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	PROCESSED BY: Bob Sanford	CHECKED BY

**PERMIT TO CONSTRUCT AND OPERATE (P/C – P/O)
-Modification-**

COMPANY NAME: Chevron Products Company

MAILING ADDRESS: P.O. Box 97
El Segundo, CA 90245

EQUIPMENT LOCATION: 324 W. El Segundo Blvd.
El Segundo, CA 90245

BACKGROUND/SUMMARY:

The Cogeneration Train B (P16S2) consists of a gas-fired turbine that produces 46 MW of electricity for use in the refinery and a duct burner equipped heat recovery steam generator (HRSG) that produces low and high pressure steam for use in the refinery. The air pollution control system (APCS)(P16S4) for the cogeneration unit consists of an SCR catalyst for reduction of NOx emissions and a CO oxidation catalyst for reduction of CO and VOC emissions.

In the SCR, NOx is reduced by reacting it with ammonia in the presence of the catalyst. Aqueous ammonia is vaporized and injected upstream of the SCR catalyst, which is located in the HRSG. The current ammonia vaporization system consists of the vaporizer vessel (V-3350), air heater and dilution air blower (K-3310) with spare (K-3320). The current system contains redundant feed lines, blowers and air heaters but only one vaporizer vessel. To improve reliability, Chevron proposes to replace this existing ammonia vaporization system with skid-mounted system that includes complete redundancy (a primary and a standby system).

Chevron also proposes to add the following language to continuous parameter monitoring conditions D12.2, D12.3, D12.4, D12.11 and D12.13. This language mirrors the failure, calibration, routine maintenance and repair period allowances specified for CEMS in District Rule 218(f)(3).

1. The operator shall notify the Executive Officer within 24 hours or the next working day, in the event of a system failure or shutdown, which exceeds 24 hours. Zero and calibration checks and routine maintenance do not require reporting.
2. In the case of a CMD failure or shutdown, compliance with permit requirements to monitor and record data is waived for a period not to exceed 96 consecutive hours.
3. Continuous parameter monitoring and recording requirements shall not apply during calibration checks, routine maintenance and repairs lasting 60 minutes or less.

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The combustion turbine is not being modified. However, it is difficult to evaluate the SCR in isolation from the combustion turbine. Therefore, this document includes some evaluation of the turbine and associated duct burner compliance with applicable rules and emission limits.

EQUIPMENT DESCRIPTION:

The Cogeneration Train B Air Pollution Control System (APCS) is currently operating under a permit to operate in Section D of the Chevron El Segundo Refinery RECLAIM/Title V Facility Permit. A new Permit to Construct and Operate is proposed for issuance in Section D for the proposed modifications to the APCS. In the proposed permit pages below, new text or conditions are indicated by underline and deleted text or conditions are indicated by strikeout.

Section D: Facility Description and Equipment Specific Conditions

Equipment	ID No.	Connect To	RECLAIM Source	Emissions and Requirements	Conditions
PROCESS 17: ELECTRIC GENERATION					
SYSTEM 4: AIR POLLUTION CONTROL COGEN TRAIN B					
SELECTIVE CATALYTIC REDUCTION, REACTOR NO. R-3400, CORMETECH, CERAMIC HONEYCOMB TYPE OR APPROVED EQUIVALENT CATALYST, 667 CU. FT.; DEPTH 6 FT 11 IN, HEIGHT: 30 FT 11 IN; WIDTH: 13 FT 11 IN WITH AMMONIA INJECTION, V-3450 <u>V-3410A & V-3410B (One Standby Unit)</u> , AQUEOUS AMMONIA A/ N: 512927 <u>534670</u>	C2213	D2207 D2208		NH3: 20 PPMV (4) [RULE : 1303(a)(1)-BACT, 5-10-1996]	A99.3, A195.25, D12.2, D12.3, D12.14, D12.39, D12.40, D12.42, D29.4, D29.14, E193.5, K40.5, <u>K171.19</u>
CO OXIDATION CATALYST, NO. R-3450, 117.6 CU FT CATALYST, DEPTH: 12 FT, WIDTH: 13 FT; HEIGHT: 28 FT 9 IN A/ N: 512927 <u>534670</u>	C2214	D2207 D2208			D12.4, D12.13, D12.41, D12.43
BLOWER, DILUTION AIR, K-3410A & K-3410B (One Standby Unit), WITH MOTOR DRIVE, ONE UNIT STANDBY A/ N: 512927 <u>534670</u>	D3483				
BLOWER, DILUTION (2), K-3320, WITH MOTOR DRIVE, ONE UNIT STANDBY A/ N: 512927	D3484				

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CONDITIONS

PROCESS CONDITIONS

None

SYSTEM CONDITIONS

None

DEVICE CONDITIONS

A99.3 The 20 PPM NH3 emission limit(s) shall not apply during startup and shutdown.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C1967, C2210, **C2213**, C3058, C3533]

A195.25 The 20 PPMV NH3 emission limit(s) is averaged over 1 hour, 15 percent oxygen, dry basis.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C2210, **C2213**, C3058]

D12.2 The operator shall install and maintain a(n) continuous monitoring system to accurately indicate the ammonia injection rate of the ammonia injection system.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The operator shall also install and maintain a device to continuously record the parameter being measured and to continuously record the ammonia to emitted NOx mole ratio.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C2210, **C2213**, C3058]

D12.3 The operator shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the SCR catalyst beds in inches water column.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every twelve months.

The operator shall also install and maintain a device to continuously record the parameter being measured.

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For the purpose of this condition, continuously record shall be defined as recording at least once every week and shall be calculated based upon the average of the continuous monitoring for that week.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C85, C162, C469, C1967, C2210, ~~C2213~~, C3058, C3533]

D12.4 The operator shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the CO catalyst beds.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months

The operator shall also install and maintain a device to continuously record the parameter being measured.

For the purpose of this condition, continuously record shall be defined as recording at least once every week and shall be calculated based upon the average of the continuous monitoring for that week.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C2211, ~~C2214~~, C3059]

D12.11 The operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the inlet to the SCR catalyst bed.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months.

The operator shall also install and maintain a device to continuously record the parameter being measured.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C2210, ~~C2213~~, C3058, C3533]

D12.13 The operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the inlet to the CO catalyst beds.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months

The operator shall also install and maintain a device to continuously record the parameter being measured.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour

[RULE 1303(a)(1)-BACT, 5-10-1996]

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[Devices subject to this condition: C2211, [C2214](#), C3059]

D12.39 The operator shall install and maintain a(n) continuous monitoring system to accurately indicate the ammonia injection rate of the ammonia injection system except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

The measuring device or gauge shall be accurate to within plus or minus 5 percent. It shall be calibrated once every 12 months.

