevron's coker on January 23, 2003. The measurements were made to collect coker unit emission information for potential rule development. The results are reported in a District source test report.[52] In the DEIR, the District estimated the increase in coker depressurization PM10 and VOC emissions by multiplying the test results, reported as pounds per single drum blowdown event, by the increase in the number of such events, or 1.2 events per day. (DEIR, p. 4-13.) However, the DEIR neglected to mention important caveats in the source test report as follows:

First, the source test report summary table that the DEIR relied upon is followed by a disclaimer: "All mass emissions results are biased low; See Test Critique." (Source Test Report, p. 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 considered as greater than reported. Furthermore...the emissions are at least that which was reported." (Test Report, p. 12.) The DEIR is flawed because the District did not disclose that the coke drum emissions of 28.4 lb/day in Table 4.1-7 are biased low.

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[49] Email Correspondence Among District and Chevron employees (March 22, 2006).
[50] DEIR, p. 4-13.
[51] (*Id.*)
[52] 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, Conducted at Chevron/Texaco Refinery, El Segundo, CA, January 23, 2003,

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2-46

Second, the DEIR did not include all of the measured particulate matter ("PM") in its emission inventory. Particulate matter consists of two components, filterable and condensable.[53] The filterable fraction is present as solid material in the exhaust stream and is collected on filter paper during the test. The condensable fraction is presented as a gas in the exhaust stream and condenses out as a solid in the impingers during the test and in the atmosphere.[54] SCAQMD has long regulated total particulate matter and SCAQMD Method 5, used to measure particulate matter, measures both. The Test Report separately lists filterable (1.25 lb/event) and condensable (12.50 lb/event) PM. A note to the table explains that the condensable fraction "meets both the SCAQMD Rule 102 definitions for PM and VOC."[55]

The problem is that the DEIR PM10 emissions are based solely on the filterable component of PM (1.5 lb/day), and excluded the condensable component (15.0 lb/day) reported in the same test report table.[56] Thus, the total PM10 from coke drum depressurization should have been 16.5 lb/day, not 1.5 lb/day. This increase in emissions (16.5 lb/day), plus the increase from increased firing of the coker feed heaters (24.3 lb/day) and operational emissions admitted in the DEIR (127.8 lb/day), result in total PM10 emissions of 168.6 lb/day. This new total exceeds the District CEQA significance threshold of 150 lb/day. This is a new significant impact that was not discussed in the DEIR. Based upon this omission alone, a revised EIR must be circulated.

2-47

Also concerning PM10, the air quality impacts modeling in the DEIR only included the increase in PM10 emissions from cooling tower No. 9. This modeling shows that the cooling tower alone results in an increase in 24-hour PM10 at the property boundary of 2.36 ug/m3.[57] The significance threshold is 2.50 ug/m3.[58] The depressurization emissions should have been included. The revised depressurization emissions may result in exceedance of this threshold, and should be analyzed in a revised EIR.

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[53] U.S. EPA, *Estimation of the Importance of Condensed Particulate Matter to Ambient Particulate Levels*, NTIS PB84102565 (April 1983).
[54] The EPA explained in the preamble in which it adopted a PSD significance threshold for PM10, a subset of PM, that: "Particulate matter" is the generic term for a broad class of chemically and physically diverse substances that exist as discrete particles (liquid droplets or solids).... They may be emitted directly or formed in the atmosphere by transformations of gaseous emissions such as sulfur oxides, nitrogen oxides and volatile organic substances." 52 FR 24635 (July 1, 1987). The "liquid material" and material that forms in the atmosphere are condensible particulate matter.
[55] Test Report, Table 2, p. 3.
[56] The emissions in parentheses are the increase in PM10 emissions from adding 1.2 cycles per day.
[57] DEIR, p. 4-30.
[58] DEIR, Table 4.1-1.
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2-48 Third, the District extrapolated the source test results assuming that the modifications to the coker will increase the number of depressurization operations from 4.8 per day to 6 per day, or an increase of 20%.[59] However, the Project description indicates that coker modifications would increase the capacity of the coker from 60 MBD to 80 MBD or by 33%.[60] Thus, unless Chevron's air permit limits the number of depressurizations to six, bottlenecking the capacity increase, the coke drum emissions should have been estimated by multiplying the emissions measured in the source test report by 1.33, rather than 1.20.

2-49 Finally, the PM10 concentrations measured during the District's source tests exceeded the permissible levels in SCAQMD Rule 404(a) for PM concentrations at the time of testing. Thus, the Project will contribute to an existing violation of Rule 404. This is a new significant impact that was not disclosed in the DEIR.

3. Coke Drum VOC And PM10 Decoking Emissions Omitted

2-50 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 it from the drums. The DEIR did not disclose the emissions from this process even though it relied on the depressurization test report that discloses such emissions in other contexts. The depressurization test report explains how 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.[61]

These results, available since January 2003, should have put the District and Chevron on notice that further cooling and decoking were significant emission

[59] DEIR, p. 4-13.
[60] Id. at p. 2-12.
[61] (Test Report, p. 13 (emphasis in original).
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2-50 (cont.) sources. The District was required to measure the emissions from further cooling and decoking and disclose them in the DEIR.

2-51 Thus, PM10 and VOC emissions from further cooling and decoking could be roughly comparable to those from depressurization, the only coke drum emission source included in the DEIR. Proper analysis described above may reveal that further cooling and decoking operations at least double the depressurization emissions disclosed in the DEIR. If the VOC emissions were only double those reported in the DEIR (56.8 lb/day), the increase in VOC emissions from the coke drums alone would exceed the SCAQMD's CEQA significance threshold of 55 lb/day for VOCs. This is a new significant impact that was not disclosed in the DEIR, and requires EIR revision and recirculation.

4. Coke Drum Hydrogen Sulfide Emissions Omitted

2-52 The coking process produces high concentrations of hydrogen sulfide (H_2S) and other reduced sulfur compounds. The coker drum vapors are about 5% H_2S by weight.[62] The depressurization, cooling, and decoking operations discussed above also emit H_2S and other reduced sulfur compounds. Hydrogen sulfide and other reduced sulfur compounds are chronically and acutely toxic and cause malodors. The DEIR did not disclose that the coke drums would emit H_2S nor evaluate its odor and public health impacts.

2-53 The District attempted to measure sulfur compounds during depressurization but did not succeed because the sample was collected after the particulate matter sampling train, which would have removed these compounds. However, the presence of sulfur compounds in depressurization vent gases was confirmed by soluble sulfates in the impinger catches.[63] These results should have alerted the District to the presence of H_2S in coker depressurization gases. The District should have measured these emissions and disclosed them in the DEIR.

2-54 Based on the District's source test report, the Project would increase the emission of H_2S from depressurization by greater than 0.25 lb/day, assuming the measured sulfates are present as H_2S in the exhaust gases.[64] Alternatively,

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[62] 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.

[63] Test Report, pp. 13, 16.

[64] The Test Report indicates 132 mg of sulfates and 3235 mg of particulate, excluding sulfates, was collected in the Method 5 sampling train. Test Report, p. 16. The amount of H_2S: [132/(3235+132)](13.75 lb PM/event)(34 lb-mole H_2S/96 lb-mole SO_4) = 1882-006a

2-54 (cont.)

assuming that the depressurization vent gases contain the same weight percent H_2S as the coke drum vapors, or 5% by weight, H_2S emissions from coker depressurization would be greater than 1.6 lb/day.[65]

2-55

5. The DEIR Omitted Analysis of Emissions From the Increase In Steam Used In the Refinery Compressor

According to the DEIR, the facility's compressor must be replaced in order to increase gas compression capabilities.[66] This is confirmed by the SCAQMD Air Permit Application, which indicates that the "gas compression capability of the plant is also limited and will need to be upgraded."[67] Increasing the capacity of the compressor will increase steam demand which, in turn, will increase the amount of fuel combusted in boilers in the steam plant. The DEIR and the District's files do not contain the information required to calculate the resulting increase in emissions. Nevertheless, such emissions could be substantial. For example, the steam demand for a 1561 hp Dresser-Rand turbine-rate compressor is 119,280 lb/hr.[68] The DEIR should be revised to disclose the type of compressor, the increase in steam demand for the new compressor, and the resulting emissions to generate the increase in steam. Based on this error and all of the errors and omissions described above concerning underestimated emissions associated with the coker, the District must revise its EIR and recirculate it for public comment.

2-56

C. The District Underestimated the No. 4 Crude Unit Emissions

The No. 4 crude unit is a two-stage unit that separates crude into several components, including methane, ethane, liquid petroleum gas, naphtha, raw jet fuel, raw diesel fuel, gas oil, and residuum. The crude is first heated and separated under atmospheric conditions in a distillation column. The residuum from this process is then heated and separated in a vacuum distillation column. The products of these separations are further refined in downstream equipment to produce final products -- gasoline, diesel, jet fuel, and others.[69] Chevron's modification to increase

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0.19 lb/event. Assuming the project increases the number of events by 33%, the increase in H_2S emissions due to the project: (0.19)(1.33) = >0.25 lb/day.

[65] The increase in H_2S, assuming that 5% of the VOC emissions are H_2S: (12.50 + 11.16)(0.05)(1.33) = >1.57 lb/day.

[66] DEIR, p. 2-12.

