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STATE OF CALIFORNIA

Energy Resources Conservation and Development Commission

In the Matter of:	)	
	)	
The Application for Certification of the CHEVRON RICHMOND POWER PLANT REPLACEMENT PROJECT	)	DOCKET NO. 07-SPPE-1
	)	

COMMUNITIES FOR A BETTER ENVIRONMENT (CBE)

DATA REQUESTS - SET ONE

October 16, 2007

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The following requests are submitted by Communities for a Better Environment (CBE). Please provide your responses within 30 days to the following people:

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Please identify the person who prepared your response to each data request. If you have a question about the meaning of any data request, please let us know.

1. PROJECT DESCRIPTION: Fuel Use

Background

The mercury content of refinery fuel gas for this project may affect emissions and may vary with refinery-specific changes in feedstock and processing. The Richmond Refinery has been required to conduct sampling for a mass balance of mercury inputs, process gases and product outputs to support an adequate emission estimate, and may have other prior data. At the September 26, 2007 Workshop Chevron said it has data on mercury in fuel gas. The Draft Environmental Impact Report (DEIR) for the Renewal Project (RP) indicates that the crude and gas oil feedstock is expected to change. The Application and DEIR, however, do not provide current or future mercury content data.

Data Request 1. Please provide the date, time, material sampled, sample location including process output/input, sampling method, analysis method, method detection limit, mercury results with measurement units, and all other relevant results for any and all samples of the following Richmond Refinery materials analyzed for mercury:

(1-a) Treated fuel gas, untreated "sour" gas, and Pressure Swing Absorber off-gas.

(1-b) Petroleum-derived coke, including coke burned in the FCC regenerator.

(1-c) Other intermediate and product streams consumed onsite and/or offsite.

(1-d) Wastes including waste water treatment sludge.

(1-e) Crude and gas oil feedstock inputs including, but not limited to, individual crude oils, and the combined crude/gas oil slate for the existing Refinery.

(1-f) Anticipated future Refinery crude oil and gas oil feedstock. For each such potential future feedstock, if data are unavailable, please provide an estimate together with supporting detail.

2. PROJECT DESCRIPTION: Fuel Use

Background

The RP and its Power Plant Replacement Project (PPRP) component include Refinery process unit additions, expansions and shutdowns. The Application suggests Refinery-wide consumption of natural gas would remain at current levels or be slightly reduced. (See e.g., page 2-2.) However, the DEIR suggests that natural gas consumption would increase by about one-third, to support increased power and hydrogen production. (See e.g., DEIR at 4.6-10.) In addition, the PPRP would be fired in part with medium-Btu gas but the Application and DEIR do not appear to quantify medium-Btu gas usage. Additional information is needed to fully evaluate effects on Refinery fuel usage.

Data Request 2. Please indicate the existing and projected natural gas usage, and medium-Btu gas usage, by the Refinery, and by each process unit where natural gas and/or medium-Btu gas usage may change after RP implementation. Please provide

these data in standard cubic feet (SCF)/hour and include the new hydrogen plant and the other Refinery projects listed in DEIR sections 3 and 5.2.3.1 in these projections.

3. PROJECT DESCRIPTION: Fuel Use

Background

The Application states that natural gas and medium-Btu gas will be delivered via existing pipelines, describes them as "existing natural gas, medium-Btu gas pipelines currently serving the Refinery" and states that "the PPRP will have two independent sources of natural gas." (See pages 2-2, 2-31.) However, the DEIR indicates that one of the Refinery's existing natural gas pipelines would be replaced as part of a proposed new hydrogen pipeline project, and does not appear to discuss medium-Btu gas pipelines. Additional information is needed to fully understand how natural gas and medium-Btu gas would be delivered to the Refinery and project, and potential impacts therefrom.

Data Request 3. Please provide the following information for each natural gas and/or medium-Btu gas pipeline to the Refinery:

(3-a) An identification of each existing and proposed pipeline and, for each existing pipeline, whether it would be replaced if currently proposed projects proceed.

(3-b) The amounts, in SCF/hour, of natural gas, and of medium-Btu gas, that each pipeline delivers and would deliver to the Refinery.

(3-c) For each pipeline that delivers and/or would deliver both natural gas and medium-Btu gas, if any, where and how the mixture of those gases is, and will be, determined and achieved.

(3-d) A quantitative description and discussion of the extent to which the existing and proposed pipeline systems provide and would provide a redundant backup supply of natural gas, and of medium-Btu gas.

(3-e) Any and all medium-Btu gas mercury analysis results in Chevron's possession, to the extent that these are not provided in the response to Data Request 1.

4. PROJECT DESCRIPTION: Fuel Use

Background

The Application states that the PPRP would use liquid petroleum gas (LPG). Refinery storage capacity for LPG was recently expanded, but cumulative impacts of the LPG Spheres Project were not analyzed adequately when that project was approved.

Data Request 4. What amount (SCF/hr) and percentage of the LPG used by this project (PPRP) would be produced by the Refinery, and what is the relationship of this PPRP fuel supply to the LPG Spheres Project?