The operator shall also install and maintain a device to continuously record the parameter being measured and to continuously record the ammonia to emitted NOx mole ratio except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

In the event of a monitoring and/or recording system malfunction or failure, which exceeds 24 hours, the operator shall notify the Executive Officer within 24 hours or the next working day. During the system failure, compliance with the requirement to continuously monitor and record data is waived for a period not to exceed 96 consecutive hours.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: [C2213](#)]

D12.40 The operator shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the SCR catalyst beds in inches water column except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every twelve months.

The operator shall also install and maintain a device to continuously record the parameter being measured except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

For the purpose of this condition, continuously record shall be defined as recording at least once every week and shall be calculated based upon the average of the continuous monitoring for that week.

In the event of a monitoring and/or recording system malfunction or failure, which exceeds 24 hours, the operator shall notify the Executive Officer within 24 hours or the next working day. During the system failure, compliance with the requirement to continuously monitor and record data is waived for a period not to exceed 96 consecutive hours.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: [C2213](#)]

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D12.41 The operator shall install and maintain a(n) differential pressure gauge to accurately indicate the differential pressure across the CO catalyst beds except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months

The operator shall also install and maintain a device to continuously record the parameter being measured except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

For the purpose of this condition, continuously record shall be defined as recording at least once every week and shall be calculated based upon the average of the continuous monitoring for that week.

In the event of a monitoring and/or recording system malfunction or failure, which exceeds 24 hours, the operator shall notify the Executive Officer within 24 hours or the next working day. During the system failure, compliance with the requirement to continuously monitor and record data is waived for a period not to exceed 96 consecutive hours.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: [C2214](#)]

D12.42 The operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the inlet to the SCR catalyst bed except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months.

The operator shall also install and maintain a device to continuously record the parameter being measured except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

In the event of a monitoring and/or recording system malfunction or failure, which exceeds 24 hours, the operator shall notify the Executive Officer within 24 hours or the next working day. During the system failure, compliance with the requirement to continuously monitor and record data is waived for a period not to exceed 96 consecutive hours.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: [C2213](#)]

D12.43 The operator shall install and maintain a(n) temperature reading device to accurately indicate the temperature at the inlet to the CO catalyst beds except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

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The measuring device or gauge shall be accurate to within +/- 5 percent. It shall be calibrated once every 12 months

The operator shall also install and maintain a device to continuously record the parameter being measured except during calibration checks, or routine maintenance and repair lasting 60 minutes or less.

For the purpose of this condition, continuously record shall be defined as recording at least once every hour and shall be calculated based upon the average of the continuous monitoring for that hour.

In the event of a monitoring and/or recording system malfunction or failure, which exceeds 24 hours, the operator shall notify the Executive Officer within 24 hours or the next working day. During the system failure, compliance with the requirement to continuously monitor and record data is waived for a period not to exceed 96 consecutive hours.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: [C2214](#)]

D29.4 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	Approved District Method(s)	District-approved averaging time	Outlet

The test(s) shall be conducted at least annually.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition: C85, C162, C469, [C2213](#), 2217, C3058, C3533]

D29.14 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
NH3 emissions	Approved District Method(s)	District-approved averaging time	Outlet

The initial test shall be performed within 60 days after the new ammonia vaporization system is put into operation.

The test(s) shall be conducted at least annually after the initial source test.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997]

[Devices subject to this condition: C2210, [C2213](#)]

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E193.5 The operator shall construct, operate, and maintain this equipment according to the following specifications:

To establish equivalency of a catalyst, the operator shall submit the following information for the catalyst to the District permitting engineer: manufacturer, description (type), configuration, dimensions (per block), number of blocks, total volume, space velocity, life, vendor performance guarantee, performance curve (versus temperature), minimum operating temperature, estimated SO₂ to SO₃ conversion, estimated NO to NO₂ conversion, and concentration of Rule 1401 TACs.

The operator shall not install and use an “equivalent” catalyst until approval is received in writing from the District.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Devices subject to this condition: C2210, [C2213](#), C2217, C3058, C3533]

K40.5 The operator shall provide to the District a source test report in accordance with the following specifications:

Source test results shall be submitted to the District no later than 60 days after the source test was conducted.

Emission data shall be expressed in terms of concentration (ppmv) corrected to 15 percent oxygen (dry basis), mass rate (lb/hr), and lb/MMSCF. In addition, solid PM emissions, if required to be tested, shall also be reported in terms of grains/DSCF.

All exhaust flow rate shall be expressed in terms of dry standard cubic feet per minute (DSCFM) and dry actual cubic feet per minute (DACFM).

All moisture concentration shall be expressed in terms of percent corrected to 15 percent oxygen.

Source test results shall also include the oxygen levels in the exhaust, fuel flow rate (CFH), heating content of the fuel, the flue gas temperature, and the generator power output (MW) under which the test was conducted.

[Rule 2005, 5-6-2005; Rule 1303(a)(1)-BACT, 5-10-1996; Rule 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition: D2198, D2207, C2210, [C2213](#), D2216, C2217, D3053, C3058]

K171.19 The operator shall provide to the District the following items:

Final Drawings and/or specifications of the equipment installed/constructed/modified shall be submitted to the District within 60 days after its construction.

[Rule 1303(a)(1)-BACT, 5-10-1996; Rule 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition: C2210, [C2213](#)]

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FEE ANALYSIS

As shown in the following table, Chevron has paid all applicable fees for all of the subject applications.

Summary of Fee Analysis

A/N	Equipment Description	BCAT/CCAT	Fee Schedule	Fee Type	Fiscal Year (1)	Fee
534670	SCR	81 (CCAT)	C	Modification	11-12	\$ 3,359.43
534783	RECLAIM/Title V Permit	555009 (BCAT)	na.	RECLAIM/Title V Permit Revision	11-12	\$ 1,747.19
Total						\$ 5,036.12
Fees Paid						\$ 6,786.34
Refund Due (2)						\$ 1,679.72

(1) Based on the date that the application was submitted.

(2) Chevron paid \$1679.72 additional fee for expedited permit processing. This fee will be refunded since no overtime was spent on this application.

PERMIT HISTORY

The permit history for the Cogen Train B Air Pollution Control System is contained in the table below.

