



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

NOV 13 2009

Mike Tollstrup, Chief
Project Assessment Branch
Air Resources Board
P O Box 2815
Sacramento, CA 95812-2815

Re: **Notice of Preliminary Decision - ATCs / Certificates of Conformity**
Facility # S-1129
Project # S-1085346

Dear Mr. Tollstrup:

Enclosed for your review and comment is the District's analysis of an application for Authorities to Construct for Chevron USA, Inc. Heavy Oil Western Stationary Source, CA. The modifications include making six gas turbine engines non-compliant dormant emissions units and subsequently retrofit each with an SCR system for District Rule 4703 compliance.

The public notice will be published approximately three days from the date of this letter. Please submit your written comments within the 30-day public comment period which begins on the date of publication of the public notice.

Thank you for your cooperation in this matter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Sajjad Ahmad, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

NOV 13 2009

Gerardo C. Rios, Chief
Permits Office
Air Division
U.S. EPA - Region IX
75 Hawthorne St.
San Francisco, CA 94105

**Re: Notice of Preliminary Decision – ATCs / Certificates of Conformity
Facility # S-1129
Project # S-1085346**

Dear Mr. Rios:

Enclosed for your review is the District's engineering evaluation of an application for Authorities to Construct for Chevron USA, Inc. Heavy Oil Western Stationary Source, CA, which has been issued a Title V permit. Chevron USA, Inc. is requesting that Certificates of Conformity, with the procedural requirements of 40 CFR Part 70, be issued with this project. The modifications include making six gas turbine engines non-compliant dormant emissions units and subsequently retrofit each with an SCR system for District Rule 4703 compliance.

Enclosed is the engineering evaluation of this application, along with the current Title V permit, and proposed Authorities to Construct # S-1129-47-13, -47-14, -48-13, -48-14, -49-13, -49-14, -53-12, -53-13, -54-13, -54-14, -55-12, and -55-13 with Certificates of Conformity. After demonstrating compliance with the Authority to Construct, the conditions will be incorporated into the facility's Title V permit through an administrative amendment.

Please submit your written comments on this project within the 45-day comment period that begins on the date you receive this letter. If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Sajjad Ahmad, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585



San Joaquin Valley

AIR POLLUTION CONTROL DISTRICT

NOV 13 2009

Mr. John Gruber
Chevron USA, Inc.
P.O. Box 1392
Bakersfield, CA 93302

**Re: Notice of Preliminary Decision - ATCs / Certificates of Conformity
Facility # S-1129
Project # S-1085346**

Dear Mr. Gruber:

Enclosed for your review and comment is the District's analysis of an application for Authorities to Construct for Chevron USA, Inc. Heavy Oil Western Stationary Source, CA. The modifications include making six gas turbine engines non-compliant dormant emissions units and subsequently retrofit each with an SCR system for District Rule 4703 compliance.

After addressing all comments made during the 30-day public notice and the 45-day EPA comment periods, the Authorities to Construct will be issued to the facility with Certificates of Conformity. Prior to operating with modifications authorized by the Authorities to Construct, the facility must submit an application to modify the Title V permit as an administrative amendment, in accordance with District Rule 2520, Section 11.5.

The public notice will be published approximately three days from the date of this letter. Please submit your written comments within the 30-day public comment period which begins on the date of publication of the public notice.

If you have any questions, please contact Mr. Jim Swaney, Permit Services Manager, at (559) 230-5900.

Thank you for your cooperation in this matter.

Sincerely,

David Warner
Director of Permit Services

Enclosures
c: Sajjad Ahmad, Permit Services

Seyed Sadredin
Executive Director/Air Pollution Control Officer

Northern Region
4800 Enterprise Way
Modesto, CA 95356-8718
Tel: (209) 557-6400 FAX: (209) 557-6475

Central Region (Main Office)
1990 E. Gettysburg Avenue
Fresno, CA 93726-0244
Tel: (559) 230-6000 FAX: (559) 230-6061
www.valleyair.org

Southern Region
34946 Flyover Court
Bakersfield, CA 93308-9725
Tel: (661) 392-5500 FAX: (661) 392-5585