[67] Application for Permit to Construct and Permit to Operate, Form 400 (Aug. 11, 2005), Technical Support Documentation for SCAQMD Air Permit Application Package, Chevron El Segundo Refinery, Heavy Crude Project.

[68] Letter from M.T. Heller, ConocoPhillips, to Gerado Rios, U.S. EPA, Re: Ultra Low Sulfur Diesel Project, PSD Permitting Exemption, Los Angeles Refinery – Wilmington Plant, August 17, 2004, Attached Dresser Rand Performance Date.

[69] DEIR, pp. 2-9, 2-10.

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2-56 (cont.) heavy crude refining will increase emissions from the No. 4 crude unit. These emissions must be analyzed and mitigated in the DEIR as follows:

1. Increase in Combustion Emissions from Increased Firing of Crude Unit Heaters

2-57 The Project would increase the crude feed rate to the No. 4 crude unit from 195 MBD for a typical crude slate to 210 MBD of heavier crude. The unit may be able to run up to 230 MBD on a crude slate tailored to the modified unit.[70] The Project would also increase the vacuum residuum production rate (which is routed to the coker) from 45 MBD to 57 (according to DEIR, p. 2-9) or 58 MBD (according to Chevron documents).[71] The proposed increase in throughput will require an increase in the heating rate of crude oil entering the unit.[72]

2-58 The crude feed is currently heated by two 315 MMBtu/hr heaters (F-1100A, F-1100B). The atmospheric residuum from this first step is next heated by a 219 MMBtu/hr heater (F-1160) and routed to the vacuum distillation unit for further separation. According to the DEIR, the firing rates (and thus the emissions) of these feed heaters will not change "substantially" from current rates because Chevron is proposing modifications to the heat exchangers to increase heat recovery from the vacuum residuum leaving the unit. (DEIR, p. 2-10.) Because the DEIR failed to define how it will gauge "substantially," the District's claim absent definition or substantive analysis is meaningless.

2-59 The meaning of "substantial" should be documented using a heat balance to determine the increase in heat required to distill increased crude throughput. This unsupported claim is likely invalid for the range of operating conditions contemplated. The meeting notes between Chevron and the District state: "there may be an increase in the actual fired duty from the No. 4 Crude Unit and/or coker furnaces."[73] The minutes further state that "[c]hanges in the actual firing rate of the furnace in No. 4 Crude Unit, the Coker and any fired steam boilers need to be analyzed as part of the CEQA process." Despite both entities' recognition that emissions would increase as a result of the Project, the DEIR failed to disclose and analyze the increased furnace emissions.

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[70] Additional Information Request Response No. 3 (Jan. 16, 2006).
[71] Additional Information Request Responses p.4 (Jan. 30, 2006).)
[72] DEIR, p. 2-10.
[73] Notes from Chevron/AQMD Pre Meeting on High sulfur Heavy Crude Project, January 26, 2005.

2-60

The processing of additional amounts of crude (up to 35 MBD) and atmospheric residuum (19 MBD)[74] will require increases in the combustion of fuel to heat the feed, generate electricity, and generate steam. These amounts were calculated from typical utility requirements for atmospheric and vacuum distillation and are summarized in Table 2.

Table 2
Increase in Utilities
No. 4 Crude Unit[75]

	Electric Power (kW)	Fuel (MMBtu/hr)	Steam (lb/hr)
Atmospheric	729	146	36,500
Vacuum	238	79	39,600
Total	967	225	76,100

2-61

However, additional fuel will still be burned to generate electricity and steam even if the modified heat exchangers offset the increase in fuel required to heat up the increased crude throughput. About 1,200 Btu of fuel is required to generate a pound of steam.[76] Thus, 91 MMBtu/hr of fuel would have to be combusted to supply the increase in steam demand required to process increased amounts of crude. The emissions from generating this amount of steam may be as high as those shown in Table 1 for the coker feed heaters. Steam is generated at the refinery in several steam boilers and a cogeneration plant.

2-62

2. Crude Unit Heat Exchangers De-bottleneck Refinery

The proposed modifications to the No. 4 crude unit will increase the throughput of the refinery from 195 MBD up to 230 MBD. According to the DEIR, this increase will not increase the amount of refined products, e.g., gasoline, diesel,

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[74] The increase in throughput of the vacuum distillation unit is calculated from the increase in vacuum residuum as reported in the DEIR and SCAQMD files (58-45=13 MBD), adjusted using the ratio of the input to the vacuum distillation column to residuum from the column, based on the process flow diagram for the No. 4 Crude Unit attached to the 1/16/06 Responses: 13 BPD of vacuum residuum x 3030 gpm/2120 gpm = 18.6 MBD.

[75] Maples 1993, p. 63. The calculations assume the project will increase crude throughput by 35 MBD and atmospheric residuum input to the vacuum distillation column by 19 MPD.

[76] James H. Gary and Glenn E. Handwerk, Petroleum Refining. Technology and Economics, 3rd Ed., Marcel Dekker, Inc., New York, 1994, p. 355.

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2-62 (cont.) jet fuel, because heavy crude produces less light cuts that make up these products than the lighter crudes it currently processes.[77]

2-63 The proposed Project as described in the DEIR does not ***require*** processing of a heavier crude slate; instead, the modified refinery will still be capable of processing the current slate of lighter crudes. If the modified refinery operates on the current slate or a lighter slate, the Project, in essence, de-bottlenecks the entire refinery, increasing the throughput of downstream refining units, including the hydrogen plant, hydrotreaters, the alkylation unit, the fluid catalytic cracker, steam boilers, and sulfur recovery units. Thus, the Project could potentially increase the emissions from every combustion source in the refinery. The DEIR did not disclose this possibility or evaluate its impacts. This failure to disclose alone requires the District to revise and recirculate the EIR.

D. Emissions Increases Due to Increased Throughput of Higher Sulfur Crude

2-64 The Project will increase the feed rate of the No. 4 crude unit from 195 MBD of a typical crude slate up to 230 MBD of heavier crudes, or by 18%. Further, the sulfur content would increase from 2.43% for the existing slate to 2.59%, or by 6.5%.[78] Combined, these two increases in emissions will raise the firing rate and emissions from numerous units downstream of the coker and No. 5 crude unit. Thus, the Project, in addition to increasing the firing rates of heaters and boilers that support the No. 4 crude unit, coker, and No. 5 H_2S plant, which are directly modified, would also increase the firing rates of heaters and boilers that support downstream units, including hydrotreaters and the hydrogen plant.

2-65 The DEIR did not analyze the increase in emissions from increased firing of downstream heaters and boilers. However, the District's air permitting file acknowledges that increases will occur. According to Chevron's responses to the District's information requests, the proposed modifications to the No. 4 Crude Unit will increase the offgases generated by the vacuum column from 500 MSCFD to approximately 900 MSCFD, due to the higher cracking tendency of the Napo crude. This increased amount of offgas would be routed to the amine treating facilities.[79] Further, emissions from processing increased amounts of byproducts downstream of the No. 4 crude unit and coker were not analyzed. The coker produces naphtha and

[77] DEIR, p. 2-9.
[78] First Set of Responses to Additional Information Request, No.3 (emailed Jan. 16, 2006).
[79] Id. at Additional Information Request, No.11.
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2-65 (cont.)

other products that are further refined to produce diesel and gasoline. These are routed to downstream hydrotreaters to remove sulfur.[80] The Project will increase the yield of these coker products by 2-5%.[81]

1. Increase In Emissions From Increased Hydrotreating

2-66

The proposed Project will increase the amount of sulfur that must be removed from the coker and No. 5 crude unit products. This will require increases in hydrotreating, which, in turn, requires increases in heat production, steam production, electricity generation, cooling water, boiler feedwater, sour gas treatment, and sulfur recovery, among other things. The DEIR included the increases in cooling water, sour gas treatment, and sulfur recovery required to support the Project. However, the DEIR did not include the increases in heat production, steam production, and electricity generation. Absent analyses of the latter, the public and decision makers cannot properly evaluate true emissions increases resulting from the proposed Project.

2-67

In hydrotreating, sulfur in the feed reacts with hydrogen in the presence of a catalyst at elevated temperature and pressure. The sulfur is converted to hydrogen sulfide, which is separated from the product in a stripper and recovered in downstream processes. This process requires hydrogen, steam, electricity, and heat. The generation of hydrogen, steam, electricity, and heat requires the combustion of fuels in heaters, boilers, and turbines, which releases NOx, SOx, CO, VOCs, and PM.

The sulfur removed from the feedstock is partitioned into gases and waters. This sulfur is removed in downstream processing units. The sour gas stream is treated in an amine treatment unit to remove and recover H_2S. The H_2S stream from the amine treatment unit is fed to a sulfur recovery unit to recover elemental sulfur or manufacture sulfuric acid. Sour water is treated in a steam stripper. The removal of increased amounts of sulfur in these units requires additional steam, electricity and heat, which requires the combustion of additional fuel and releases more pollutants. See, for example, the EPA's discussion of these consequences of hydrotreating in *Petroleum Refinery Tier 2 BACT Analysis Report*.[82] This report notes: "Increases in hydrotreating, hydrogen production, sour gas treatment, and

[80] First Set of Responses to Additional Information Request, "Coker Overview" (emailed Jan. 16, 2006).
[81] *Id.* at Response No. H.1.
[82] U.S. EPA, Petroleum Refinery Tier 2 BACT Analysis Report, Final Report, Prepared by Eastern Research Group, Inc., January 16, 2001.