Permit History for Cogen Train B Air Pollution Control System

Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
131329	8/25/86	na.	na.	Original Construction
166603	6/1/89	na.	na.	Change of condition to allow the following during start-up and shutdown of the Cogen unit: exceedance of the CO and NOx concentration limits for up to 4 hours; operate without steam injection in the turbine or up to 6 hours; and operate without ammonia injection in the SCR for up to 6 hours.
259193	1/27/92	na.	na.	Replaced the electrically heated aqueous ammonia vaporizer with a steam heated anhydrous ammonia vaporizer (V-3975) that serves the Cogen A and B Trains and the Auxiliary Boiler.
283739	12/15/93	na.	na.	Replaced the common steam heated anhydrous vaporizer (V-3975) with individual aqueous ammonia vaporizers (V-3450) for each Cogen unit and the Aux. Boiler. Part of a refinery-wide project to replace anhydrous ammonia with aqueous ammonia.
321809	11/7/96	na.	na.	Replaced the existing aqueous ammonia vaporizer, which never functioned as expected, with a new aqueous ammonia vaporizer. The Chevron equipment no. remained the same.
357706	na.	na.	na.	Outstanding change of condition application consolidated under 512927.
405275	na.	na.	na.	Outstanding change of condition application consolidated under 512927.

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Permit to Construct		Permit to Operate		Description of Modification
No.	Issue Date	No.	Issue Date	
512927	na.	na.	na.	Replaced the SCR catalyst with a different catalyst type without obtaining a permit to construct.
534670	na.	G10502	10/27/10	Subject application for replacement of the ammonia vaporization system and revision of parameter monitoring conditions. New system includes a standby unit.

COMPLIANCE RECORD REVIEW

There are no ongoing violations for any of the equipment covered in this evaluation.

PROCESS DESCRIPTION

GENERAL

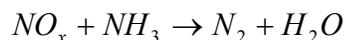
A combustion gas turbine (CGT) is an internal combustion engine that operates with rotary motion. In electrical power generation applications, the high-pressure, high-temperature gas produced in the combustion chamber is expanded through the turbine blades to produce shaft power that is utilized to drive an electric generator and the combustion air compressor. Hot exhaust gas from the turbine flows through an insulated duct to an exhaust gas heat exchanger called a heat recovery steam generator (HRSG). The HRSG is equipped with duct burners to provide additional heat for steam production.

The Cogen Train B CGT is a General Electric (GE) Model No. PG-6531B (Frame 6). The turbine is fired on natural gas and/or LPG (butane, propane, and/or pentane). Natural gas and steam are injected into the compressed air stream prior to injection into the combustor. Steam is injected into the stream to control combustion temperature for control of NOx emissions. The duct burners in HRSG inlet are low-NOx type burners, which are fired on natural gas and/or refinery fuel gas. The air pollution control system (APCS) for Cogen Train B includes a CO catalyst for control of CO and VOC emissions and an SCR catalyst for control of NOx emissions. The CO and SCR catalysts are integrated into the HRSG.

SELECTIVE CATALYTIC REDUCTION SYSTEM (SCR)

Catalyst Description

SCR systems reduce NOx by reacting it with ammonia in the presence of a catalyst. The reaction results in the formation of elemental nitrogen and water, as shown in the equation below.



The current SCR catalyst, which has a honeycomb geometry, is comprised of Vanadium Pentoxide (V₂O₅) as the active material deposited on or incorporated with a high surface area ceramic substrate, which is composed of activated titanium dioxide. The catalyst also

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contains Tungsten Oxide as a promoter. The table below contains specifications for the current SCR catalyst.

Specifications for Cogen Train B SCR

Catalyst Properties	Specifications
Manufacturer	Cormetech
Catalyst Description	Ti-V-W
Catalyst Dimensions (per block)	4 ft 5 in (h) x 4 ft 8 in (w) x 6 ft 11 in (d)
Number of Blocks	21
Configuration	Homogeneous Honeycomb
Catalyst Volume	667 ft ³
Space Velocity	21,700 hr ⁻¹
Catalyst Life (guarantee)	36 months
Optimum Operating Temperature	615 - 770°F
Ammonia Injection Rate	75 lb/hr aqueous ammonia (30 wt %)
NO _x Removal efficiency	87 percent
NO _x Concentration @ Stack Outlet (guarantee)	5.5 ppmvd, 1-hr average, 15% O ₂
NH ₃ Concentration @ Stack Outlet (guarantee)	10 ppmvd, 1-hr average, 15% O ₂

Aqueous Ammonia Vaporization and Injection System

Aqueous ammonia (30% soln.) is stored in existing storage tank V-686 (D1859 in P21S5), which is located near the main ammonia loading/unloading rack. Ammonia is pumped by existing pump P-14 (or spare pump P-14A) to the cogeneration units. Currently, ammonia is metered into Ammonia Vaporizer V-3450. In the vaporizer, ammonia is atomized through a fine nozzle with plant air. The resulting small droplets of ammonia evaporate into a stream of hot ambient air, which is supplied by Dilution Air Blower K-3410 (or spare blower K-3420) and heated by an electrical air heater. The ammonia-air mixture is evenly distributed across the ammonia injection grid, which is located upstream of the SCR in the HRSG. The current system contains redundant feed lines, blowers, and air heaters but only one vaporizer vessel (V-3450).

Chevron is proposing to replace the existing ammonia vaporizer system. The new system will include complete redundancy including a spare vaporizer vessel to increase the robustness of the system. The new equipment is shown in the table below.

Equipment ID	Description	Dimensions / Rating
V-3410A	Aqueous NH ₃ Vaporizer	36" Dia x 81" Height
V-3410B	Aqueous NH ₃ Vaporizer	36" Dia x 81" Height

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E-3410A	Electric Immersion Heater	180 KW
E-3420B	Electric Immersion Heater	180 KW
K-3410A	Dilution Air Blower	880 CFM, 15 hp
K-3410B	Dilution Air Blower	880 CFM, 15 hp

Air Pollution Control Systems Performance

The Cogen Train B and associated air pollution control system is subject to the following stack gas emission limits (1 hr. avg., 15% O₂): CO – 10 ppmv; NO_x – 9 ppmv; and NH₃ – 20 ppmv. The hourly average CO and NO_x CEMS data for the months of February and March 2012 were reviewed. The average and maximum CO concentrations (@ 15% O₂) for this period were 0.1 ppmv and 0.3 ppmv. The average and maximum NO_x concentrations (@ 15% O₂) were 3.8 ppmv and 6.2 ppmv.

Cogen Train B ammonia source test results for the last three years are summarized in the table below. As seen in the table, measured ammonia concentrations were well below the 20 ppmv ammonia limit.

Ammonia Source Test Results for Cogen Train B

Source Test Date	Ammonia Concentration (ppmv @ 15% O₂)
1 st Quarter 2009	3.5
2 nd Quarter 2009	0.7
3 rd Quarter 2009	0.6
4 th Quarter 2009	3.1
1 st Quarter 2010	0.3
2 nd Quarter 2010	0.2
3 rd Quarter 2010	4.1
4 th Quarter 2010	6.5
Annual 2011 (1)	0.2

(1) Source test frequency revised changed from quarterly to annual in October 2010.