5. PROJECT DESCRIPTION: Fuel Use

Background

The PPRP would change Refinery consumption of fuel gas and provide power and steam for the RP, which also would change Refinery production and usage of fuel gas. The balance between production and use of fuel gas can affect the frequency and magnitude of flare emissions. Fuel gas imbalance is a refinery-wide condition, and may be affected by imported gas usage, hydrogen, nitrogen and/or PSA off-gas production and use, among other factors. The Application and DEIR do not provide the data necessary to fully evaluate potential effects of the project on the Refinery fuel gas balance. Further, the response to CEC Data Request 3 does not provide adequate chemical composition data because it fails to report data for refinery fuel gas and PSA off-gas, or to report results from available analyses of some compounds found to be present in other gases.

Data Request 5. Please provide the following data and information:

(5-a) The name, process type, and BAAQMD Source number if applicable, of each existing, planned and proposed Refinery process unit that produces and/or consumes fuel gas, or would produce and/or consume fuel gas.

(5-b) The current flow in SCF/hour, chemical composition and heating value (Btu/SCF) of gases produced, and of gases consumed; for each unit identified in 5-a during typical operation, maximum design capacity operation, shutdown, and startup. Please include with the composition data the analysis method, detection limits and results for the most sensitive method used to date for each constituent.

(5-c) The projected post-RP flow, composition and heating value of gases produced and consumed by each unit identified in 5-a during each condition in 5-b.

(5-d) Box diagrams showing each process unit, the gas flows between them and to and from the fuel gas system, and the Refinery fuel gas balance, for (i) the existing Refinery and (ii) the Refinery after the RP is in operation.

(5-e) An identification and description of any limitation in fuel gas consumption that may result in flaring, including the unit(s) involved in any such limitations.

6. PROJECT DESCRIPTION: Fuel Use

Background

The composition of LPG fuel may affect emissions. The Application suggests that the LPG used by the PPRP would contain butane and propane. (Pages 2-2, 2-4.) However, the response to CEC Data Request 3 suggests that this LPG contains butane and pentane. Also, the Response to CEC Data Request 3 does not provide analysis methods, method detection limits, or quantitative results, for all relevant constituents of LPG.

Data Request 6. Please provide the current and projected chemical composition of each LPG stream that could supply the PPRP, to the extent that this information is not

provided in response to data requests 1 and 5. Please include analysis methods, detection limits and results for the most sensitive methods used to date for each constituent.

7. PROJECT DESCRIPTION: Fuel Use, Design and Operation

Background

The Application indicates that the Refinery will be able to shift the steam/power production balance between the proposed CTG-HRSG train and hydrogen plant STG to produce Refinery power and steam from a changing balance of these units. (Page 1-3.) A mix of fuels including LPG, refinery fuel gas and others would fuel the CTG-HRSG (page 2-12), but Figure 2.1-14 suggests that natural gas burning would create the steam to drive the hydrogen plant STG. The timing and extent of shifts in power and steam production balance between the proposed units are not adequately explained to fully evaluate the potential changes in fuel usage and resulting emissions.

Data Request 7. Please describe and quantify the design capacity that would allow the shift in balance of power and steam production between the CTG-HRSG and hydrogen plant STG, and project the percentage of operating time, and amounts (SCF/hr) of each fuel to be used, in each mode of this shifting balance.

8. PROJECT DESCRIPTION: Design and Operation

Background

The Application indicates that PPRP steam will be used in the Refinery, and that additional steam production will be needed during some conditions. (Page 2-4.) However, it does not identify the variability in steam demand, the conditions in which more steam will be needed, or which Refinery process needs create these conditions.

Data Request 8. Please identify the conditions that may require additional steam, identify the Refinery process units that may be involved in each such condition, and project the frequency and duration of each such condition.

9. PROJECT DESCRIPTION: Design and Operation

Background

Chevron asserts that the PPRP will support increased Refinery electrical loads resulting from the RP and will also change the Refinery from a net importer to a net exporter of electric power. However, inconsistencies and omissions in the Application, DEIR and response to CEC Data Request 67 make it difficult or impossible to fully evaluate the projected changes in Refinery generation, load and energy import/export. The DEIR estimates current Refinery self-generation at approximately 125 megawatts (MW) while

Response 67 estimates 2007 net generation at approximately 120 MW. Response 67 further suggests that the Refinery now imports approximately 19 MW (and would export a projected 9 MW in 2010 with the 60 MW PPRP), but the DEIR estimates current imports at approximately 10 MW. In addition, total Refinery energy use and short-term variability in loads may cause impacts, and are affected by process-specific factors, but energy, and process-specific loads, are not provided.

Data Request 9. Please provide the following data and information, including estimates and projections in megawatts (MW) and megawatt-hours/year (MWh/y):

(9-a) Please confirm or update the current Refinery-wide average net generation, load and imports of approximately 120 MW, 139 MW and 19 MW respectively; and provide current total electric energy (MWh/y) generation, demand and imports.