**San Joaquin Valley Air Pollution Control District
Authority to Construct
Application Review**

**Designate Gas Turbines as Non-Compliant DEU's and
Retrofit with SCR Systems for Rule 4703 Compliance**

Facility Name:	Chevron USA, Inc. (CUSA)	Date:	October 19, 2009
Mailing Address:	P.O. Box 1392 Bakersfield, CA 93302	Engineer:	Sajjad Ahmad
Contact Person:	John Gruber	Lead Engineer:	Sheraz Gill
Telephone:	(661) 654-7144		
Fax:	(661) 654-7606		
E-Mail:	john.gruber@chevron.com		
Application #s:	S-1129-47-13, -47-14, -48-13, -48-14, -49-13, -49-14, -53-12, -53-13, -54-13, -54-14, -55-12 and -55-13		
Project #:	S-1085346		
Deemed Complete:	December 16, 2008		

I. PROPOSAL:

Chevron USA, Inc. (Chevron) is requesting Authorities to Construct (ATC's) permits for the modification of six (6), 3.5 MW each, gas turbines by installing Selective Catalytic Reduction (SCR) systems with ammonia (NH₃) injection. The gas turbines are located at Chevron's McKittrick and North Midway cogeneration (cogen) plants in the Kern County Heavy Oil Western stationary source (S-1129) and are currently permitted under Permits to Operate (PTO's) S-1129-47-11, -48-11, -49-11, -53-10, -54-11, and -55-10 (see Appendix II).

This modification is proposed to comply with Tier-3 emission standard of 5 ppmvd NOx @ 15% O₂ of Rule 4703 – Stationary Gas Turbines (9/20/07). Chevron has proposed a two step approach to meet the Tier 3 compliance schedule of Rule 4703. In the first step a non-compliant Dormant Emissions Unit (DEU) ATC will be implemented for each unit when it is taken out of service. In the second step, when the unit is down, the second ATC will be implemented for SCR retrofit. This compliance strategy will not violate Rule 4703 Tier 3 compliance schedule and also ensures that a unit will not be started until the SCR retrofit ATC has been fully implemented. Chevron's proposal is described in detail as follows:

1) ATC's S-1129-47-13, -48-13, -49-13, -53-12, -54-13 and -55-12:

Six ATC's will be issued to designate each of the six cogen units as non-compliant Dormant Emissions Unit (DEU) in accordance with District Policy SSP-1705, Additional Permit Conditions for Dormant Emission Units (amended 7/15/05).

The designation of a unit as DEU is not a "Modification" as defined in Section 3.25 of Rule 2201 and therefore, is not subject to Rule 2201. The following conditions will be added to each ATC:

- No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
- The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
- This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]

2) ATC's S-1129-47-14, -48-14, -49-14, -53-13, -54-14 and -55-13:

Six ATC's will be issued to authorize the installation of Selective Catalytic Reduction (SCR) system with ammonia (NH₃) injection to comply with the Tier 3 NO_x emissions standard of 5 ppmvd NO_x @ 15% O₂ of Rule 4703 – Stationary Gas Turbines (9/20/07).

Each unit will be retrofitted with a dedicated SCR system with ammonia (aqueous) injection. The existing water/steam injection systems on the cogen units will be retained and operated in concert with the new SCR systems. A continuous emissions monitoring system (CEMS) will be installed on three units S-1129-47, -48 and -49 located at McKittrick cogen plant. Similarly, a separate continuous emissions monitoring system (CEMS) will be installed on three units S-1129-53, -54 and -55 located at North Midway cogen plant. These CEMSs measure NO_x, CO and O₂ concentration in the exhaust gas. Accordingly, the water-to-fuel ratio testing and monitoring requirements on the current PTO's will be replaced with requirements applicable to the new CEMS equipment.

The applicant has indicated that they may need to replace the existing Heat Recovery Steam Generators (HRSG) on both McKittrick and North Midway cogen facilities. In addition, they may need to replace the existing duct burners on the McKittrick cogen units. Therefore, the equipment description and the conditions of the new ATCs issued will allow the facility for these optional changes.