2-67 (cont.)

sulfur recovery can result in increases in criteria pollutant emissions at a refinery."[83] The DEIR did not include the increase in emissions that would result from increases in hydrotreating to support the Project. The EIR must calculate and disclose increased emissions from hydrotreating pursuant to the CEQA requirement that the District investigate and evaluate the Project's significant environmental impacts in the full environmental context.[84]

2-68

2. Increase In Emissions From Increased Electricity Generation

The calculations in these comments indicate that proposed modifications to the coker and No. 4 crude unit would require at least 4,662 kW or 111,888 kWh/day of electricity. This means that the proposed Project will require significant additional electricity to support other components of the Project. However, the DEIR does not contain sufficient information to accurately estimate this added electricity. The District's files regarding the Project's air permits identify but fail to quantify some of these, but the files make clear that the proposed Project will increase electrical usage throughout the entire facility:

1. More electricity will be necessary to improve the efficiency of the desalters;[85]

2. More electricity will be required for the increased capacity at the coker compressor, and for the new refrigeration unit;[86]

3. Modifications to the No. 6 H_2S plant will require extra electricity for a new substation to feed the unit, which is "essentially a new grass roots installation;"[87]

4. Additional electricity will be needed to heat crude oil tanks to 130° F because heavier crude requires heating to reduce viscosity;[88]

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[83] *Id.* at p. 2-3 and Table 2-1
[84] CEQA Guidelines § 15125 (a).
[85] DEIR, p. 2-11; Chevron Heavy Crude Project, Team C Meeting, Meeting Slides (October 18, 2005).
[86] DEIR, p. 2-12.
[87] High Sulfur Heavy Crude Project, Preliminary Permitting Meeting with AQMD Staff, January 11, 2005.
[88] Application for Permit to Construct and Permit to Operate, Form 400 (Aug. 11, 2005), Technical Support Documentation for SCAQMD Air Permit Application Package, Chevron El Segundo Refinery, Heavy Crude Project Slides, p. 9.
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2-68 (cont.)

5. Extra electricity will be necessary for the bridge crane to remove coke from the coker pit, and transfer it to the conveyor system; such cranes are typically electrical. Note that the amount of coke produced would increase by 13% (4460/3950).[89] Thus, electricity demand to operate the bridge crane would increase by a corresponding 13%;

6. Additional electricity will be needed to run the new coke handling system, including two new blowers to ventilate the enclosed conveyors;[90] and

7. Additional electricity will be required to process increased amounts of higher sulfur byproducts in refining units downstream from the coker and No. 4 crude unit.

Given significant increases in electricity usage, the above calculation of 4,662 kW for only two of the directly modified units will likely prove to be well under actual future usage.

2-69

This additional electricity could be generated anywhere on the grid. The grid includes many uncontrolled turbines of varying ages fired on a range of fuels. Reported here are emissions for two cases to bracket the likely increase in emissions: (1) an uncontrolled turbine burning natural gas with a heat rate of 12,000 Btu/kW; and, (2) a controlled natural gas fired combined cycle plant with a lifetime average heat rate of 7030 Btu/kWh, and a peak heat rate during duct firing of 9290 Btu/kWh.[91] The controlled case assumes the unit is equipped with an SCR that removes 90% of the NOx and an oxidation catalyst that removes 90% of the CO and 50% of the VOCs. The increase in NOx, PM10, and VOC emissions would be as follows:

[89] DEIR, p. 2-12.
[90] Coke Handling Application, p. 4-2.
[91] Northwest Power Planning Council, Natural Gas Combined-cycle Gas Turbine Power Plants, August 8, 2002. http://www.westgov.org/wieb/electric/Transmission%20Protocol/SSG-WI/pnw_5pp_02.pdf, Emissions were estimated using emission factors from EPA's *Compilation of Air Pollutant Emission Factors* ("AP-42" U.S. EPA) (April 2000), Table 3.1-2a and Table 3.1-2b.
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2-69 (cont.)

(1) Uncontrolled natural-gas fired turbines:

NOx:
55.9 MMBtu/hr× 3.2×10^{-1} lb NOx/MMBtu = 17.9 lb NOx/hr or 429.3 lb NOx/day

PM10:
55.9 MMBtu/hr × 6.6×10^{-3} lb PM10/MMBtu = 0.37 lb PM10/hr or 8.9 lb PM10/day

VOC:
55.9 MMBtu/hr × 2.1×10^{-3} lb VOC/MMBtu = 0.11 lb VOC/hr or 2.8 lb VOC/day

CO:
55.9 MMBtu/hr × 8.2×10^{-2} lb CO/MMBtu = 4.6 lb CO/hr or 110 lb CO/hr

(2) Controlled natural-gas fired turbines (based on peak day):

NOx:
43.3 MMBtu/hr×3.2×10^{-1} lb NOx/MMBtux0.1 = 1.4 lb NOx/hr or 33.3 lb NOx/day

PM10:
43.3 MMBtu/hr×6.6×10^{-3} lb PM10/MMBtu = 0.29 lb PM10/hr or 6.9 lb PM10/day

ROG:
43.3 MMBtu/hr×2.1×10^{-3} lb VOC/MMBtux0.5= 0.05 lb VOC/hr or 1.1 lb VOC/day

CO:
43.3 MMBtu/hr×8.2×10^{-2} lb ROG/MMBtux0.1= 0.36 lb CO/hr or 8.5 lb CO/day

2-70

These calculations indicate that NOx emissions alone could be substantially higher than the District's significance threshold of 55 lb/day, depending upon the source of the electricity. The emissions of the other criteria pollutants do not individually exceed significance thresholds. However, when added to other emission increases, they exceed the SCAQMD's CEQA significance thresholds. Further, these emissions are cumulatively significant, requiring full air quality mitigation measures.

2-71

E. Annual v. Daily Emissions

The DEIR omitted several key sources of Project emissions from Table 4.1-7 apparently because the District was working under the assumption that the maximum daily emissions would not increase above peak levels achieved at undisclosed periods in the past. The DEIR should evaluate not only daily emissions but also annual emissions.

2-72

1. Sulfur Export

The DEIR is also legally inadequate because the District omitted any analyses covering increased emissions from sulfur trucks (e.g., omitted from the DEIR's Table 4.1-7 at p. 4-20). According to the District, it omitted such analysis in the DEIR for two reasons.

First, the District contends that the Project "is not expected to alter market demand for elemental sulfur on a daily basis . . . [t]herefore, the proposed project is not anticipated to change the maximum daily number of trips to export sulfur from the refinery."[92] However, this approach ignores the fact that market demand does not dictate emission increases. It is undisputed that the Project will increase sulfur production by 19 tons per day.[93] This additional sulfur will be exported contemporaneously, stored and then shipped, or disposed of. Regardless, it must be exported from the refinery, thus generating combustion emissions from the trucks, trains, or ships that transport it.

2-73

Second, the District contends that the peak daily sulfur production by the sulfur recovery unit is "not anticipated to increase beyond the maximum allowable daily sulfur production achieved in the past (baseline), because the sulfur recovery units have operated at their maximum daily capacity on several occasions during the past two years."[94] This reasoning is flawed because currently the sulfur recovery units cannot routinely operate at these peak levels because they are constrained by the ability of the upstream H_2S plants. This Project will debottleneck these units, and, as a result of this Project, the refinery will produce more sulfur on more days than under present operations. Accordingly, the District is required to evaluate the emission increases from sulfur export in the DEIR.

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[92] DEIR, p. 4-16.
[93] DEIR, p. 4-15.
[94] DEIR, p. 4-15.
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2-74

The increase in SO_2 emissions, although omitted from the DEIR's analysis, can be estimated. The increase in SO_2 emissions is proportional to the increase in sulfur production, which the District underestimated. The District estimated the Project would result in an average increase in sulfur production of 19 tons per day.[95] However, other information suggests the increase would be much greater. For example, the DEIR states the increase in sulfur production will require an average of two additional truck trips per day.[96] A truck holds about 26 tons of material. The increase in emissions from two sulfur trucks can be estimated using the same emission factors as used in the DEIR for coke trucks.[97] The increase in emissions from this one additional truck would be:

- CO: 0.48 lb/day
- VOC 0.12 lb/day
- NOx 3.2 lb/days
- SOx 0.04 lb/day
- PM10 0.14 lb/day

These emissions do not individually exceed significance thresholds. However, when added to other emission increases, they exceed the SCAQMD's CEQA significance thresholds. Further, they are cumulatively significant, requiring project mitigation. The District's EIR is legally inadequate until it includes a full cumulative impact analyses for sulfur exports.

2. Tanker Cruising and Hotelling

2-75

According to the DEIR, the Project will use marine tankers to import heavy crude that are smaller than those currently employed. Use of smaller tankers will result in approximately 15 additional ship calls per year. The District calculated the resulting emissions increase in terms of emissions from these 15 ships calls (DEIR, p. B.2-28), but the District failed to incorporate and evaluate the significance of these additional emissions in Table 4.1-7 (DEIR, p. 4-20), or anywhere else in the DEIR. Instead, the District adopts faulty reasoning that

[95] DEIR, p. 4-15.
[96] DEIR, p. 1-6.
[97] Id. at pp. B.2-30 to 32.
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2-75 (cont.) acknowledges an increase in annual emissions, but rejects an increase in daily emissions because the El Segundo Marine Terminal ("ESMT") only has two berths. Accordingly, the District contends that crude offloading will require more than 24 hours, thus only two tankers can be emptied at once, and presently, two vessels have occupied both berths at the same time.[98] There are at least two flaws in this argument.