(9-b) Please confirm or update the projected 2010 Refinery-wide net generation, load and exports of approximately 180 MW, 171 MW and 9 MW respectively; and provide current total electric energy (MWh/y) generation, demand and exports.

(9-c) For each existing and proposed Refinery process unit including hydrogen plants, please identify the unit and provide its existing, and projected post-PPRP/RP (2010), net generation, and load/demand, in MW at maximum design capacity and MWh/y at projected actual operating rates. (If unit has no generation, state "0".)

10. PROJECT DESCRIPTION: Design and Operation

Background

The Application suggests that the No. 1 Power Plant boilers, which the PPRP would replace, generate no electricity, but the DEIR suggests that the 1 Power Plant boilers supply approximately 10 MW to the Refinery. (See App. at 9-3; DEIR at 4.6-11.)

Data Request 10. To the extent this information is not included in the response to Data Request 9, please identify each currently operating equipment component that the PPRP would replace and its current and post-PPRP/RP generation.

11. PROJECT DESCRIPTION: Design and Operation

Background

The Application states that the PPRP design includes provision for additional future loads but it is not clear if these result from the RP or from some other plan or plans. (Page 6-15.)

Data Request 11. Please identify each planned project not included in the RP that may increase future Refinery electrical loads, if any, the range of potentially increased load due to the project, and each process unit involved in that potential load increase.

12. PROJECT DESCRIPTION: Design and Operation

Background

The Application estimates the distance from PPRP facilities and emission points to the Refinery fenceline, and to the nearest "sensitive receptor" offsite, but it appears possible that non-Chevron personnel may live or work nearer than these distances.

Data Request 12. Please estimate the distance from PPRP facilities and emission points to the nearest non-Chevron personnel, assuming post-PPRP and RP operations.

13. PROJECT DESCRIPTION: Design and Operation

Background

As proposed in the Application and DEIR the PPRP and RP would include new cooling towers. At the September 26, 2007 Workshop, however, Chevron stated that the PPRP no longer includes a cooling tower. This apparent change could potentially change PPRP heat balance, operation, and other factors.

Data Request 13. Please provide the following information regarding cooling towers:

(13-a) Which, if any, cooling tower or towers originally proposed in the Application and/or DEIR is no longer planned or no longer planned as proposed?

(13-b) If a cooling tower or towers proposed in the Application is no longer planned or no longer planned as proposed, does Chevron plan to submit an Amended Application for this change in the project?

14. PROJECT DESCRIPTION: Design and Operation

Background

The PPRP would be integrated into the RP and the Refinery and would provide steam and electricity to support interrelated changes in hydrogen, conversion, and conditioning processing of different crude and gas oil feedstock. (See e.g., App. at 1-1, 1-2, 1-4, 1-7, 4-1, 6-15, 7-1; and DEIR.) These feedstock and process changes would have potential impacts and would, in turn, affect PPRP steam and power loads, operation and emissions among other factors. In addition, the Application asserts that design of the PPRP's integration into the post-RP Refinery is too incomplete to fully define PPRP load and operational variability. (Page 2-26; see also 2-28, 2-31.) More information about the design criteria for these interrelated changes in processing and feedstock is needed to fully assess project impacts.

Data Request 14. Please provide the following data:

(14-a) The current and post-RP maximum design capacity for Refinery crude and gas oil feedstock including gravity, viscosity, distillation curve, total acid number (TAN), sulfur content, nitrogen content and concentrations of trace elements.

(14-b) The current maximum permitted throughput, and post-RP maximum design throughput, for each hydrocarbon-processing unit that could increase throughput after RP implementation.

(14-c) Current typical and maximum steam usage, and post-RP maximum design steam usage, for each process unit that uses and/or would use steam during normal operating conditions.

(14-d) The Refinery hydrogen balance including hydrogen use and production by each process that uses and/or produces hydrogen and any import to and/or export from the Refinery, at current maximum permitted capacity, and post-RP maximum design capacity.

(14-e) The current and post-RP average and maximum electric power demand for the Refinery and for each process unit that uses and/or would use power, to the extent that these data are not provided in the response to Data Request 9.

15. PROJECT DESCRIPTION: Scope and Potential Impacts

Background

The PPRP would be integrated into the RP and Refinery and support changes in the production, transport and processing of a different crude and gas oil feedstock. These changes would be interrelated and would take place at the Refinery and/or offsite. The Application and DEIR do not provide adequate information to fully identify or assess the scope and potential impacts of these changes in production, transport and processing.

Data Request 15. Please identify and describe each planned, proposed, initiated and/or recently completed project that Chevron is aware of which would have the potential to:

(15-a) Change the type and/or amount of Refinery feedstock produced by any oil field.

(15-b) Change the type and/or amount of Refinery feedstock that could be received by pipeline, rail, truck and/or by water.

(15-c) Change the type and/or amount of gas oil and/or hydrogen available to the Refinery due to changes in offsite manufacturing and/or material transport (pipeline, rail, truck and/or water transport) facilities.