In addition, Chevron has proposed to incorporate the following provisions on each of the ATC's authorizing SCR retrofit:

1. Establish an ammonia emissions (slip) limit of 21 ppmv @ 3% O₂ for each cogen unit. Compliance with the ammonia slip limit will be demonstrated by annual source testing.
2. Allow a 60-day "shakedown" period for each cogen unit in which the existing NO_x limits remain in effect during the initial commissioning of the SCR equipment. This period is required to be completed within 60-days of initial startup of a turbine, and it must be concluded prior to the applicable Rule 4703 compliance deadline for each unit. Records of initial startup of each unit, fuel combusted (scf/day) and water-to-fuel ratio or results of NO_x and CO over 3-hour rolling average period from CEMS (if operational) is required during this period.
3. Incorporate a provision, pursuant to Section 5.3.3 of Rule 4703, that allows for a startup period of up to 4 hours for "black start" conditions, when the cogen plant is electrically de-energized and is separated from the utility (PG&E) grid. When a "black start" is performed, each turbine is run at varying outputs (5% to 100%) depending on the field load that the units are supporting. Turbines that run at reduced load tend to have higher emissions (particularly CO, but also NO_x). Chevron anticipates having problems meeting the new lower NO_x limits, and existing CO limits, during reduced loads since it will take longer to reach the required SCR temperature range to allow ammonia injection to start. "Black Start" events are relatively rare that may happen once or twice a year. The following condition will be included in each permit:
 - A black start event is defined as the startup of a cogen unit while the cogen plant is electrically separated from the utility grid and shall not exceed a time period of 4 hours per event. [District Rules 2201 and 4703, 5.3.3]

Chevron received their Title V Permit on June 30, 2002. These modifications can be classified as a Title V minor modification pursuant to Rule 2520, Section 3.20, and can be processed with a Certificate of Conformity (COC). Since the facility has specifically requested that this project be processed in that manner, the 45-day EPA comment period will be satisfied prior to the issuance of the Authority to Construct. Chevron must apply to administratively amend their Title V Operating Permit to include the requirements of the ATC's issued with this project.

Additional permit specific modifications are detailed in the following section:

SCR Retrofit ATC's S-1129-47-14, -48-14, -49-14, -53-13, -54-14 and -55-13:

Remove permit conditions that require establishing, monitoring and recording of water-to-fuel ratio. These conditions are as follows:

- Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NO_x concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334]
- {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NO_x output. [District Rule 4703, 6.2.5]
- {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)]
- Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NO_x compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)]
- Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule]
- Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule]

These conditions have been removed because Chevron is proposing to install CEMS to measure NO_x, CO and O₂ concentrations. Water-to-fuel ratio is a parametric approach to verify on-going compliance with NO_x and CO emissions. This parametric approach is not necessary when they will have a CEMS analyzing NO_x and CO in the exhaust gas.

SCR Retrofit ATCs S-1129-53-13, -54-14 and -55-13:

Remove the following permit conditions, as they are not related to the gas turbine system.

- All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401, 5.0]

The above listed permit condition relates to the TEOR operations. TEOR operations have their own permits. Upon review of the current Permits to Operate, it is concluded that each TEOR operation permit unit is required to vent VOC contaminated gas vapors to a vapor recovery system to reduce VOC emissions by at least 99% (by weight). Furthermore, any new well addition is subject to District Rules 2201 and 4401. Therefore, above listed permit conditions can be removed from these permits.

II. APPLICABLE RULES:

Rule 2201 New and Modified Stationary Source Review Rule (9/21/06)
Rule 2520 Federally Mandated Operating Permits (6/21/01)
Rule 4001 New Source Performance Standards (4/14/99)
Rule 4101 Visible Emissions (02/17/05)
Rule 4102 Nuisance (12/17/92)
Rule 4201 Particulate Matter Concentration (12/17/92)
Rule 4301 Fuel Burning Equipment (12/17/92)
Rule 4703 Stationary Gas Turbines (9/20/07)
Rule 4801 Sulfur Compounds (12/17/92)
California Health & Safety Code 41700 (Public Nuisance)
California Health & Safety Code 42301.6 (School Notice)
Public Resources Code 21000-21177: California Environmental Quality Act (CEQA)
California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 15000-15387:
CEQA Guidelines

III. PROJECT LOCATION:

This project is located within Chevron's Mckittrick and North Midway oil fields in the Heavy Oil Western Stationary Source in Kern County.