2-76 First, the two-berth argument only applies to hotelling emissions, i.e., the emissions that occur while the ship is docked. The major sources of tanker emissions come from ships traveling along the California coast, and waiting offshore to dock. These emissions are unrelated to Chevron's two berths at ESMT. The Project will increase the cruising and queuing emissions from 15 ships on days when these ships call. Thus, cruising and queuing emissions should be evaluated in the DEIR's daily inventory.

2-77 Note that it is difficult for the public to comment on this point because the District included the cruising emissions in Appendix B of the DEIR, but failed to include any information in the DEIR's text. (DEIR App. B, p. B.2-28.) The ship traveling emissions alone exceed the daily significance threshold for every single criteria pollutant by a large margin.[99] Thus, the increase in tanker emissions alone is a significant impact that was not disclosed in the DEIR.

Second, the Project will increase the number of days that both berths will be occupied, thereby increasing annual emissions. The DEIR should have evaluated these increases in annual emissions. Absent such evaluations, the DEIR is not legally adequate.

2-78 **3. Increased Emissions From Increased Utility Demand**

The Project modifies the No. 4 crude unit, the coker, the No. 6 H_2S plant, and the coke handling system. These modifications will require increases in heat, steam, electricity, and other utilities. Providing the increases in utilities would increase emissions from heaters, boilers, and turbines.

2-79 The District refused to evaluate these increases on grounds that they fall within the current permitted capacity of the units, and further, the higher

[98] DEIR, p. 4-19.
[99] *Id.*
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2-79 (cont.) emissions have been reached in the past.[100] The problem here is the District employed the wrong baseline for CEQA analysis. Similarly, even if the peak daily emissions did not increase, the numbers of days that the affected utilities will operate at the higher levels will, which in turn results in an increase in annual emissions. The District was required to evaluate these increases in annual emissions.

2-80

4. Increased Emissions From Sulfur Recovery Units

The Project will increase the amount of sulfur entering the refinery due to an increase in the amount of crude processed and the amount of sulfur in the heavy crude. The Project captures approximately 99.9% of this sulfur by concentrating it into the acid gas stream in the H2S unit, and then converting the acid gas into elemental sulfur in the sulfur recovery units. The H_2S-rich acid gas stream is burned with approximately one-third the stoichiometric quantity of air, and the hot gases are passed over a catalyst to produce free sulfur. This process produces a gas stream that is vented to the atmosphere and contains SO_2.[101]

2-81

The increase in SO_2 emissions is proportional to the increase in sulfur production, which the District underestimated. The District estimated the Project would result in an average increase in sulfur production of 19 tons per day.[102] However, other information suggests the increase would be much greater. For example, the DEIR states the increase in sulfur production will require an average of two additional truck trips per day.[103] A truck holds about 26 tons of material. Thus, the trip estimate suggests an increase of about 52 tons per day.

2-82

Also, the sulfur content of the heavier crude would increase from 2.43% for the existing slate to 2.59%, or by 6.5%, and the crude throughput would increase from 195 MBD of a typical crude slate up to 230 MBD of heavier crudes, or by 18%.[104] As a result, the amount of sulfur produced would increase by 26%.[105] Since the current sulfur production capacity is reported as 448 tons per day,[106] the facility's sulfur production could increase approximately 116 tons per day.

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[100] DEIR, pp. 2-12, 2-13, 4-13, 4-15.
[101] DEIR, p. 4-15.
[102] DEIR, p. 4-15.
[103] DEIR, p. 1-6.
[104] First Set of Responses to Additional Information Request, General Request No. 4 (emailed Jan. 16, 2006).
[105] Increase in sulfur entering refinery: (230 MBD)(2.59%)/(195 MBD)(2.43%) = 1.257
[106] Oil & Gas Journal, December 22, 2003, p. 32
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2-83

This increase in sulfur production will likely increase the SO_2 emissions from the sulfur recovery units, but the DEIR emission inventory omits discussion of SO_2 increases.[107] This is particularly curious given that the administrative draft did include these emissions at 22.9 pounds per day.[108]

The DEIR omitted this increase in SO_2 emissions because "the peak daily sulfur production by the Sulfur Recovery Units is not anticipated to increase beyond the maximum allowable daily sulfur production achieved in the past (baseline), because the Sulfur Recovery Units have operated at their maximum daily capacity on several occasions during the past two years."[109] The District goes on to assume that daily emissions will not increase beyond the current permitted peak levels allowed by Chevron's current permit and will not exceed any past emission levels. This reasoning is flawed, as discussed above for other processes.

2-84

First, this argument ignores the fact that the sulfur recovery units cannot currently operate on a routine basis at the increased production levels due to physical constraints. Second, the District's assumptions ignore the fact that the Project will allow the peak daily conditions to occur on many more days, up to every operational day. Third, the District's assumptions are flawed because they ignore annual impacts. Fourth, the DEIR omitted any information about the so-called "several occasions" in which these peak levels were reached in the past. Thus, the DEIR has failed to meet its burden to disclose pertinent information to facilitate informed decision-making. Instead, the DEIR takes the approach of analyzing the increase in PM10 emissions from sulfur trucks in the diesel exhaust risk assessment.[110]

2-85

F. Emission Sources Were Omitted

The District failed to analyze increased emissions from other facility sources that will occur as a result of the Project as follow:

1. Coke and Sulfur Truck Loading PM/PM10

The Project will produce increased amounts of sulfur and coke, materials that will be loaded into trucks and hauled offsite. The act of dumping these solid

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[107] DEIR, Table 4.1-7.
[108] District Memorandum from Pang Mueller to Susan Nakamura, Attachment C, Table 4.1-5 (March 17, 2006).
[109] DEIR, p. 4-15.
[110] DEIR, p. 4-28.
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2-85 (cont.) materials into trucks (drop emissions) will increase PM10 emissions. In order to comply with CEQA, the District must evaluate drop emissions.

2-86

2. Coke Handling

The Project includes installation of a second crusher of roughly the same capacity as the existing crusher. (DEIR, p. 2-13.) This effectively debottlenecks the system, doubling the amount of coke that can be handled at the facility. According to the DEIR, Chevron intends to operate just one crusher at a time.[111] Because the number of crushers operating at any one time directly affects air quality, the District must make this a Project condition. Also, the facility's coke handling capacity should be included in the DEIR's emission inventory.

2-87

3. Increased Flaring

Although not discussed in the DEIR's emission inventory, the District's staff notes show that the Project will involve modification of two flaring systems.[112]

The Project will connect pressure relief valves on the new diethanoloamine ("DEA") regenerator to the low sulfur fuel oil ("LSFO") emergency relief system flare to handle acid gas flaring from modifications.[113] This will increase the frequency and amount of acid gases released to the flare. Chevron's air permit application to the District indicates that a caustic scrubber will be added as a control device,[114] but the DEIR does not disclose this fact or evaluate its impacts. These two changes, connecting relief values to the flare and the scrubber are not described in the DEIR, and render the document legally inadequate.

2-88

According to Chevron, there will be no measurable increase in relief load from the No. 6 H_2S plant when the relief scrubber is in operation.[115] Chevron also presents emission estimates that indicate the scrubber will remove 100% of the sulfur compounds, leaving only 65 pounds per hour of VOC.[116] The DEIR does not analyze any increase in VOC emissions from increased flaring. Further, we have found no data indicating the conditions under which the relief scrubber would *not* be employed, the frequency of these events, and the emission levels during these

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[111] *Id.*
[112] District Memorandum from Pang Mueller to Susan Nakamura, p. 1 (March 17, 2006); DEIR, p. 2-15.
[113] DEIR, p. 2-15; District Memorandum from Pang Mueller to Susan Nakamura, Att.. B, p. 2-14; First Set of Responses to Additional Information Request (emailed Jan. 16, 2006).
[114] E-mail Charlie Aarni, Chevron, to Bob Sanford, SCAQMD, Re: Additional information request for No. 6 H2S plant permit applications, January 16, 2006 (1/16/06 Aarni E-mail #1).
[115] *Id.*
[116] *Id.*
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2-88 (cont.)

periods. Because the scrubber is used only in emergencies, it is likely that it is not normally operating and that it would have to be started up to respond to a release. Untreated acid gases could be flared during this startup time. The H_2S and SO_2 emissions during even a short period of acid gas flaring, which contains over 90% H_2S, could be quite high, causing nuisance odors and acute health impacts. These impacts were not disclosed in the DEIR.