16. PROJECT DESCRIPTION: Scope and Potential Impacts

Background

The PPRP could result in onsite and/or offsite impacts related to changes in the production, processing and transport of gas oil feedstock. ConocoPhillips' Rodeo refinery plans to expand conversion of gas oil it now ships for offsite use. The RP is designed in part to address reduced local supplies of such gas oil (DEIR at 6-3, 6-4 and 6-11), but the Application mentions the Rodeo refinery project without identifying this gas oil supply effect.

Data Request 16. Please indicate the annual amounts, if any, of gas oil that the Chevron Refinery has received from the Rodeo refinery since January 1, 2000, to the extent that these data are not provided in the response to Data Request 15.

17. PROJECT DESCRIPTION: Scope and Potential Impacts

Background

The PPRP could result in onsite and/or offsite impacts related to hydrogen production, processing and transport. Praxair and Air Liquide propose hydrogen pipelines that could link the Chevron Refinery to at least three other refineries, two of which plan to expand hydrogen production. The Application and DEIR identify only one of these pipeline projects and only one of these offsite hydrogen production expansions.

Data Request 17. Please provide the following data and information, to the extent it is not provided in the responses to data requests 14 and 15:

(17-b) What is the projected increase in maximum hydrogen production capacity (SCF/hr) at each other refinery that would be connected to the Refinery directly or indirectly by the proposed Praxair and Air Liquide pipelines?

(17-c) Assuming that all currently planned/proposed regional refining infrastructure is operational, what is the projected direction and amount (SCF/hr) of hydrogen flow between the refineries that would be connected to a hydrogen pipeline?

(17-d) Assuming that all currently planned/proposed regional infrastructure is built, please identify and describe each circumstance, if any, in which the Refinery may import hydrogen, and estimate the import (SCF/hr) in each such circumstance.

18. PROJECT DESCRIPTION: Scope and Potential Impacts

Background

The PPRP would be integrated into the RP and Refinery and support refining different crude and gas oil feedstock. Central Valley crude oil is delivered to Bay Area refineries by pipeline. The Cymric field in the Central Valley produces oil that has very high

gravity and viscosity, and extraordinarily high mercury content. Chevron produces Cymric oil. More information is needed to fully evaluate the potential that the PPRP may support refining of this extremely heavy, viscous, contaminated crude oil.

Data Request 18. Please identify the amounts, if any, of Cymric crude oil that the Refinery has received and/or is projected to receive in barrels/year, to the extent that this information is not provided in the response to Data Request 15, including:

(18-a) The maximum amount received in any past year, and the year it was received.

(18-b) The average amount received by the Refinery from January 1, 2000 to date.

(18-c) The amount projected to be received in the future after the RP is implemented.

19. PROJECT DESCRIPTION: Scope and Potential Impacts

Background

The PPRP would have an expected operating life of 30 years. The Application asserts that helping to ensure the ability to process future crude and gas oil supplies is a key benefit of the project, but does not explain the nature or extent of the asserted benefit. Elsewhere, Chevron suggests increasing future competition for conventional crude oil (DEIR at 6-11) and reports a business strategy that includes developing and refining "unconventional" hydrocarbons (2006 Annual Report to Shareholders).

Data Request 19. Please provide the following information regarding the asserted benefit of ensuring the ability to process future crude and gas oil supplies at the Refinery:

(19-a) Identify and describe each plan, if any, to process extra-heavy crude oil, oil sands, and/or oil shale, whether or not the material might be pre-processed elsewhere, as a portion of the future Refinery slate.

(19-b) Identify and describe the asserted benefit from processing the future feedstock, relative to the benefit from processing the current Refinery design feedstock, and relative to the benefit from switching to non-fossil energy over 30 years.

(19-c) Identify and describe the distribution of the asserted benefit among various groups, including, but not limited to, the people of California, residents living in communities adjacent to the Refinery, and Chevron.

20. PROJECT DESCRIPTION/ELECTRIC TRANSMISSION

Background

Power failures have caused recurrent flaring and other significant pollution incidents at the Refinery and other refineries in recent years. For example, in July 2002 and February 2004, power failures caused an estimated 50-500 tons and 40 tons of pollutant emissions from flares at refineries in Rodeo and Avon, respectively. Root cause analysis of Bay

Area refinery incidents has been required in recent years and can provide important information for projecting, and avoiding, electrical failure incident risks from new projects, but the Application does not provide such analysis.

Data Request 20. Please provide the following data and information:

(20-a) Each root cause or causal analysis report, submitted by any refinery, pursuant to the Contra Costa County Industrial Safety Ordinance and/or BAAQMD flare rules 12-11 and/or 12-12, where electrical problems were a cause or contributing factor.

(20-b) An evaluation that identifies for each incident reported in 20-a, its date; the sources, types and amounts of pollutants it released; the electrical problem(s) that were its causal factors, and any potential that similar factors might cause an incident if the PPRP/RP is built.

21. PROJECT DESCRIPTION/ELECTRIC TRANSMISSION: Interconnection

Background

Failure to provide reliable backup power for primary power system outages has caused major pollution incidents due to refinery process upsets and/or unplanned shutdowns, which have dumped massive amounts of pollution into the environments near the refineries where these incidents occurred.