The following parameter monitoring data for the months of February and March 2012 was also reviewed: ammonia flow rate, SCR inlet temperature, SCR differential pressure, CO catalyst inlet temperature and CO catalyst differential pressure. While there are no permit limits on these parameters, they were within expected operating ranges during this two month period.

CALCULATIONS

Ammonia is the only pollutant that is generated and emitted directly from the subject APCS. To achieve optimum NO_x reduction efficiency, greater than stoichiometric amounts of

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ammonia are injected upstream of the catalyst. The excess ammonia that flows through the SCR system is commonly referred to as ammonia “slip”. The amount of ammonia slip is limited through an ammonia stack gas concentration limit of to 20 ppmv (@ 15% O₂) as specified in the “Emissions and Requirements” column of the permit. The estimate of maximum potential ammonia emissions is based on the maximum permitted heat input of the cogeneration unit and the subject 20 ppmv ammonia concentration limit. This ammonia emission estimate is shown below.

$$\begin{aligned}
 \text{NH}_3 \text{ Emissions} &= \text{capacity} \times \left(\frac{\text{ppmvd}}{1000000} \right) \times \text{MW} \times \left(\frac{1}{\text{MV}} \right) \left(\frac{20.9}{5.9} \right) \times F_d \times 24 \times 365 \\
 &= 149,164 \text{ lb/yr} \\
 &= 414 \text{ lb/day (30-day avg.)}
 \end{aligned}$$

where,

capacity	= max. permitted combined capacity for turbine and duct burner
	= 616 MMBtu/hr
ppmvd	= Pollutant concentration limit at stack outlet at 15% O ₂ , dry basis
	= 20 ppmv
MW	= Molecular weight = 17 lb/lb-mol
MV	= Molar volume at 60°F = 379.5 dscf/lb-mol
F _d	= Dry oxygen f-factor for natural gas = 8,710 dscf/MMBTU

Since the permitted maximum ammonia slip limit is unchanged, there is no change in the maximum potential ammonia emissions for the replacement of the ammonia vaporization system.

EVALUATION OF PROPOSED CONDITION CHANGE

Chevron proposes to add the following language to continuous parameter monitoring conditions D12.2, D12.3, D12.4, D12.11 and D12.13. This language mirrors the failure, calibration, routine maintenance and repair period allowances specified for CEMS in District Rule 218(f)(3).

1. The operator shall notify the Executive Officer within 24 hours or the next working day, in the event of a system failure or shutdown, which exceeds 24 hours. Zero and calibration checks and routine maintenance do not require reporting.
2. In the case of a CMD failure or shutdown, compliance with permit requirements to monitor and record data is waived for a period not to exceed 96 consecutive hours.
3. Continuous parameter monitoring and recording requirements shall not apply during calibration checks, routine maintenance and repairs lasting 60 minutes or less.

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CEMS is defined in Rule 218 as the total combined equipment and systems required to continuously determine air contaminants and diluent gas concentrations and/or mass emission rate of a source effluent. Mass emission monitoring systems normally utilize fuel flow monitors or stack flow monitors, which, in turn, usually utilize temperature, pressure, and differential pressure monitoring systems for continuous measurement of fuel or stack gas properties. The CEMS also includes a data acquisition system to continuously record contaminant concentration and parameter monitoring data. All of the monitoring and recording equipment in the CEMS are subject to the failure, calibration, routine maintenance and repair period allowances specified for CEMS in District Rule 218(f)(3).

It is judged that the Rule 218(f)(3) failure, calibration, routine maintenance and repair period allowances are also appropriate for the ammonia flow, differential pressure and temperature monitoring and recording systems specified in conditions D12.2, D12.3, D12.4, D12.11 and D12.13. The subject monitoring systems are utilized for informational purposes only since the permit does not include limits on SCR and CO catalyst differential pressure and temperature, and the ammonia flow rate cannot be utilized to demonstrate compliance with the ammonia concentration limit. Additionally, the Cogen Train B is equipped with NOx and CO CEMS to demonstrate compliance with the NOx and CO limits.

Conditions D12.2, D12.3, D12.4, D12.11 and D12.13 will be replaced by new conditions D12.39 through D12.43, which include the Rule 218(f)(3) failure, calibration, routine maintenance and repair period allowances. Inclusion of appropriate maintenance, repair and calibration periods in these conditions is not considered to be a weakening of these BACT conditions and is not expected to materially impact operation or emissions of Cogen Train B.

RULE COMPLIANCE REVIEW

CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

The California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq., requires that the environmental impacts of proposed “projects” be evaluated and that feasible methods to reduce, avoid or eliminate significant adverse impacts of these projects be identified and implemented. According to the District’s CEQA Guidelines, the net emission increase thresholds for significant effect are:

- ROG: 55 lb/day
- PM10: 150 lb/day
- CO: 274 lb/day

CEQA analysis is not required for the proposed modification and permit condition changes since there is no increase in the emissions of any of these criteria air pollutants and there are no other significant environmental impacts. On the 400-CEQA form, Chevron marked “No” to all of the additional criterion that may trigger CEQA. For these reasons, CEQA does not apply.

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REGULATION II: PERMITS

Rule 212: Standards for Approving Permits

212(c)(1): Public notice is required for a project if any of the modified permit units are located within 1000 feet of a school. The distance to the nearest school from the Cogen Train B is greater than 2500 feet. Public notice is not required under this clause.

212(c)(2): Public notice is required for any “new or modified facility”, which has on-site emission increases exceeding any of the daily maximums specified in subdivision (g) of Rule 212. The 212(g) emission thresholds are shown in the table.

Air Contaminant	R212(g) Daily Maximum Threshold (lb/day)
CO	220
NO _x	40
PM10	30
SO ₂	60
VOC	30
Lead	3

Replacement of the ammonia vaporization system and revision of the subject permit conditions will not cause an increase in the emission of any of the subject air contaminants. Public notice is not required under this clause.

212(c)(3): Public notice is required for any new or modified permit units that have an increase in toxic air contaminants that results in an increase of maximum individual cancer risk (MICR) of more than one in a million (1×10^{-6}) during a lifetime (70 years).

Replacement of the ammonia vaporization system and revision of the subject permit conditions will not cause an increase in the emission of any toxic air contaminants. Therefore, there is no increase in the MICR. Public notice is not required under this clause.

212(g): 212(g) specifies that any new or modified sources subject to Regulation XIII which undergo construction or modifications resulting in an emissions increase exceeding any of the daily maximum emission thresholds (listed in the table above) will require notification. From Regulation XIII (Rule 1302), the definition of “Source” is any permitted individual unit, piece of equipment, article, machine, process, contrivance, or combination thereof, which may emit or control an air contaminant. This includes any permit unit at any non-RECLAIM facility and any device at a RECLAIM facility.

Replacement of the ammonia vaporization system and revision of the subject permit conditions will not cause an increase in the emission of any of the air contaminants specified in Rule 212(g). Public notice is not required under this clause.