2-89

4. The DEIR Omits Shipping Emissions

The Project will increase the amount of crude oil that is imported to the refinery, and change the type of tankers used to import it. The DEIR calculated the increase in cruising, tug boat maneuvering, and hotelling emissions from these changes.[117] But, the Project will also increase shipping emissions from two additional sources:

a. The Project Will Increase Queuing Emissions from Heavy Crude Ships

Chevron imports and stores heavy crude from different sources simultaneously. Due to differences in properties, various crudes must be stored separately. Currently, when refinery storage is at capacity, marine tankers must occasionally wait offshore or in the Port of Los Angeles before offloading at the ESMT. Because the Project would reduce the various types of heavy crude that Chevron can simultaneously store, queuing time will increase.[118] The DEIR did not include these queuing emissions in its emission inventory (Table 4.1-7) and did not evaluate the resulting air quality impacts. Shipping emissions from cruising, maneuvering, and hotelling are significant in themselves; such queuing emissions will further drive shipping emissions above the CEQA significance thresholds. The proper CEQA analysis requires the District to disclose the increase in the queuing time, any associated increase in emissions as result of increased queuing and any resulting violations of ambient air quality as a result of these increases. The DEIR should be revised to include these emissions and discuss and analyze a Project alternative that would increase heavy crude storage capacity.

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[117] DEIR, pp. 4-16 - 4-18, B.2-28.
[118] DEIR, p. 1-17.
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2-90

b. Increase in Ship Call to Handle Increase in Coke

As discussed above, the Project will increase the amount of coke exported from the refinery and, according to the DEIR, will be exported through the Port of Los Angeles or the Port of Long Beach. (DEIR, p. 4-16.) An increase in coke exports will increase the number of ship calls per year. The DEIR did not disclose, analyze or mitigate for the emission increases that will correspond to the additional ship calls resulting from heightened coke production. The proper CEQA analysis requires the District to disclose the increase in the ship calls due to coke exports, any associated increase in emissions as result of increased coke exports and any resulting violations of ambient air quality as a result of these increases.

2-91

G. Revised Emissions

The foregoing sections identified a number of emissions sources that were either underestimated or omitted from the DEIR. We have quantified the missing emission sources where feasible, using information from the District's air permitting files and other District documents. The emission sources omitted from the DEIR increase the emissions of all criteria pollutants above the District's CEQA significance thresholds, as summarized in Table 4.

Table 4
Emissions
(lb/day)

Source	CO	VOC	NOx	SO2	PM10
DEIR, Table 4.1-7	4.7	45.7	31.1	0.3	129.5
Coker Heaters	1013	16	37	39	24
Coke Drum Depressurization		+			>15
Electricity Generation	>8.5	>1.1	>33.3	+	>6.9
Sulfur Trucks	0.5	0.1	3.2	0.04	0.1
Ships Cruising	679.5	388.8	6119.7	4118.6	751.2
Ships Hotelling	101.3	135.4	770.2	548.4	65.5
TOTAL	**>1808**	**>2485**	**>6994**	**4706**	**>992**
Significance Threshold	550	55	55	150	150

This table shows that emissions of CO, VOC, NOx, SO_2, and PM10 greatly exceed the District's CEQA significance thresholds. The emissions from shipping

2-91 (cont.) alone exceed the significance thresholds for all pollutants, and the emissions of CO from increased firing of the coker heaters exceed the CO significance threshold alone. These are new, highly significant impacts that were not disclosed in the DEIR but which must be analyzed and mitigated in order for the DEIR to comply with CEQA.

2-92 In addition to these five pollutants, it is likely that the increase in H_2S emissions from the Project would exceed the prevention of significant deterioration ("PSD") significance threshold under the Clean Air Act. The DEIR must be revised to include a complete tabulation of H_2S emissions.

2-93 ## III. MITIGATION

The Project will result in significant construction and operational air quality impacts. Despite this the District failed to mitigate such impacts.

2-94 ### A. The District Failed to Require All Feasible Mitigation For Construction Impacts

1. The Draft EIR's Construction Mitigation Measures Are Inadequate

A lead agency may not find that an impact is significant and unavoidable without first imposing all feasible mitigation measures available to reduce the significant impact.[119] The DEIR's mitigation measures show that the District failed to require all feasible mitigation to reduce the significant impacts from Project construction on air quality, as required by CEQA. A number of additional and/or more stringent mitigation measures exist, have been required for other projects as CEQA mitigation, and should be required for construction of this Project to further reduce the significant CO, VOC, and NOx emissions.

2-95 #### a. Tier 1 California Emission Standards for Construction Equipment that Have a Rating of 100 hp or More Is Not Stringent Enough

The Draft EIR requires that "[a]ll construction equipment diesel engines that have a rating of 100 hp or more shall meet, at a minimum, Tier 1 California

[119] CEQA Guidelines §§ 15126.4, 15091.

2-95 (cont.) Emission Standards for Off-Road Compression-Ignition Engines as specified in the California Code of Regulations, Title 13, § 2423(b)(1) unless such engine is not available for a particular item of equipment."[120] Not only is this mitigation measure too weak, but its ambiguous wording renders it unenforceable. For example, the California off-road diesel emissions standards cover all equipment regardless of its horsepower. Therefore, the requirement to meet those standards should be extended to include all construction equipment, regardless of its horsepower rating.

2-96 Also, requiring just Tier 1 California off-road diesel emission standards is not stringent enough. Tier 1 standards for new off-road diesel engines for new engines were phased in from 1996 to 2000. The more stringent Tier 2 standards took effect for new equipment from 2001 through 2006. Tier 2-compliant construction equipment is available in the construction fleet[121] and has been required elsewhere to mitigate significant impacts from construction. The DEIR for the Los Angeles Police Headquarters Facility Plan ("PHFP"), for example, requires that "[a]ll heavy construction equipment engines [] use cooled exhaust gas recirculation or [] be Tier II compliant, as feasible."[122] Thus, the DEIR should be revised to require at least a certain percentage of Tier 2-compliant equipment for Project construction to reduce the significant construction emissions, particularly NOx emissions. For example, the District could require that the construction equipment achieve a Project-wide fleet average of 20% nitrogen oxide reduction and 45% particulate reduction compared to the most recent CARB fleet average at time of construction.

2-97

b. Requiring Catalyzed Diesel Particulate Filters on Non-Tier 1 Engines Is Not Adequate Mitigation

In the event a Tier 1 engine is not available for any off-road engine larger than 100 hp, the DEIR requires that the engine be equipped with a catalyzed diesel particulate filter ("catalyzed DPF") "unless the use of such devices is not practical for such engine types." The District considers the use of such a device "not practical" if a) there is no available soot filter that has been certified by either

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[120] Draft EIR, AQ-2, p. 4-23.
[121] Nationally, approximately 36% of construction equipment met the U.S. Environmental Protection Agency's Tier 1 level and roughly 28% of equipment met the Tier 2 levels in 2005. (Mid-Ohio Regional Planning Commission, Quick Facts about the Construction Industry, August 29, 2005.) The U.S. EPA and CARB Tier 1 and Tier 2 emission reduction levels are essentially the same.
[122] PHFP DEIR, p. 1-5; City of Los Angeles, Police Headquarters Facility Plan, Final Environmental Impact Report, SCH #2005021055, February 2006.

2-97 (cont.) CARB or the EPA for the engine in question, or b) if the construction equipment is intended to be on-site for ten days or less. This mitigation measure is both ineffective and inadequate.

2-98 First, there is no reason why the use of catalyzed DPFs should not be required for equipment that would be on site for ten days or less. It is often precisely that type of equipment that generates the largest emissions, *e.g.*, cranes, graders, large backhoes or loaders that are used only during certain phases of a project such as grading or excavating. Therefore, the use of control equipment should be required for all engines regardless of the time period the equipment would be used on site.

2-99 Second, classifying catalyzed DPFs that have not been CARB or EPA verified[123] as "non-practical," unduly restricts the use of such devices and renders this mitigation measure meaningless. Certification is a very expensive, complex, and time-consuming process. Many vendors have simply opted not to pursue it or are currently in the process of certifying their equipment. The absence of certification should not per se eliminate a control from consideration.

2-100 Further, this requirement essentially assures that no DPFs will be used. At present, the only diesel particulate filter verified by CARB for off-road equipment is Lubrizol's Engine Control Systems Unikat Combifilter.[124] This filter is: a) not catalyzed and b) cannot be used on engines operated on alternative diesel fuels such as PuriNOx, whose use is required by the DEIR's mitigation measure AQ-1.[125] Caterpillar manufactures the only DPF verified by the EPA for off-road applications. This technology is only approved for non-EGR (exhaust gas recirculation) equipped, 4-cycle, turbo-charged 1996 through 2005 engines with 174 to 302 hp and can only be operated on fuels with a sulfur content of no more than 30 ppm.[126] PuriNOx, required by the DEIR's mitigation measure AQ-1, contains 75% No. 2 diesel fuel, *i.e.* so-called low sulfur fuel with a maximum sulfur content of 500

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[123] CARB has several programs relating to the sale, use, or modification of emission control systems. Certification requires that new motor vehicles and engines be certified by CARB for emission compliance before they are legal for sale, use, or registration in California. The verification procedure involves the evaluation of PM emission reduction capabilities and durability of a variety of diesel emission control strategies as part of a retrofit in-use program. *See* http://www.arb.ca.gov/diesel/verdev/home/background.htm, last accessed May 24, 2006.

[124] California Air Resources Board, Currently Verified Technologies; http://www.arb.ca.gov/diesel/verdev/verifiedtechnologies/cvt.htm, last accessed May 24, 2006.

[125] California Air Resources Board, Executive Order DE-04-012, December 13, 2004; http://www.arb.ca.gov/diesel/verdev/ltrs/eo_de04012.pdf, last accessed May 24, 2006.