Data Request 21. Please provide the following data and information:

(21-a) Each agreement or contract between the Refinery and PG&E, ISO, FERC and/or another entity or entities, that includes any provision(s) for backup power to be supplied from the electrical grid in the event of a Refinery power outage.

(21-b) Each report and/or analysis, if any, on the capacity and/or reliability of the grid to supply backup power to the Refinery in the event of a Refinery power outage.

22. PROJECT DESCRIPTION/ELECTRIC TRANSMISSION: Interconnection

Background

PPRP interconnection to the distribution system may affect Refinery efficiency, operation and reliability, and the frequency and magnitude of pollution incidents resulting from electrical problems. The response to CEC Data Request 68 suggests that "[t]here will be no physical change required to downstream interconnection facilities" but the response to CEC Data Request 67 suggests that two new substations, Sub 6 and Sub 7, would be added. Further, the No. 6 Substation project would apparently replace existing Sub 1 (DEIR at 5-10) and change the circuits between Sub 4, the FCC Substation/Powerhouse, and the new hydrogen plant (App., Fig. 2.1-10, "clouded" notes). Eleven other Refinery electrical infrastructure replacement projects are identified. (DEIR at 5-10, 5-11.) The Application and responses to CEC data requests 66-69 do not appear to further discuss

subs 6 or 7 or these other projects, do not appear to show them in schematics or drawings, and do not provide adequate data to evaluate potential distribution system changes.

Data Request 22. For each project identified on pages 5-10 or 5-11 of the DEIR and for Substation 7, please confirm whether or not the project is fully analyzed in the Application. If not, please describe the project and its integration and interconnection with the PPRP in at least the same detail as that given for the electrical projects which are detailed in the Application and response to CEC Data Request 66, including schematics, diagrams and line drawings.

23. ELECTRIC TRANSMISSION: Interconnection

Background

The Application states that load flow studies are expected to indicate adequate system performance "to facilitate the interconnection without significant impacts" (page 5-5), but the response to Staff's request for such detailed analysis suggests those studies may not be conducted. (Response to CEC Data Request 69.) Chevron's response suggests that the decision whether to conduct such analysis may be based on the criteria defining a "Qualifying Facility" rather than project-specific evidence of the need to assess potential environmental health and safety impacts related to electrical reliability. (Id.)

Data Request 23. For each of the assessment needs listed below, please indicate whether this need is included in the decision criteria for whether or not to perform load flow studies, how it will be weighted relative to other decision criteria if it is included, and who will make those decisions:

(23-a) the need to assess the reliability of the Refinery interconnection together with its distribution system and any changes to this system;

(23-b) the need to assess changes in Refinery loads;

(23-c) the need to assess the local transmission system's ability to supply reliable backup power through the Refinery distribution system in order to ensure that a pollution incident will not occur in the event of a Refinery power failure;

(23-d) the need to assess the potential frequency and magnitude of impacts resulting from electrical problems at the Refinery; and

(23-e) the need to assess potential alternatives which may include alternative power supplied onsite and/or via the grid.

24. ENVIRONMENTAL INFORMATION: Air Quality

Background

The PPRP is a component of the RP. Chevron submitted revised air emission estimates for the RP, which it characterized as the "BAAQMD approved emission inventory" for

the RP, on September 25, 2007. (Responses to CEC Data requests 12 and 13.) This revised emission inventory, however, does not appear complete because significant data are omitted; apparently contradictory data are included, and correcting these deficiencies may result in further revisions to the emission estimates. In addition, the September 25 revisions provided are not transparent, and no complete or coherent rationale or explanation for the revisions is presented with the revised inventory.

Data Request 24. Please provide complete and current revised air emission estimates for the RP and each of its components, including all data, assumptions and calculations and other supporting information, and Chevron's analysis of the rationale for each revision. For each source in the tables provided in the response to CEC Data requests 12 and 13, please identify whether the throughput assumed represents the maximum daily design throughput for that source, and if not, provide the maximum daily design throughput.

25. ENVIRONMENTAL INFORMATION: Air Quality

Background

The Application relies in part on Chevron (2006), EERC (1998), and WRCC (2007) in its air quality analysis, but does not include these documents. Chevron declined Staff's request to provide Chevron (2006), its air permit application for the RP, stating that this application has been revised repeatedly and is not in a format consistent with a single application. (Response to CEC Data Request 48.) In response to Staff's request for EERC (1998), Chevron did not provide the complete document, stating only that it provided the relevant portions. (Response to CEC Data Request 51.) However, an independent review of the complete documents, upon which the Application's air quality analysis relies, is essential to a full and independent evaluation of this project.

Data Request 25. CBE requests the following data and information:

(25-a) Please provide a complete and current copy of Chevron (2006).

(25-b) Please identify each revision and the date of the revision to Chevron (2006).

(25-c) Please provide a complete copy of EERC (1998).

(25-d) Please provide a complete copy of WRCC (2007).