<u>Permit Unit #</u>	<u>Location</u>
S-1129-47	Sec. 18, T30S/R22E - Mckittrick
S-1129-48	Sec. 18, T30S/R22E - Mckittrick
S-1129-49	Sec. 18, T30S/R22E - Mckittrick
S-1129-53	Sec. 34, T30S/R22E - North Midway
S-1129-54	Sec. 34, T30S/R22E - North Midway
S-1129-55	Sec. 34, T30S/R22E - North Midway

None of the project locations are within 1,000 feet of a K-12 school. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to this project.

IV. PROCESS DESCRIPTION:

The cogeneration units at the Mckittrick and North Midway Cogeneration Plants generate electricity for sale to the utility power grid and also generate steam for thermally enhanced oil recovery operations (TEOR). Each cogeneration unit consists of a gas turbine engine, an electrical generator, a heat recovery steam generator (HRSG), duct burner which is used to add more heat to the HRSG and an inlet evaporative air cooler.

V. EQUIPMENT LISTING:

Pre-Project Equipment Description:

S-1129-47-11:	3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 - MCKITTRICK
S-1129-48-11:	3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #2 - MCKITTRICK
S-1129-49-11:	3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #3 - MCKITTRICK
S-1129-53-10:	3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #7
S-1129-54-11:	3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #8

S-1129-55-10: 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #9

ATC Equipment Description:

Dormant Emissions Units (DEU):

- S-1129-47-13: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE
COGENERATION UNIT #1 – MCKITTRICK: DESIGNATE AS A NON-
COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX
STANDARD OF RULE 4703
- S-1129-48-13: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE
COGENERATION UNIT #2 – MCKITTRICK: DESIGNATE AS A NON-
COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX
STANDARD OF RULE 4703
- S-1129-49-13: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE
COGENERATION UNIT #3 – MCKITTRICK: DESIGNATE AS A NON-
COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX
STANDARD OF RULE 4703
- S-1129-53-12: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE
TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #7:
DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT
(DEU) FOR TIER-3 NOX STANDARD OF RULE 4703
- S-1129-54-13: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE
TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #8:
DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT
(DEU) FOR TIER-3 NOX STANDARD OF RULE 4703
- S-1129-55-12: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE
TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #9:
DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT
(DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

Retrofit with SCR System:

- S-1129-47-14: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 – MCKITTRICK: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); AND REPLACE THE EXISTING 20.0 MMBTU/HR DUCT BURNER WITH A NEW 20.0 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY)
- S-1129-48-14: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #2 – MCKITTRICK: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); AND REPLACE THE EXISTING 20.0 MMBTU/HR DUCT BURNER WITH A NEW 20.0 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY)
- S-1129-49-14: MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #3 – MCKITTRICK: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); AND REPLACE THE EXISTING 20.0 MMBTU/HR DUCT BURNER WITH A NEW 20.0 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY)

- S-1129-53-13: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #7: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; AND REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY)
- S-1129-54-14: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #8: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; AND REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY)
- S-1129-55-13: MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #9: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; AND REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY)

Post Project Equipment Description:

After Implementation of DEU ATC's:

- S-1129-47-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 – MCKITTRICK
- S-1129-48-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #2 – MCKITTRICK
- S-1129-49-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #3 – MCKITTRICK

S-1129-53-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW
COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #7

S-1129-54-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW
COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #8

S-1129-55-XX: NON-COMPLIANT DORMANT EMISSIONS UNIT: 3.5 MW
COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #9

After Implementation of SCR Retrofit ATC's:

S-1129-47-XX: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 –
MCKITTRICK WITH SELECTIVE CATALYTIC REDUCTION (SCR)
SYSTEM WITH AMMONIA INJECTION AND CONTINUOUS
EMISSIONS MONITORING SYSTEM (CEMS)