[126] Merrylin Zaw-Mon, United States Environmental Protection Agency, Letter to William Passie, Caterpillar, Inc., June 17, 2005; http://www.epa.gov/otaq/retrofit/documents/verif-letter-cat2.pdf, last accessed May 24, 2006.

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2-100 (cont.) ppm, which is prohibited for use with the Caterpillar DPF. In sum, there are no catalyzed DPFs available that are verified by either CARB or EPA. Thus, this mitigation measure is meaningless as written.

2-101 However, diesel particulate filters are highly effective in removing particulate matter[127]—whether they are verified by CARB and EPA or not—and should therefore be required for all construction equipment in addition to other control technologies. In the past 20 years, over 20,000 DPFs have been installed on off-road equipment. For example, the PHFP DEIR requires the use of DPFs for all heavy construction equipment in addition to cooled exhaust gas recirculation, Tier-2 compliance or NOx catalysts.[128]

2-102

2. Additional Feasible Construction Mitigation Measures Exist and Should Be Required for the Project

Additional mitigation measures beyond those required by the Draft EIR exist. For example, diesel oxidation catalysts ("DOCs"), selective catalytic reduction ("SCR"), lean NOx catalysts ("LNC"), and exhaust gas recirculation ("EGR") have been successfully retrofitted on off-road vehicles, and these technologies offer opportunities to greatly reduce PM10, CO, VOC, and NOx emissions. Also, many projects have demonstrated the feasibility of installing verified on-road technologies on construction equipment. These technologies have been required as mitigation measures for other projects and should be required for this Project to reduce its significant CO, VOC, and NOx emissions from construction.

2-103

a. Diesel Oxidation Catalysts

Diesel oxidation catalysts installed on engines burning 500 ppm or less sulfur fuel have achieved total particulate matter reductions of 20% to 50%, VOC reductions of 60% to 90% (including those hydrocarbon species considered toxic), and significant reductions of CO[129], smoke, and odor.[130] Diesel oxidation catalysts

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[127] *See*, for example, results from the joint demonstration projects for diesel particulate filter technologies on existing off-road heavy-duty construction equipment conducted by the SCAQMD and CARB.
[128] PHFP Draft EIR, p. 1-5.
[129] Diesel Technology Forum, Retrofit; http://www.dieselforum.org/retrofit-tool-kit-homepage/what-is-retrofit/retrofit/, last accessed May 30, 2006.
[130] Manufacturers of Emission Controls Association, Case Studies of Construction Equipment, Diesel Retrofit Projects, p.2, March 2006; http://www.meca.org.
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2-103 (cont.) can be used in conjunction with EGR to simultaneously reduce diesel particulate and NOx emissions.[131]

2-104 Retrofitting diesel engines with DOCs has been taking place for well over twenty years in the off-road vehicle sector, including the construction fleet. For example, the I-95 New Haven Harbor Crossing Corridor Improvement Program in New Haven, CT (Connecticut Q-Bridge) project has successfully installed DOCs on approximately 70 pieces of construction equipment as part of Connecticut's Clean Air Construction Initiative.[132] The City of Houston Fleet Retrofit project retrofitted about 30 to 40 off-road engines such as backhoes and water pumps with DOCs.[133]

2-105

b. Selective Catalytic Reduction

Selective catalytic reduction, using urea as a reducing agent, can reduce NOx emissions from 75% to 90% while simultaneously reducing VOC emissions by up to 80% and PM emissions by 20% to 30%. SCR systems can be used in conjunction with DPFs and DOCs and have been successfully demonstrated on off-road vehicles.[134] For example, the City of Houston Diesel Field Demonstration Project has demonstrated an 84% reduction of NOx emissions by using a DPF/SCR combination on a 1992 MY Cummins Gradall G3WD (5.9L 190 hp). As a result of this field demonstration program, the City of Houston retrofitted 33 rubber tire excavators and a dump truck with SCR systems.

2-106

c. Lean NOx Catalysts

Lean NOx catalyst technology can achieve a 10% to 40% reduction in NOx emissions. LNC technology does not require any core engine modifications and can be used to retrofit older engines. This retrofit technology can be combined with DPFs or DOCs to provide both NOx and PM10 reductions. An LNC added to an exhaust system using a DPF can reduce NOx emissions from 10% to 25%.[135] Lean NOx catalyst technology has been demonstrated and commercialized for a variety of off-road retrofit applications, including heavy-duty earthmoving equipment.[136]

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[131] *Id.* p. 28.
[132] *Id.* p. 3.
[133] *Id.*
[134] Manufacturers of Emission Controls Association, Retrofitting Emission Controls On Diesel-Powered Vehicles, pp. 2-3, April 2006; MECA, pp. 12,17 March 2006.
[135] MECA, p. 14 (March 2006).
[136] *Id.* p. 19.
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2-107

d. Exhaust Gas Recirculation

Exhaust gas recirculation reduces NO_x by reducing the temperature at which fuel burns in the combustion chamber. Engines employing EGR recycle a portion of engine exhaust back to the engine air intake. The oxygen-depleted exhaust gas is mixed into the fresh air that enters the combustion chamber, which dilutes the oxygen content of the air in the combustion chamber. This reduction in oxygen reduces the engine burn temperature, and hence reduces NOx emissions.[137] In some cases, EGR can be used in conjunction with DPFs.[138] Engine retrofits with low pressure EGR in conjunction with a DPF can achieve NOx reductions of over 40% and PM reductions of more than 90% and have been successfully demonstrated on off-road equipment.[139]

2-108

e. Other Measures

Other mitigation measures that are feasible and have been required for other projects include:

- Use alternative fueled equipment, *e.g.*, propane, where available;
- Limit engine idling to three minutes for delivery trucks and dump trucks;
- Suspend construction activities during Stage II smog alerts;
- Purchase offsets;
- Employ a construction site manager to verify that engines are properly maintained and maintains a log.

2-109

3. The DEIR's Proposed Mitigation Measures Are Not Enforceable

A number of mitigation measures in the DEIR contain language that renders them unenforceable as a practical matter. Most of the DEIR's mitigation measures rely on the "availability" or "feasibility" of certain conditions; others fail to identify any supervision and/or independent control of the construction activities. The DEIR's mitigation measures should be revised to specify unambiguous controls and

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[137] Diesel Technology Forum, Retrofit; http://www.dieselforum.org/retrofit-tool-kit-homepage/what-is-retrofit/retrofit/, last accessed May 30, 2006.
[138] MECA, p. 7 (April 2006).
[139] *Id.* p. 14.
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2-109 (cont.) supervision and clearly spell out the conditions of "availability" or "feasibility." CEQA requires mitigation measures to be both feasible and enforceable.[140]

2-110 The California Energy Commission, which follows a CEQA-equivalent process for the certification of power plants over 50 MW in size, frequently contains detailed language to ensure enforceability of the stipulated control measures. For example, the mitigation program for the Three Mountain Power Plant Project specifies the following for determining the suitability of oxidizing soot filters on construction equipment:

> "Suitability is to be determined by an independent California Licensed Mechanical Engineer, in consultation with the Air Resources Board (ARB), who will stamp and submit for approval an initial and all subsequent Suitability Reports. Where the oxidizing soot filter is determined to be unsuitable, the owner shall install and use an oxidation catalyst. [] The initial Suitability Report shall contain, at a minimum, the following:
>
> - A list of all fuel burning, construction related equipment used;
> - A determination of the suitability of each piece of equipment to firstly work appropriately with an oxidizing soot filter;
> - A determination of the suitability of each piece of equipment to secondarily work appropriately with an oxidation catalyst;
> - If a piece of equipment is determined to be suitable for an oxidizing soot filter;
> - If a piece of equipment is determined to be unsuitable for an oxidizing soot filter, an explanation by the independent California Licensed Mechanical Engineer as to the cause of this determination;
> - If a piece of equipment is determined to be unsuitable for an oxidizing soot filter, but suitable for an oxidation catalyst;
> - If a piece of equipment is determined to be unsuitable for both an oxidizing soot filter and an oxidizing catalyst, an explanation by the independent California Licensed Mechanical Engineer as to the cause of this determination;
> - Following the installation of either the oxidizing soot filter or oxidizing catalyst as prescribed in the Initial Suitability Report, a California Licensed Mechanical Engineer will issue an Installation Report that

[140] *Napa Citizens for Honest Govt. v. Napa Bd. Of Supervisors* (2001) 91 Cal.App.4th 342, 360.

2-110 (cont.)

either confirms that the installed device is functioning properly or that installation was not possible and the cause.

The mitigation program further specifies the conditions for subsequent determination of unsuitability of such devices and requires that the project owner submit to the construction project manager and CARB for approval the initial and subsequent suitability reports stamped by an independent licensed professional within a certain timeframe.[141]

2-111

The DEIR must include similar language for its mitigation measures to ensure that such measures are fully and successfully implemented. As it stands, the DEIR is legally deficient because the District failed to require feasible measures to mitigate air quality impacts during Project construction and, similarly, the measures it did include are vague and unenforceable. The District must revise the EIR and recirculate it for public comment.