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REGULATION IV - PROHIBITIONS

Rule 401: Visible Emissions

This rule specifies that a person shall not discharge emissions from a source for a period or periods aggregating more than three minutes in any one hour which are as dark or darker in shade as that designated No. 1 on the Ringelmann Chart or emissions of such opacity that it obscures an observers view to an equal or greater level. This is equivalent to opacity of 20%.

Visible emissions are not expected since the subject turbine and duct burners combust gaseous fuels. Chevron has a long record of operating this cogeneration unit within the limits of this rule. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to increase the visible emissions potential of the cogeneration train. Compliance with this regulation is expected.

Rule 402: Nuisance

This rule requires that a person not 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 cause, or have a natural tendency to cause injury or damage to business or property.

No nuisance complaints have been received for the subject cogeneration unit during the last three year period. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to increase the nuisance potential of the cogen train. Compliance with this regulation is expected.

Rule 404: Particulate Matter – Concentration

This rule sets concentration limits for total PM (solid and condensable) emissions. The rule limit varies based on the quantity of exhaust gas (dry basis) discharged from a source. As specified at 404(c), the provisions of this rule do not apply to emissions resulting from the combustion of liquid or gaseous fuels in steam generators or gas turbines. Therefore, the cogeneration unit is not subject to this regulation.

Rule 405: Solid Particulate Matter – Weight

This rule sets solid PM mass emission limits for the processing of solid materials. It is not applicable to combustion sources such as the subject cogeneration unit.

Rule 407: Liquid and Gaseous Air Contaminants

This rule contains the following emission limits:

- Carbon monoxide (CO) - 2,000 ppmv (dry; 15 minute average) [407(a)(1)]
- Sulfur Compounds - 500 ppmv (calculated as SO₂; 15 minute average) [407(a)(2)(B)]

CO Limit: The subject cogeneration unit is equipped with a CO catalyst for control of CO emissions and the permit is conditioned with a CO concentration limit of 10 ppmv (15% O₂, 1-hr avg.). The maximum hourly CO CEMS reading during the months of February and March 2012 was 0.3 ppmv. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to significantly impact operation of the

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cogeneration unit or the CO catalyst. Continued compliance with the 2000 ppmv CO limit is expected.

Sulfur Compound Limit: The 500 ppmv sulfur compound limit is subsumed by RECLAIM [Rule 2001(j)] for the cogeneration unit, which is classified as a major source under RECLAIM.

Rule 409: Combustion Contaminants

This rule contains limit on combustion contaminants from the combustion of fuel of 0.23 gram per cubic meter (0.1 grain per cubic foot) of flue gas (15 minute avg. at 12% CO₂).

A PM/PM₁₀ source test was performed on the Cogen Train B during April 2008. The measured PM concentration was 0.0035 gr/dscf, which is well below the 0.1 gr/dscf limit of this regulation. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to significantly impact PM emissions. Compliance with the PM emission limit of this rule is expected.

Rule 475: Electric Power Generating Equipment

This rule applies to power generating equipment rated greater than 10 MW installed after May 7, 1976. Requirements specify that the equipment must comply with a PM mass emission limit of 11 lb/hr or a PM concentration limit of 0.01 grains/dscf. Compliance is demonstrated if either the mass emission limit or the concentration limit is met.

As seen in the Rule 409 evaluation, the Cogen Train B PM emissions were measured during the most recent source test as 0.0035 gr/dscf, which is well below the 0.01 gr/dscf limit of this regulation. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to significantly impact PM emissions. Compliance with the PM emission limit of this rule is expected.

Rule 476: Steam Generating Equipment

The duct burners of the Cogen Train B are subject to the requirements of this rule since they are used to produce steam, have a heat input rating of greater than 50 MMBtu/hr (each are ~ 120 MMBtu/hr), and were constructed after May 7, 1976. This regulation has limits on NO_x and combustion contaminants. The NO_x limits of this rule are subsumed by RECLAIM per 2001(j). The combustion contaminant (PM) limits are the same as the Rule 475 limits. As discussed for Rule 475, compliance with the PM limit is expected.

REGULATION IX - NEW SOURCE PERFORMANCE STANDARDS (NSPS)

40 CFR60 SUBPART Db: Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

The affected facility to which this subpart applies is each steam generating unit that commences construction, modification, or reconstruction after June 19, 1984, and that has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour). The Cogen Train B heat recovery steam generator (HRSG) is subject to this regulation since the duct burners fire at 120 MMBtu/hr and the unit was constructed after 1984.

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60.42b – Standards for Sulfur Dioxide

(c) - Affected facilities which also meet the applicability requirements under Subpart J (Standards of performance for petroleum refineries; §60.104) are subject to the particulate matter and nitrogen oxides standards under this subpart and the sulfur dioxide standards under subpart J (§60.104). The duct burners/HRSG on the existing cogeneration units are subject to the SO₂ standards of NSPS Subpart J so they are not subject to the SO₂ standards of this regulation.

60.43b – Standards for Particulate Matter

60.43(a), (b), (c), and (d) contain PM standards for steam generating units that were constructed, modified, or reconstructed after June 19, 1984 and combust coal, oil, wood, or municipal waste respectively but there are no PM standards for gaseous fuel fired units constructed after 1984. 60.43b(h) contains standards for units constructed, modified, or reconstructed after February 28, 2005, which combust coal, oil, wood, or a mixture of these fuels. There are no PM standards for gaseous fuel fired units.

The Cogen Train B duct burners combust only gaseous fuels so they are not subject to a PM standard under this regulation.

60.44b – Standards for Nitrogen Oxides

According to 60.44b(1)(ii) and 60.44b(4)(i), respectively, the duct burners are subject to a NO_x emission limit of 0.20 lb/MMBtu (expressed as NO₂) on a 30-day rolling average basis. This emission rate is comparable to 160 ppmv @ 3% O₂ or 55 ppmv @ 15% O₂.

The NO_x emissions for the Cogen Train B are well below the limits of this regulation. Each of the existing units is equipped with a NO_x CEMS to show compliance with this emission rate. Replacement of the ammonia vaporization system and revision of the subject permit conditions are not expected to significantly impact NO_x emissions. Continued compliance with this NO_x emission rate is expected.

40CFR60 Subpart J- Standards of Performance for Petroleum Refineries

The provisions of this subpart are applicable to fuel gas combustion device which commences construction or modification after June 11, 1973. Fuel gas combustion device is defined as “any equipment, such as process heaters, boilers and flares used to combust fuel gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid”. Fuel gas is defined as any gas which is generated at a petroleum refinery and which is combusted. Fuel gas also includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery.