26. ENVIRONMENTAL INFORMATION: Air Quality

Background

The Application indicates that potential air emissions are projected based on continuous operation at maximum capacity (see e.g., pages 8.1-18, 8.1-20), but elsewhere in the Application it is stated that PPRP facilities would also be operated in other modes ranging from 60-100 percent of base load. Operation outside of optimal design capacity and/or ramping up and down may affect pollutant emissions. Quantitative information

about these operating conditions is needed to fully evaluate both actual pollutant emissions and potential measures to mitigate or avoid such emissions.

Data Request 26. For each projected operating condition other than operation at continuous maximum capacity, planned shutdown/startup and commissioning, please identify the projected emission rate for each pollutant that may be emitted.

27. ENVIRONMENTAL INFORMATION: Air Quality

Background

Section 8.1 of the Application summarizes data from the 7th Street Richmond monitoring station and more distant monitors for the stated purpose of analyzing existing ambient air quality near the Refinery. However, ambient air quality data are collected nearer to the Refinery than the 7th Street station, by ground-level monitors (GLMs) operated by the Richmond Refinery that measure sulfur dioxide and hydrogen sulfide continuously. Chevron may also collect other ambient air quality data at or near the Refinery.

Data Request 27. Please provide the following data and information:

(27-a) All available hourly-average sulfur dioxide and/or hydrogen sulfide data collected by each GLM operated by the Refinery from January 1, 2000 through the present. As these are expected to be large data collections, please provide these data as computer-readable files in Excel spreadsheets.

(27-b) For each GLM operated by the Refinery, please provide any and all available data for each period shorter than one hour that were collected when ambient pollutant concentrations were elevated relative to average levels.

(27-c) Please identify and provide any other available data resulting from ambient air quality measurements at or near the Refinery that are in Chevron's possession, to the extent that these data were not provided in the Application and/or responses to data requests 27-a and 27-b above.

(27-d) For each type of local air quality measurement identified in 27-a through 27-c above that was not included in the Application's analysis, please provide Chevron's rationale for excluding those data from that analysis.

28. ENVIRONMENTAL INFORMATION: Air Quality

Background

The Application's net emission projections appear to assume that there is no potential for the PPRP to be implemented without certain other components of the RP. However, this apparent assumption is not evaluated explicitly, and the RP is still undergoing environmental review at this time and might be changed in the future.

Data Request 28. For each RP component other than the PPRP, please provide the rationale for assuming that the PPRP will only be implemented if that other component of the RP is implemented, including, but not limited to, any and all process design data demonstrating that this assumption is correct.

29. ENVIRONMENTAL INFORMATION: Air Quality

Background

Footnote (a) in Table 8.1B-2 of the Application identifies supporting data for the air quality analysis that do not appear to be included in the Application.

Data Request 29. Please provide the primary data and a complete copy of the primary reference document identified by footnote (a) in Table 8.1B-2.

30. ENVIRONMENTAL INFORMATION: Air Quality

Background

The Application assesses potential air quality impacts using a method that adds the modeled impact of PPRP emissions alone to estimates of current air quality conditions. (Pages 8.1-24 through 8.1-31.) This method excludes the potential impacts from the rest of the RP. However, the Application states that the PPRP is a component of the RP.

Data Request 30. Please provide the rationale for assessing potential impacts by comparison of existing conditions with emission impact estimates for PPRP components alone, rather than including projected impacts from all RP emissions in this comparison.

31. ENVIRONMENTAL INFORMATION: Air Quality

Background

The Application proposes to mitigate air quality impacts resulting from the PPRP in part by taking credits and/or offsets for other emission reductions. (See e.g., page 8.1-36.) It does not appear to specify where all of the emission reductions occurred or would occur.

Data Request 31. For each PPRP pollutant emission that may be mitigated through a credit and/or offset scheme, please indicate the location of each source that may generate the credit/offset.

32. ENVIRONMENTAL INFORMATION: Air Quality

Background

The PPRP would support refining and production of different crude oil. In addition to increased emissions from refining, the production of heavy and/or unconventional oil by methods such as enhanced oil recovery (EOR) can increase pollutant emissions. Chevron uses EOR in several of its California oil production operations.

Data Request 32. For each Chevron EOR operation that produces Refinery feedstock and/or may produce post-RP Refinery feedstock, please identify the oil field; EOR method; type and amount of fuel used for EOR; and estimated emissions/barrel produced for each criteria, TAC, and greenhouse gas pollutant.

33. ENVIRONMENTAL INFORMATION

Background

Petroleum refineries emit or otherwise release into the environment a large number of toxic and potentially toxic chemicals. Some of these chemicals are not identified or analyzed in the Application. Potentially toxic chemicals may, in many cases, be untested or inadequately tested for their potential to cause toxicity in environmental exposures.

Data Request 33. Please identify each toxic and/or potentially toxic chemical that may be released by the Refinery, and estimate current and post-RP releases of the chemical to air, water, and land, to the extent that these data are not included in the Application or the responses to other data requests herein.