2-112

B. The District Failed to Require Measures to Mitigate Operational Impacts

According to the DEIR, project operations will not cause significant adverse air quality impacts, so operational mitigation measures were not required.[142] Documents in the Districts air permitting file for the Project indicate that BACT will be required for some of the sources modified by the Project. The DEIR did not disclose the BACT technologies, require the use of these technologies, or evaluate the environmental impacts associated with these control technologies themselves. This omission must be corrected in a revised and recirculated EIR.

2-113

1. Coke Drum Venting

The DEIR indicates that the Project requires BACT for coke drum depressurization for PM10 and VOCs.[143] The DEIR is silent on BACT controls for this process. The District also asserts that the "BACT issue" for coke drum venting is being worked on in a District rulemaking,[144] but there is no indication of this

[141] California Energy Commission, Three Mountain Power Plant Project, Application for Certification, Docket No. 99-AFC-2, Presiding Member's Proposed Decision, P 800-01-012, April 2001; http://www.energy.ca.gov/sitingcases/threemountain/documents/3_MOUNTAIN_PPMD.PDF, last accessed May 25, 2006.
[142] DEIR, p. 4-37.
[143] DEIR, Table 4.1-7.
[144] E-mail from Charlie Aarni, Regulatory Agency Liaison Health, Environment and Safety, Chevron, to Bob Sanford, SCAQMD, Re: Preliminary response to additional information request, March 15, 2006.

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2-113 (cont.) elsewhere. In any case, the DEIR was published without addressing this issue even though the Project files indicate that potential controls were discussed between Chevron and the District.

2-114 For example, in its responses to the District's requests for information, Chevron asserts that because vent emissions are 99% steam, employing filter type controls is not viable in a moist environment. Elsewhere in the record, in response to the District's requests for additional information regarding whether a baghouse would work in a highly humid environment in the coke handling facility, the same Chevron employee states "[t]he facility has planned for high humidity and does not expect it to adversely impact baghouse operation. The facility has chosen an artificial fiber, similar to Goretex, that does well in a humid environment and won't eventually rot as a natural fiber such as cotton can."[145]

2-115 Both the District and Chevron must be aware of several widely used options employed in other industries to control PM emissions in humid environments. These include a wet electrostatic precipitator, condensing the steam and recovering it as blowdown, venting to a closed relief system, such as the LSFO relief system which recovers vapors and returns them to the amine treating plants for sulfur removal, gravel bed filters, and wet scrubbers. The DEIR must be revised to identify and evaluate BACT level controls for coke drum venting including the types described here.

2-116 **2. Coker Relief System**

The DEIR indicates that the coker relief system does not have a vapor recovery system. All of the pressure relief devices are vented directly to the coker flare.[146] The increase in VOC emissions from the coker depressurization triggers BACT. The refinery should install a vapor recovery system to satisfy BACT.

2-117 **3. Controls For Fired Sources**

As discussed above, the Project would require increased firing of existing heaters and boilers. These increases must be mitigated and the secondary impacts of such mitigation disclosed in the DEIR.

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[145] E-mail from Charlie Aarni, Chevron, to Bob Sanford, SCAQMD, Re: Preliminary response to additional information request, March 14, 2006.
[146] Additional Information Request Response No. 11 (Jan. 16, 2006).
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2-118 In order for Chevron to mitigate increased CO and VOC emissions from fired sources, it will be required to install oxidation catalysts. These catalysts could potentially increase PM10 emissions from oxidation of SO_2 to SO_3, thus requiring emission offsets from these pollutants.

2-119 **a. The Project Will Increase Ammonia Usage**

It appears that NOx emissions from many facility units are already controlled using selective catalytic reduction ("SCR"). If this is not the case, then an SCR is required. An SCR injects ammonia into the gas stream. Some of this ammonia slips through the catalyst and is emitted to the atmosphere. The increased firing of heaters and boilers will require the use of increased amounts of ammonia, which in turn lead to two potential impacts omitted from the DEIR.

2-120 First, ammonia is a PM10 precursor, which is regulated. The increase in PM10 emissions from increased ammonia slip should be mitigated by purchasing PM10 offsets or by using a post-SCR catalyst to remove the ammonia. In any event, the District must consider the environmental impacts of secondary PM emissions. The South Coast Air Basin is in severe nonattainment for PM10 and PM2.5. Thus, the emission of even minor amounts of precursor PM emissions must be considered significant in light of the serious nature of the PM10 and PM2.5 problems in the South Coast Air Basin.[147] Thus the EIR must be revised to evaluate the secondary PM10 and PM2.5 emissions from the Project.

2-121 Second, the increase in ammonia demand will increase the amount of ammonia transported to and stored at the refinery. This would increase the risk of accidents during ammonia transport, unloading and storage. These impacts are normally significant and must be disclosed, evaluated and mitigated in a revised EIR.

2-122 **IV. HYDROGEN SULFIDE IMPACTS ARE SIGNIFICANT**

A. Odor Impacts

The DEIR evaluated the nuisance odor impacts of the Project and concluded that such impacts were not significant because the maximum-modeled 1-hour

[147] (*Kings County Farm Bureau v. City of Hanford* (1990) 221 Cal. App. 3d 692, 718 (concluding that "any additional amount of precursor emissions should be considered significant in light of the serious nature of ozone problems," even where the plant "would emit relatively minor amounts of precursors.")).
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2-122 (cont.) average off-site H_2S concentration of 2.76 µg/m³ (0.0020 ppm) is less than the H_2S odor threshold of 0.0081 ppm.[148] The District underestimated nuisance odor impacts in three ways.

2-123 First, the District used a relatively high odor threshold, 11 µg/m³ (0.0081 ppm). The California Air Resources Board ("CARB") investigated the issue of H_2S as an annoyance to the general population, and concluded in its study, "an unpleasant odor is at or above the threshold of annoyance for half the people, when its concentration reaches 5 times the average threshold of detection."[149] The CARB study concluded that recent work using reliable test methods indicates that the detectable threshold for H_2S ranges from 0.4 µg/m³ (in studies in the Netherlands using a dynamic flow method) to 0.7 µg/m³ (in studies in Japan using a static test method in an odor-free test room).[150] Thus, the concentration of H_2S that annoys half the people ranges from 2 µg/m³ to 3.5 µg/m³.

This is consistent with World Health Organization ("WHO") findings that a level of 0.008 mg/m³ (0.005 ppm) averaged over 30 minutes should not produce odor nuisance under most circumstances.[151] Extrapolating this to a 1-hour averaging time, this is equivalent to 3.5 µg/m³ for a 1-hour exposure. These values are consistent with the annoyance range of 2 to 3.5 µg/m³ estimated using CARB guidance. Thus, the DEIR's threshold for evaluating nuisance and annoyance impacts is artificially high. In reality, the maximum 1-hour modeled H_2S concentration (2.76 µg/m³) exceeds the lower end of the range of the level that would annoy at least half of the exposed parties. This is a significant impact that was not disclosed in the DEIR.

2-124 Second, the DEIR appears to evaluate odor impacts using only the increase in H_2S concentrations. Individuals experience the total concentration, consisting of the increment due to the Project plus the background, not just the increment. Thus, total H_2S concentrations should be evaluated to determine if H_2S odors would cause significant nuisance and annoyance impacts. If the H_2S increments reported the

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[148] DEIR, p. 4-31.
[149] John E. Amoore, The Perception of Hydrogen Sulfide Odor in Relation to Setting an Ambient Standard, p. 2, Prepared for California Air Resources Board, ARB Contract A4-046-33 (April 10, 1985).
[150] Y. Hoshika and others, International Comparison of Odor Threshold Values of Several Odorants in Japan and in The Netherlands, Environmental Research, v. 61, 1993, pp. 78-83.
[151] World Health Organization, Hydrogen Sulfide, Environmental Health Criteria No. 19, 1981, p. 13; National Research Council, Hydrogen Sulfide, University Park Press, Baltimore, 1979; T. Lindvall, On Sensory Evaluation of Odors Air Pollutant Intensities, Nord. Hyg. Tidskr., Supplement v. 2, 1970, pp. 1-181.

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2-124 (cont.) DEIR were added to the ambient background, they likely would exceed even the DEIR's high significance threshold.

2-125 Third, the DEIR's analysis is based only on the increase in fugitive H_2S emissions from proposed modifications at the No. 6 H_2S plant.[152] Hydrogen sulfide is also emitted during coke drum depressurization, but the DEIR did not disclose or attempt to quantify these emissions.

2-126 The above shows that the increase in ambient concentrations of H_2S during Project operation is high enough to cause annoyance. This is a significant impact that was not disclosed in the DEIR. A revised DEIR must show that the Project complies with California Health and Safety Code Section 41700, which requires that:

> no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, response, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

Generally, a nuisance is defined as "[a]nything which is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property, or unlawfully obstructs the free passage or use, in the customary manner, of any navigable lake, or river, bay, stream, canal, or basin, or any public park, square, street, or highway."[153]

California courts have classified a wide range of conditions and activities as nuisances. For example, General Motors was deemed to know that its conduct in discharging baked paint odors could annoy and irritate people living and working in the area surrounding the plant.[154] Hydrogen sulfide emissions from the Project have the potential to cause nuisance, annoyance and irritation to a considerable number of people in and around the refinery and the City of El Segundo. The DEIR must be revised to include discussion and mitigation of nuisance impacts.