The Cogen Train B turbine is subject to this regulation when combusting butane, propane, or pentane which meet the definition of “fuel gas”. The duct burners are subject to this regulation when combusting refinery fuel gas (RFG), which also meets the definition of “fuel gas”. During normal operation, the H₂S concentration of the refinery fuel gas, butane and propane combusted in the CGT and duct burners is well below 160 ppmv limit of this regulation.

The SCR system and associated ammonia injection system are not subject to any requirements under this regulation. Replacement of the ammonia vaporization system and revision of the subject permit conditions will not impact compliance with this regulation.

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40CFR60 Subpart GG: Standards of Performance for Stationary Gas Turbines

This NSPS is applicable to all stationary gas turbines that commenced construction, reconstruction, or modification after Oct. 3, 1977 and have a heat input at peak load of 10.7 gigajoules (10 MMBtu) per hour, based on the fuels lower heating value.

The Cogen B turbine is subject to this NSPS since it has a heat input (based on LHV) of greater than 10 MMBtu/hr and was constructed after Oct. 3, 1977. A discussion of the applicable standards for this regulation follows.

NOx limit: Turbines that are subject to the NOx Limits of this regulation are specified at 40CFR60.332(b), (c), and (d) as follows:

- 60.332(b) – Electric utility stationary gas turbines with a heat input at peak load greater than 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired.....
- 60.332(c) - Stationary gas turbines with a heat input at peak load equal to or greater than 10.7 gigajoules per hour (10 million Btu/hour) but less than or equal to 107.2 gigajoules per hour (100 million Btu/hour) based on the lower heating value of the fuel fired...
- 60.332(d) Stationary gas turbines with a manufacturer's rated base load at ISO conditions of 30 megawatts or less except as provided in §60.332(b).....

The definition of an *electric utility stationary gas turbine* at 60.331(q) is “any stationary gas turbine constructed for the purpose of supplying more than one-third of its potential electric output capacity to any utility power distribution system for sale”. The Cogen Train B was constructed to supply electricity for refinery use only. Since the Cogen B turbine is not *electric utility stationary turbine*, it is not subject to the NOx limit under 60.332(b). The turbine is also not subject to the NOx limit under 60.332(c) and 60.332(d) since the heat input at peak load is greater than 100 MMBtu/hr and the rated base load is greater than 30 MW.

SOx limit: The Cogen Train B turbine is subject to the SOx limits of 60.333(a). The turbine must comply with one of the following limits:

- Exhaust gas concentration of 150 ppmv SO₂ (at 15% O₂, dry basis)
- Fuel sulfur limit of 0.8 percent (by weight) (8000 ppmw)

Chevron has chosen to comply with the 0.8% fuel sulfur limit. This limit is contained in permit condition B61.7. The turbine is permitted to combust natural gas, butane, pentane, or propane. The sulfur concentration of each of these fuels is well below 8000 ppmw. Replacement of the ammonia vaporization system and revision of the subject permit conditions will not impact SOx emissions. Compliance with this fuel sulfur limit is expected.

40CFR60 Subpart GGG – Standards of Performance for Equipment Leaks of VOCs in Petroleum Refineries

This NSPS is applicable to affected facilities that begin construction after January 4, 1983. The following are affected facilities under this subpart:

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- Compressors
- The group of all the equipment within a process unit.

The definition for process unit follows: “*Process unit* means components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates; a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.”

Even though the Cogen Train B was constructed after the January 4, 1983 applicability date of this regulation, it is not an “affected facility” since it is not part of a “process unit” as defined in this regulation and it does not contain any compressors that are in VOC service.

40CFR60 Subpart KKKK: Standards of Performance for Stationary Combustion Turbines

This subpart establishes NO_x and SO₂ emission standards and compliance schedules for the control of emissions from stationary combustion turbines with a heat input at peak load equal to or greater than 10.7 gigajoules (10 MMBtu) per hour, based on the higher heating value, that commenced construction, modification or reconstruction after February 18, 2005.

The Cogen Train B has not been modified or reconstructed after February 18, 2005 so it is not subject to this NSPS.

REGULATION X - NATIONAL EMISSION STANDARD FOR HAZARDOUS AIR POLLUTANTS (NESHAPS)

40CFR63 Subpart CC: National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries

This Subpart applies to petroleum refining sources and related emission sources that are specified in section 63.640 (c)(5) through (c)(7) (e.g. miscellaneous process vents (except for FCCU, SRU, and CRU vents), storage vessels, wastewater stream, equipment leaks, gasoline loading racks, marine vessel loading, etc.) that are located in a major source and emit or have equipment contacting one or more of the hazardous air pollutants (HAPs) listed in Table 1 of this subpart.

The only sources in the Cogen Train B APCS that must be evaluated as potential affected sources under this NESHAP are fugitive components in ammonia service. The equipment leak standards as specified in 63.648 are applicable to fugitive components that are “in organic hazardous air pollutant service”. In “organic hazardous air pollutant service” is defined as a piece of equipment that either contains or contacts a fluid (liquid or gas) that is at least 5% by weight of total organic HAPs as determined according to 63.180(d).

Ammonia is not an organic HAP. Therefore, the fugitive components in ammonia service are not subject to this regulation.

40CFR63 Subpart YYYY: National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines

This NESHAP establishes emission limitations and operating limitations for HAP emissions from stationary combustion turbines located at major sources of HAP emissions. An

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existing stationary combustion turbine is defined in §63.6090(a)(1) as a stationary combustion turbine for which construction or reconstruction was commenced on or before January 14, 2003. The Cogen Train B turbine is an existing turbine since construction of the turbine commenced in 1986. According to §63.6090(b)(4), existing stationary combustion turbines in all subcategories do not have to meet the requirements of this subpart and of subpart A of this part. Initial notification is also not required for existing stationary combustion turbines.

Therefore, the Cogen Train B turbine is not subject to any requirements under this regulation.

40CFR63 Subpart DDDDD - National Emission Standards for Hazardous Air Pollutants For Industrial, Commercial and Institutional Boilers and Process Heaters

This maximum achievable control technology (MACT) standard was originally promulgated by EPA on September 13, 2004 and was vacated and remanded by the US Court of Appeals for the District of Columbia Circuit on June 19, 2007. A new rule was proposed on June 4, 2010 with a public comment deadline of August 23, 2010. On May 18, 2011, EPA announced delay of the effective dates of the rule pending completion of their reconsideration of the rule. On January 9, 2012, the U.S. District Court for the DC Circuit vacated EPA's notice that delayed the effective dates of the Boiler MACT rule.

On December 23, 2011, EPA published the Boiler MACT reconsideration proposal with a public comment deadline of February 21, 2012. On February 7, 2012, EPA issued a No Action Assurance Letter specifying that they will exercise their enforcement discretion to not pursue enforcement action for violations of certain notification deadlines in the final Major Source Boiler rule. According to the letter, EPA intends to issue the final reconsideration rule prior to any of the compliance dates for existing sources.