S-1129-48-XX: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #2 –
MCKITTRICK WITH SELECTIVE CATALYTIC REDUCTION (SCR)
SYSTEM WITH AMMONIA INJECTION AND CONTINUOUS
EMISSIONS MONITORING SYSTEM (CEMS)

S-1129-49-XX: 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #3 –
MCKITTRICK WITH SELECTIVE CATALYTIC REDUCTION (SCR)
SYSTEM WITH AMMONIA INJECTION AND CONTINUOUS
EMISSIONS MONITORING SYSTEM (CEMS)

S-1129-53-XX: 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #7 WITH SELECTIVE
CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA
INJECTION AND CONTINUOUS EMISSIONS MONITORING
SYSTEM (CEMS)

S-1129-54-XX: 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE
COGENERATION NORTH MIDWAY UNIT #8 WITH SELECTIVE
CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA
INJECTION AND CONTINUOUS EMISSIONS MONITORING
SYSTEM (CEMS)

S-1129-55-XX: 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #9 WITH SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION AND CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS)

VI. EMISSION CONTROL TECHNOLOGY EVALUATION:

Selective Catalytic Reduction systems selectively reduce NO_x emissions by injecting ammonia (NH₃) into the exhaust gas stream upstream of a catalyst. Nitrogen oxides, NH₃, and O₂ react on the surface of the catalyst to form molecular nitrogen (N₂) and H₂O. SCR is capable of over 90 percent NO_x reduction. Titanium oxide (TiO₂) is the SCR catalyst material most commonly used, though vanadium pentoxide (V₂O₅), noble metals, or zeolites are also used. The ideal operating temperature for a conventional SCR catalyst is 350 to 750 °F. Exhaust gas temperatures greater than the upper limit (750 °F) will cause NO_x and NH₃ to pass through the catalyst unreacted. The proposed SCR system is designed for a medium temperature range of 350 to 600 °F and will be installed within the cavity of the existing heat recovery steam generators to ensure the exhaust temperature is maintained at the appropriate range of 450 to 650 °F. The applicant has proposed an ammonia slip of 21 ppmvd @ 3% O₂.

VII. CALCULATIONS:

A. Assumptions:

- All calculations and physical constants used are corrected to Standard Conditions as defined in District Rule 1020, Section 3.47 (60 °F and 1 atm).
- Oxygen based F-factor for natural gas fuel is 8,578 dscf/MMBtu.
- Other assumptions will be stated, as they are made.

B. Emission Factors (EFs):

1. Pre-Project Emission Factors (EF1):

Start-up Emission Factor:

Solar Turbines (a Caterpillar Company) has supplied data on potential emissions of NO_x, CO and VOC during start-up period of 60-minutes per event (see Appendix IX). However, this site has Allison Model 501-KB-5 turbines and the applicant has stated that no start-up or shut down emissions data was available from Allison. The applicant states that the Allison turbines are reasonably close in rating and performance to the Solar Centaur model 50 turbines; therefore, the startup data for Solar Centaur can be used to estimate the startup emissions from Allison turbines.

Permit #	Turbine Model	EF1 (lb/event)		
		NOx	CO	VOC
S-1129-47-11	Allison Model 501-KB-5	5.0	272.4	16.1
S-1129-48-11	Allison Model 501-KB-5	5.0	272.4	16.1
S-1129-49-11	Allison Model 501-KB-5	5.0	272.4	16.1
S-1129-53-10	Allison Model 501-KB-5	5.0	272.4	16.1
S-1129-54-11	Allison Model 501-KB-5	5.0	272.4	16.1
S-1129-55-10	Allison Model 501-KB-5	5.0	272.4	16.1

Shutdown Emission Factor:

Solar Turbines (a Caterpillar Company) has supplied information on potential emissions of NOx, CO and VOC during shutdown period of 30-minutes per event (see Appendix IX). However, this site has Allison Model 501-KB-5 turbines and the applicant has stated that no start-up or shut down emissions data was available from Allison. The applicant states that the Allison turbines are reasonably close in rating and performance to the Solar Centaur model 50 trubines; therefore, the shutdown data for Solar Centaur can be used to estimate the startup emissions from Allison turbines.