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[152] DEIR, p. 4-31.
[153] Civ. Code, § 3479.
[154] In *People v. General Motors* (1980) 116 Cal.App.3d, Supp 6.
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2-127

V. THE PROJECT WOULD RESULT IN SIGNIFICANT AIR QUALITY IMPACTS

A. Ozone Impacts Are Significant

The District acknowledges that the Project would increase volatile organic compounds ("VOCs"), an ozone precursor.[155] As discussed above, increased use of existing equipment to support the Project would further increase VOCs as well as NOx emissions, although quantifying these emissions is not possible given the Districts' failure to disclose them. The District currently violates both state and federal ozone standards. Thus, the Project would contribute to and worsen an existing significant impact.

2-128

An understanding of the nature of ozone pollution illustrates why an impact analysis is so vitally important to understanding the impacts of the Project. Ozone, the principal element of smog, is a secondary pollutant produced when two precursor air pollutants — volatile VOCs and NOx — react in sunlight.[156] VOCs and NOx are emitted by a variety of sources, including cars, trucks, industrial facilities, petroleum-based solvents and diesel engines.

The human health and associated societal costs from ozone pollution are extreme. In proposing a new rulemaking limiting emissions of NOx and particulate matter from certain diesel engines, EPA summarized the effects of ozone on public health:

> A large body of evidence shows that ozone can cause harmful respiratory effects, including chest pain, coughing and shortness of breath, which affect people with compromised respiratory systems most severely. When inhaled, ozone can cause acute respiratory problems; aggravate asthma; cause significant temporary decreases in lung function of 15 to over 20 percent in some healthy adults; cause inflammation of lung tissue, produce changes in lung tissue and structure; may increase hospital admissions and emergency room visits; and impair the body's immune system defenses, making people more susceptible to respiratory illnesses.[157]

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[155] DEIR, Table 4.1-7, p. 4-20.
[156] *American Petroleum Institute v. Costle*, 665 F.2d 1176, 1181 (D.C. Cir. 1981).
[157] 66 Fed. Reg. 5002, 5012 (Jan. 18, 2001).
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2-128 (cont.) Moreover, ozone is not an equal opportunity pollutant; instead, it strikes the most vulnerable segments of our population hardest: children, the elderly, and people with respiratory ailments.[158] Children are at greater risk because their lung capacity is still developing, because they spend significantly more time outdoors than adults—especially in the summertime when ozone levels are the highest, and because they are generally engaged in relatively intense physical activity that causes them to breathe more ozone pollution.[159]

2-129 Ozone has severe impacts on millions of Americans with asthma. While it is as yet unclear whether smog actually causes asthma, there is no doubt that it exacerbates the condition. (*See* 66 Fed. Reg. 5002, 5012 (Jan. 18, 2001) (EPA points to "strong and convincing evidence that exposure to ozone is associated with exacerbation of asthma-related symptoms").) Moreover, as EPA observes, the impacts of ozone on "asthmatics are of special concern particularly in light of the growing asthma problem in the United States and the increased rates of asthma-related mortality and hospitalizations, especially in children in general and black children in particular."[160]

2-130 The health and societal costs of asthma are wreaking havoc here in California. There are currently 2.2 million Californians suffering from asthma.[161] In 1997 alone, nearly 56,413 residents, including 16,705 children, required hospitalization because their asthma attacks were so severe. Shockingly, asthma is now the leading cause of hospital admissions of young children in California.[162] Combined with the real human suffering, is the huge financial drain of asthma hospitalizations on the state's health care system. The most recent data indicate that the statewide financial cost of these hospitalizations was nearly $350,000,000, with nearly a third of the bill paid by the State Medi-Cal program.[163]

2-131 The South Coast Air Basin exceeded the national and state 1-hour ozone standard on 32 and 81 days, respectively, in 2002 at most monitoring locations. Some areas exceeded these standards more frequently. Thus, emissions from the Project will aggravate these exceedances, contributing to a significant impact.

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[158] *Id.*
[159] *Id.*
[160] 62 Fed. Reg. At 38864.
[161] California Department of Health Services, California County Asthma Hospitalization Chart Book, August 1, 2000.
[162] *Id.*
[163] Id. at p. 4.
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2-131 (cont.)

In short, in light of the regional nature of the ozone problem, the failure of the Los Angeles Area to meet ozone standards and the public health threat presented by ozone pollution is precisely why it is so important that the District mitigate project-related and cumulative impacts associated with emissions of NOx and VOCs. Thus, the District must revise the DEIR to fully analyze, disclose to the public and consider mitigation measures to address this important public health problem.

2-132

B. The Districts Cumulative Impact Analysis is Inadequate

The District violated CEQA by failing to consider other sources of air pollution that will contribute to the cumulative emissions of the Project. These air pollution sources, when considered together with this project in a cumulative impacts analysis, constitute significant environmental impacts. Thus a revised EIR is required. By failing to address the cumulative impacts of the Project, the District failed to comply with a central CEQA requirement.

2-133

The District omitted measures to mitigate cumulative impacts to air quality for CO, VOC, NOx, and PM10, "[b]ecause emissions of these pollutants during the operation of the proposed project by itself are not significant, because they do not exceed any applicable significance criteria, feasible mitigation measures for the proposed project have not been identified."[164] Accordingly, "adverse cumulative air quality impacts during operation will remain significant."[165] This approach is not legally defensible.

2-134

CEQA requires a *mandatory* finding that a project will have a significant effect on the environment if the "possible effects of a project are individually limited but cumulatively considerable."[166] "'[C]umulatively considerable' means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."[167] "Cumulative impacts" are defined as "two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts."[168] CEQA Guidelines and courts have recognized that even a project with relatively small air quality impacts can have a cumulatively significant

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[164] DEIR, at p. 6-7.
[165] *Id.*
[166] CEQA § 21083(b); *see also* CEQA Guidelines § 15064(h)(1).
[167] CEQA § 21083(b).
[168] CEQA Guidelines §15355(a).
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2-134 (cont.) impact if there is already a serious pollution problem in the area.[169] Specifically, the issue is whether the additional emissions are considered significant in light of the serious existing air pollution problem in the South Coast Air Basin.[170] In order to pass legal muster, the District's EIR must demonstrate that cumulative impacts are fully mitigated to less than significant levels.[171] Finally, a cumulative impacts analysis must consider "other closely related past, present, and reasonably foreseeable probable future projects."[172]

2-135 The importance of an adequate cumulative impacts analysis has been reaffirmed in two recent court cases:

> Proper cumulative impact analysis is vital 'because the full environmental impact of a proposed project cannot be gauged in a vacuum. One of the most important environmental lessons that has been learned is that the environmental damage often occurs incrementally from a variety of small sources with which they interact.'[173]

2-136 The cumulative impacts on air quality from other regional projects within the District from commercial and residential development are substantial. Since January 1, 2006, several major commercial and residential developments have been proposed or approved within a 25-mile radius of El Segundo.[174] These major development projects involve approximately 3.8 million square feet of commercial and retail development and approximately 3,957 residential units. Each project in itself will have significant impacts on air quality, and requires analysis in the DEIR.

2-137 Other projects where the District is the lead agency for CEQA purposes also cumulatively impact air quality. For example, the environmental checklist for the BP Carson Refinery reveals that construction activities will increase CO, PM10,

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[169] CEQA Guidelines § 15355 (b) ("Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time."); *Kings Co. Farm Bureau v. Hanford* (1990) 221 Cal.App.3d 692, 721 (failing to conduct a cumulative impact analysis "avoids analyzing the severity of the problem and allows the approval of projects which, when taken in isolation, appear insignificant, but when viewed together, appear startling").
[170] *See Los Angeles Unified School Dist. v. City of Los Angeles* (1997) 58 Cal.App.4th 1019.
[171] CEQA Guidelines § 15130(a)(3); *Fort Mojave Indian Tribe v. California Dept. of Health Servs.* (1995) 38 Cal.App.4th 1574.
[172] CEQA Guidelines § 15355 (b).
[173] *Bakersfield Citizens* (2004) 124 Cal. App. 4th at 1214 (quoting *Communities for a Better Environment v. California Resources Agency* 103 Cal.App.4th at 116).
[174] State Clearinghouse, http://www.ceqanet.ca.gov/QueryForm.asp. Specific projects include: L.A. Lofts, 6200 Boulevard, the Agua Dulce Residential Project, Press-Telegram Mixed Use Development, Carson Marketplace, Paramount Business Park, Artesia Corridor Specific Plan Project, Tentative Parcel Map No. 332.
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2-137 (cont.) VOCs, NOx and SOx, and more significantly, project operations are "potentially significant," and the "proposed project may result in an increase in emissions from the operation of the Refinery and has the potential to result in cumulative impacts...."

2-138 None of these projects were analyzed in the DEIR, rendering the cumulative impacts analysis completely defective. The lack of analysis considering other regional projects, combined with the District's failure to mitigate cumulative impacts, requires the District to revise its project EIR and recirculate it for public review.

2-139 **VI. CONCLUSION**

The DEIR fails to satisfy CEQA's fundamental mandates of informing the public and decision makers of the potentially significant environmental impacts to air quality that will occur if the Project goes forward as proposed. The DEIR likewise failes to impose all feasible measures to mitigate impacts to less than significant. The DEIR must be revised to address the deficiencies described herein and in the attached documents and re-circulated for public review.

Sincerely,

Gloria D. Smith

GDS:bh
Attachments

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