34. ENVIRONMENTAL INFORMATION: Hazardous Materials and Waste

Background

The Application describes a PPRP CTG compressor wash system (page 2-6), but does not appear to discuss or analyze the potential wastes from this system.

Data Request 34. Are wastes from the proposed CTG compressor wash system characterized in the Application? If so, please specify which potential wastes could or would come from the CTC compressor wash system. If not, please describe the projected composition, amount, storage, handling and disposition of any such waste.

35. ENVIRONMENTAL INFORMATION: Hazardous Materials and Waste

Background

The PPRP would use water treated by the Reverse Osmosis (RO) Plant in the Refinery, but the Application does not appear to discuss or analyze the potential wastes from this RO Plant activity.

Data Request 35. Please describe the projected composition, amounts, storage, handling and disposition of any waste chemical produced by RO treatment of water for the PPRP, to the extent that this information is not included in the Application.

36. ENVIRONMENTAL INFORMATION: Biological and Water Resources

Background

The Application indicates that process waste water and storm water discharges have been separated (page 8.12-11), but does not provide details of these separate collection systems and does not provide data on discharge rates after September 2004. Such data are collected daily for some discharge parameters, such as effluent flow volume.

Data Request 36. Please provide daily discharge flow data, and results of each pollutant sample analysis for the process water effluent, and separately for each storm water discharge point, from September 2004 to the present.

37. ENVIRONMENTAL INFORMATION: Biological and Water Resources

Background

The Application suggests that most, but not all, of the Refinery storm water runoff is collected and managed in the existing storm water system regulated by the Regional Water Quality Control Board (RWQCB). (Page 8.12-12.)

Data Request 37. Please identify the disposition, flow, and characteristics of any storm water runoff not collected and managed in the existing system regulated by RWQCB.

38. ENVIRONMENTAL INFORMATION: Biological and Water Resources

Background

Section 2 of the Application appears to indicate that an average of 90 gallons per minute (gpm) would be discharged to the Refinery process water system by PPRP equipment, but a larger amount of exceeding 800 gpm may flow to other Refinery processes as

steam. The Application does not discuss potential discharges to Refinery process water or storm water systems resulting from this steam.

Data Request 38. Please indicate the average and maximum Refinery process water, and storm water, system flows that would result from Refinery use of steam from the PPRP, and estimate the resultant discharge of each pollutant.

39. ENVIRONMENTAL INFORMATION: Biological and Water Resources

Background

It is not clear from review of the Application what quantity of recycled water from the Richmond Advanced Recycling Expansion (RARE) project would be used by the PPRP, should both of these projects be implemented.

Data Request 39. Please identify the projected average and maximum amounts of RARE recycled water that the PPRP would use, should both of these projects be implemented.

40. ENVIRONMENTAL INFORMATION: Biological and Water Resources

Background

The Application asserts that compliance with the Refinery's National Pollutant Discharge Elimination System (NPDES) Permit, and future compliance with total maximum daily load (TMDL) requirements established by the RWQCB, will ensure that discharges to San Francisco Bay will not result in significant impacts. (Pages 1-6, 8.2-17, 8.2-18.) Waste load allocations that achieve TMDLs are intended to establish effluent limits applied in NPDES permits. However, the Refinery currently discharges certain toxic pollutants in excess of "final effluent limits" which are effluent levels calculated to protect the Bay. The RWQCB found that Refinery discharges of these pollutants have "a reasonable potential" to cause or contribute to violations of water quality standards established to protect the Bay.

Data Request 40. Please indicate whether Chevron has developed a plan or plans to meet effluent discharge levels calculated to ensure protection of the Bay, and if so, provide a complete copy of each such plan.

41. ALTERNATIVES ANALYSIS

Background

The Application indicates that Chevron used cost as a factor in its analysis of alternatives. (See Section 9.) It also states that diversification of Richmond's economic base is an objective of the PPRP. (Page 1-4.) The PPRP is projected to result in new electric power

export from the Refinery. However, the Application does not appear to analyze the potential effects of additional fossil fuel power generation on the growth of opportunities to diversify the local economy through renewable energy alternatives.

Data Request 41. Did Chevron analyze the potential effects of the PPRP on the future growth of renewable energy alternatives locally? If so, please provide this analysis.

42. ALTERNATIVES ANALYSIS

Background

It is not clear that the Application analyzed the possibility of using the heat energy that would be wasted in proposed cooling towers in the Refinery, and in the September 26, 2007 Workshop, Chevron suggested that this cooling design may have been revised.

Data Request 42. If cooling towers are planned for heat disposal at the post-RP Refinery, please identify and provide a complete copy of any analysis Chevron has conducted regarding the potential for conserving this heat energy by using it in the Refinery.

43. ALTERNATIVES ANALYSIS

Background

The Application states that anhydrous ammonia would be used in the PPRP and that the Refinery produces anhydrous ammonia. Aqueous ammonia and/or ammonia pellets may be alternatives to the proposed use of anhydrous ammonia. At the September 26, 2007 Workshop, Staff stated that it plans to consider analysis of alternatives to anhydrous ammonia after completing its own analysis of health risk, and requested additional information from Chevron for this risk analysis. CBE wishes to gain more information about the engineering options for such alternatives through the Data Request process, which may require seeking this information before Staff's risk analysis is complete.