In both the final rule and the proposed reconsideration rule, *boiler* is defined as an enclosed device using controlled flame combustion and having the primary purpose of recovering thermal energy in the form of steam or hot water. *Waste heat boiler* is defined as a device that recovers normally unused energy and converts it to usable heat. Waste heat recovery boilers incorporating duct or supplemental burners that are designed to supply 50 percent or more of the total rated heat input capacity of the waste heat boiler are not considered waste heat boilers, but are considered boilers. Based on these definitions, the duct burners and associated heat recovery steam generator would be subject to the proposed regulation as boilers.

Boilers that combust natural gas and/or refinery gas are not subject to any emission or operating limits under either the rule proposed in June 2010 or the reconsideration proposal published in Dec. 2011. It appears that the unit will be subject to only a work practice standard that includes an annual tune-up. Based on past compliance with similar regulations, it is expected that Chevron will comply with this regulation as proposed.

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REGULATION XI: SOURCE SPECIFIC STANDARDS

Rule 1109: Emission of Oxides of Nitrogen From Boilers and Process heaters in Petroleum Refineries

Chevron is subject to the requirements of Regulation XX (RECLAIM), which supersedes the requirements of Rule 1109 per Rule 2001(j). Therefore, the Duct Burners/HRSGs are not subject to the requirements of Rule 1109.

Rule 1134: Emission of Oxides of Nitrogen From Stationary Combustion Turbines

This rule is applicable to all existing stationary gas turbines, 0.3 megawatt (MW) and larger, as of August 4, 1989. The Cogen B turbine, which was constructed in 1986, would be subject to this regulation but the requirements of this rule has been subsumed by RECLAIM per 2001(j)

Rule 1135: Emission of Oxides of Nitrogen From Electric Power Generating Systems

The Cogen Train B is not subject to this regulation since it is not an “electric power generating system” as defined at 1135(b)(10). Also, the requirements of this rule have been subsumed by RECLAIM per 2001(j).

Rule 1146: Emission of Oxides of Nitrogen From Industrial, Institutional and Commercial Boilers, Steam Generators and Process Heaters

This regulation contains NO_x and CO emission limits for certain boilers, steam generators, and process heaters. According to 1146(b), this rule applies to boilers, steam generators, and process heaters of equal to or greater than 5 million Btu per hour rated heat input capacity used in all industrial, institutional, and commercial operations with the exception of:

- (1) boilers used by electric utilities to generate electricity; and
- (2) boilers and process heaters with a rated heat input capacity greater than 40 million Btu per hour that are used in petroleum refineries; and
- (3) sulfur plant reaction boilers.

The Cogen Train B duct burners/HRSG are not subject to this regulation since they are used in a refinery and have a rated heat input capacity greater than 40 MMBtu/hr. Also, the NO_x related requirements of this rule have been subsumed by RECLAIM per 2001(j) for RECLAIM facilities.

Rule 1173: Control of Volatile Organic Compound Leaks From Components of Petroleum Facilities and Chemical Plants

This rule is intended to control volatile organic compound (VOC) leaks from fugitive components at refineries, chemical plants, oil and gas production fields, natural gas processing plants, and pipeline transfer stations. It contains identification requirements, leak standards, inspection requirements, maintenance and repair requirements, and recordkeeping and reporting requirements for fugitive components.

The ammonia service fugitive components associated with the Cogen Train B APCS are not subject to this regulation because ammonia is not a VOC.

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Rule 1176: Sumps and Wastewater Separators

The purpose of this rule is to limit VOC emissions from wastewater systems located at petroleum refineries, on-shore oil production fields, off-shore oil production platforms, chemical plants, and industrial facilities. The rule specifies requirements for wastewater sumps, separators, sewer lines, process drains, junction boxes, and air pollution control equipment.

Ammonia is not a VOC. Additionally, replacement of the ammonia vaporization system will not impact any of the existing wastewater system components and will not include the installation of any new wastewater system components. Compliance with this rule will not be impacted.

REGULATION XIII - NEW SOURCE REVIEW

As specified in Rule 1301, Regulation XIII, sets forth pre-construction review requirements for new, modified, or relocated facilities, to ensure that the operation of such facilities does not interfere with progress in attainment of the national ambient air quality standards (NAAQS), and that future economic growth within the South Coast Air Quality Management District (District) is not unnecessarily restricted. The specific air quality goal of this regulation is to achieve no net increases from new or modified permitted sources of nonattainment air contaminants or their precursors.

The South Coast Air Basin (SOCAB) is designated in attainment of the NAAQSs for CO, NOx and SOx. The following are currently considered nonattainment air contaminants that are subject to new source review (NSR): NOx, SOx, PM_{2.5}, PM₁₀, and VOC. NOx and VOC are included since they are precursors for ozone. NOx, SOx and VOC are included as PM_{2.5} and PM₁₀ precursors.

NSR requirements for these nonattainment pollutants are specified in the following rules:

- Rule 1303 – PM10 and VOC (all facilities); NOx and SOx (non-RECLAIM facilities)
- Rule 1325 – PM2.5
- Rule 2005 – NOx and SOx (RECLAIM facilities)

Since Chevron is a RECLAIM facility, it is subject to the NSR requirements for NOx and SOx specified in Rule 2005 of the RECLAIM regulation (Regulation XX). Sources that emit ammonia, CO, and Ozone Depleting Compounds (ODCs) are subject to only the BACT requirements of Rule 1303 for these pollutants.

Rule 1303: Requirements

This rule requires the Executive Officer to deny a Permit to Construct for any new, modified or relocated source which results in an emission increase of CO, PM10, VOC, any ozone depleting compound, or ammonia, unless BACT is used. This rule also requires modeling and offset (among other requirements) if there is a net increase in PM10 or VOC emissions for any new or modified source. The Cogen Train B APCS is not subject to any requirements under this regulation since the replacement of the ammonia vaporization system and revision of the subject permit conditions will not cause an increase in the emission of ammonia, CO, ODCs, PM10 or VOC.

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Rule 1325: Federal PM2.5 New Source Review Program

This NSR rule addresses the emission of PM2.5 and its precursors, which are defined as NOx and SO2. The replacement of the aqueous ammonia vaporization system and revision of the subject permit conditions does not trigger any requirements of this rule since it will not cause an increase in the emission of PM2.5, NOx or SO2.

REGULATION XIV - TOXICS AND OTHER NON-CRITERIA POLLUTANTS

Rule 1401: New Source Review of Carcinogenic Air Contaminants

Rule 1401 contains the following requirements:

- 1) *(d)(1) MICR and Cancer Burden* - The cumulative increase in MICR which is the sum of the calculated MICR values for all toxic air contaminants emitted from the new, relocated or modified permit unit will not result in any of the following:
 - (A) an increased MICR greater than one in one million (1.0×10^{-6}) at any receptor location, if the permit unit is constructed without T-BACT;
 - (B) an increased MICR greater than ten in one million (1.0×10^{-5}) at any receptor location, if the permit unit is constructed with T-BACT;
 - (C) a cancer burden greater than 0.5.

- 2) *(d)(2) Chronic Hazard Index* - The cumulative increase in total chronic HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

- 3) *(d)(3) Acute Hazard Index* - The cumulative increase in total acute HI for any target organ system due to total emissions from the new, relocated or modified permit unit will not exceed 1.0 at any receptor location.

Replacement of the ammonia vaporization system and revision of the subject permit conditions will not cause an increase in the emission of any toxic air contaminant. Therefore, the Cogen Train B APCS is not subject to any requirements under this rule.

REGULATION XVII - PREVENTION OF SIGNIFICANT DETERIORATION (PSD)

The PSD program is the federal New Source Review (NSR) program for pollutants for which an area is in attainment with or unclassified with respect to a National Ambient Air Quality Standard (NAAQS) as well as greenhouse gases (GHG).

Rule 1703: PSD Analysis (& Associated Rules 1701, 1702, 1704, 1706, 1710 & 1713)

These rules contain the PSD requirements for attainment pollutants and selected unclassified pollutants. As discussed earlier, SOCAB is currently designated as attainment with NAAQSs for SO2, NO2, CO, and Lead. On March 3, 2003, AQMD's PSD delegation was rescinded by EPA. AQMD and EPA signed a "Partial PSD Delegation Agreement" effective July 11, 2007. According to a memo from Mr. Mohsen Nazemi, who is the Deputy Executive Officer of the AQMD Engineering and Compliance Division, this Partial Delegation Agreement is intended to delegate the authority and responsibility to AQMD for issuance of initial PSD permits and for PSD permit modifications where the applicant seeks to use the emissions calculation methodology set forth in AQMD Regulation XVII instead of those promulgated in 40 CFR 52.21 (NSR Reform).

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The replacement of the aqueous ammonia vaporization system and revision of the subject permit conditions does not trigger any requirements under this regulation since it does not impact the emission of CO, NO_x, SO_x or Lead.

Rule 1714: Prevention of Serious Deterioration for Greenhouse Gases

This rule sets forth preconstruction review requirements for greenhouse gases (GHG), which is defined as an aggregate group of six GHGs: carbon dioxide, nitrous oxide, methane, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. The replacement of the aqueous ammonia vaporization system and revision of the subject permit conditions does not trigger any requirements under this regulation since ammonia is not a greenhouse gas.

REGULATION XX - REGIONAL CLEAN AIR INCENTIVES MARKET (RECLAIM)

RECLAIM is a market incentive program designed to allow facilities flexibility in achieving emission reduction requirements for Oxides of Nitrogen (NO_x), and Oxides of Sulfur (SO_x). The Chevron Refinery (ID 800030) is a Cycle II RECLAIM facility. The cogeneration unit is subject to the NO_x and SO_x requirements of this regulation.

Rule 2005: New Source Review for RECLAIM

Sources that are subject to RECLAIM must comply with the New Source Review requirements of Rule 2005 instead of Regulation XIII. Replacement of the ammonia vaporization system and revision of the subject permit conditions does not cause an increase in the emission of NO_x or SO_x. Therefore, the Cogen Train B APCS is not subject to any requirements under this regulation.

Rule 2011: Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (SO_x) Emissions and Rule 2012: Requirements for Monitoring, Reporting, and Recordkeeping for Oxides of Sulfur (NO_x) Emissions

These rules establish the monitoring, reporting and recordkeeping requirements (MRR) for SO_x and NO_x emissions under the RECLAIM program. The Cogen Train B utilizes a SO_x SCEMS consisting of a fuel sulfur GC and flow rate monitor on each of the fuel supplies to comply with the monitoring requirements of Rule 2011. The unit is equipped with a NO_x CEMS for compliance with Rule 2012 monitoring requirements. Based on Chevron's record of compliance with RECLAIM monitoring, recordkeeping and reporting requirements, compliance with the requirements of this regulation is expected. Replacement of the ammonia vaporization system and revision of the subject permit conditions is not expected to impact compliance.

Regulation XXX – TITLE V PERMITS

The initial Title V permit for the refinery was issued on October 12, 2009. The permits issued for this project will be issued as a revision of the Title V permit. Permit revisions are categorized into the following four types: *administrative, minor, de minimis significant and significant*. The review and distribution requirements for each revision type are summarized in the following table.

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Title V Permit Revisions: Review and Distribution Requirements

Revision Type	Permit Review and Distribution Requirements		
	EPA Review (45-day)	Public Notice (30-day)	Send Final Permit to EPA
Administrative	No	No	Yes
Minor	Yes	No	Yes
De Minimis Significant	Yes	No	Yes
Significant	Yes	Yes	Yes

As defined in Rule 3000, a minor Title V permit revision is any revision that:

- (1) does not require or change a case-by-case evaluation of: reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;
- (2) does not violate a regulatory requirement;
- (3) does not require any significant change in monitoring terms or conditions in the permit;
- (4) does not require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit;
- (5) does not result in an emission increase of RECLAIM pollutants over the facility starting Allocation plus nontradeable Allocations, or higher Allocation amount which has previously undergone a significant permit revision process;
- (6) does not result in an increase in emissions of a pollutant subject to Regulation XIII - New Source Review or a hazardous air pollutant;
- (7) does not establish or change a permit condition that the facility has assumed to avoid an applicable requirement;
- (8) is not an installation of a new permit unit subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; and,
- (9) is not a modification or reconstruction of an existing permit unit, resulting in new or additional NSPS requirements pursuant to 40 CFR Part 60, or new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
- (10) incorporates an existing general permit, as defined in subdivision (e) of Rule 3004, and its associated requirements, into another Title V permit.

This Title V permit revision meets all of the requirements above so it is a minor revision. All monitoring systems are subject to downtime for calibrations, routine maintenance and malfunctions. Inclusion of appropriate maintenance, repair and calibration periods and allowances in the subject parametric monitoring conditions is not considered to be a significant change in monitoring terms or conditions of the title V permit nor a relaxation of any recordkeeping, or reporting requirement, or term, or condition of the permit.

Chevron has submitted Title V permit revision A/N 534783 for processing of this Title V permit minor revision, which will be sent to EPA for a 45-day review. Public notice is not required.

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CONCLUSION / RECOMMENDATION:

Based on the foregoing evaluation, it is expected that the subject application will comply with all applicable District Rules and Regulations. It is recommended that a permit to construct and operate be issued to the Cogen Train B Air Pollution Control System.