Data Request 43. Please provide an engineering evaluation of options for replacing PPRP use of anhydrous ammonia with aqueous ammonia, and with ammonia pellets, including, but not limited to, options using Refinery-produced ammonia in these forms.

44. ALTERNATIVES ANALYSIS

Background

The PPRP as proposed would use polyvinyl chloride (PVC) plastic for rainwater management. (See e.g., Table 6.3-2.) Use of PVC contributes to environmental releases of highly toxic trace pollutants such as dioxins during PVC manufacturing and,

potentially, during structural fires and/or disposal. Other polymers and/or other materials may be feasible and less toxic alternatives to PVC.

Data Request 44. Did Chevron analyze alternatives to PVC use in the project? If so, please provide this analysis.

45. ALTERNATIVES ANALYSIS

Background

The Application rejects solar and wind generation alternatives based on analysis that appears to consider the PPRP in isolation from the RP and does not appear to consider combinations of alternative technologies. However, the PPRP is a component of the RP that would be integrated into the RP and the Refinery, and combinations of increased solar and/or wind generation together with use of higher quality fossil feedstock appear to be technically feasible alternatives to the RP.

Data Request 45. Did Chevron analyze any alternative to the PPRP and RP that would utilize a combination of increased solar and/or wind power generation together with higher quality fossil feedstock than currently proposed by the RP? If so, please provide a complete copy of the analysis for each such alternative analyzed.

46. ALTERNATIVES ANALYSIS

Background

Chevron indicates that the proposed PPRP design has been sized to match the proposed post-RP Refinery design, however, a smaller power/steam plant might be integrated into an alternative to the proposed RP. Less electric/thermal energy would be needed by the smaller conversion, conditioning, hydrogen production and sulfur handling units that could make the same amounts of CARB vehicle fuels from higher quality oil feedstock. Crude quality varies, as shown by the examples from USDOE data in the table below.

	WTI Lea Field	Alaska N. Slope	Kern River
Density (°API)	40.9	27.6	12.6
Viscosity (CST @ 100°)	4.3	15.2	1,300.0
Sulfur (wt. %)	0.3	0.7	1.2
Atm. Distillation Yield (vol. %)			
LPG and Loss	0.3	0.7	1.4
Gasoline and Naphtha	32.6	20.4	0.0
Jet Fuel and Diesel	32.2	23.7	9.6
Lubes and Gas Oil	12.3	21.4	23.3
Asphalt and Residuum	22.6	33.8	65.7

Data Request 46. Assuming equipment shutdowns as proposed, please identify the PPRP design capacity (net MW, lb/hr steam) that would match Refinery needs if the RP is modified to make the same targeted product slate using process units that are re-sized and reconfigured for crude/gas oil feedstock with the following characteristics:

(46-a) Characteristics equivalent to those of WTI Lea Field crude oil (see table).

(46-b) Characteristics equivalent to those of Alaska North Slope crude oil (see table).

(46-c) Characteristics equivalent to those of crude from the Kern River field (see table).

47. ALTERNATIVES ANALYSIS

Background

Staff identified a general need to assess security. The PPRP would support a change in Refinery feedstock. The potential for increased Refinery use of oil from Iraq raises serious moral, policy, and security questions for the community. Analysis of feedstock alternatives may resolve these questions. Refinery use of Iraqi oil has been reported by the news media, so it would be counterproductive to complete this analysis in secret.

Data Request 47. Please identify the annual amounts of oil from Iraq that the Refinery (a) processed 1990-2003, (b) processed 2003-2007, (c) could process if the RP is implemented, and (d) plans to process if the RP is implemented.

Respectfully submitted ___October 16, ___ 2007

ORIGINAL SIGNED BY

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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

CHEVRON RICHMOND POWER PLANT REPLACEMENT PROJECT **SMALL POWER PLANT EXEMPTION**	***Docket No. 07-SPPE-1*** **PROOF OF SERVICE** **(Revised 10/11/07)**

INSTRUCTIONS: All parties shall either (1) send an original signed document plus 12 copies or (2) mail one original signed copy AND e-mail the document to the address for the Docket as shown below, AND (3) all parties shall also send a printed or electronic copy of the document, which includes a proof of service declaration to each of the individuals on the proof of service list shown below:

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DECLARATION OF SERVICE

I, Adrian Torres declare that on 10/16/2007, I deposited copies of the attached CBE Data Requests - Set One, in the United States mail at Sacramento, California with first-class postage thereon fully prepaid and addressed to those identified on the Proof of Service list above.

OR

Transmission via electronic mail was consistent with the requirements of California Code of Regulations, title 20, sections 1209, 1209.5, and 1210. All electronic copies were sent to all those identified on the Proof of Service list above.

I declare under penalty of perjury that the foregoing is true and correct.

Adrian Torres