Permit #	Turbine Model	EF1 (lb/event)		
		NOx	CO	VOC
S-1129-47-11	Allison Model 501-KB-5	2.3	163.3	9.5
S-1129-48-11	Allison Model 501-KB-5	2.3	163.3	9.5
S-1129-49-11	Allison Model 501-KB-5	2.3	163.3	9.5
S-1129-53-10	Allison Model 501-KB-5	2.3	163.3	9.5
S-1129-54-11	Allison Model 501-KB-5	2.3	163.3	9.5
S-1129-55-10	Allison Model 501-KB-5	2.3	163.3	9.5

Steady State Emission Factor:

The following daily emission limits are taken from the current PTO's:

Permit #	NOx	SOx	PM ₁₀	CO	VOC
	lb/hour				
S-1129-47-11	-	0.16	0.61	-	1.65
S-1129-48-11	-	0.16	0.61	-	1.65
S-1129-49-11	-	0.16	0.61	-	1.65
S-1129-53-10	-	0.16	0.61	-	1.65
S-1129-54-11	-	0.16	0.61	-	1.65
S-1129-55-10	-	0.16	0.61	-	1.65

Permit #	NOx	SOx	PM ₁₀	CO	VOC
	lb/day				
S-1129-47-11	182.4	3.8	14.6	107.8	39.6
S-1129-48-11	182.4	3.8	14.6	107.8	39.6
S-1129-49-11	182.4	3.8	14.6	107.8	39.6
S-1129-53-10	153	3.3	14.6	107.8	39.6
S-1129-54-11	153	3.3	14.6	107.8	39.6
S-1129-55-10	153	3.3	14.6	107.8	39.6

Emission factors, in terms of lb/MMBtu, are calculated as follows, using the turbine and duct burner ratings:

$$EF1 \frac{\text{lb}}{\text{MMBtu}} = \frac{\left(\text{Daily Emissions} \frac{\text{lbs}}{\text{Day}} \right)}{\left(\text{Turbine Rating} \frac{\text{MMBtu}}{\text{hr}} + \text{Duct Burner Rating} \frac{\text{MMBtu}}{\text{hr}} \right) \times \left(24 \frac{\text{hrs}}{\text{day}} \right)}$$

Permit #	Power Rating	Turbine Rating	Duct Burner Rating	Total Heat Input	NOx	SOx	PM ₁₀	CO	VOC
	MW	MMBtu/hr			lb/MMBtu				
S-1129-47-11	3.5	48.7	20.0	68.7	0.1106	0.0023	0.00885	0.0654	0.024
S-1129-48-11	3.5	48.7	20.0	68.7	0.1106	0.0023	0.00885	0.0654	0.024
S-1129-49-11	3.5	48.7	20.0	68.7	0.1106	0.0023	0.00885	0.0654	0.024
S-1129-53-10	3.5	48.7	N/A	48.7	0.1309	0.0028	0.0125	0.0922	0.0339
S-1129-54-11	3.5	48.7	N/A	48.7	0.1309	0.0028	0.0125	0.0922	0.0339
S-1129-55-10	3.5	48.7	N/A	48.7	0.1309	0.0028	0.0125	0.0922	0.0339

2. Post-Project Emission Factors (EF2):

Start-up Emission Factor:

The post-project start-up emission factors would remain same as pre-project start-up emission factors.

Shutdown Emission Factor:

The post-project shutdown emission factors would remain same as pre-project shutdown emission factors.

Steady State Emission Factor:

Rule 4703 requires that each gas turbine under this project shall demonstrate compliance with 5 ppmvd NOx @ 15% O₂ (0.01842 lb/MMBtu).

Permit #	NOx	SOx	PM ₁₀	CO	VOC	NH ₃
	lb/MMBtu					ppmvd @ 15% O ₂
S-1129-47-11	0.01842	0.0023	0.00885	0.0654	0.024	21.0
S-1129-48-11	0.01842	0.0023	0.00885	0.0654	0.024	21.0
S-1129-49-11	0.01842	0.0023	0.00885	0.0654	0.024	21.0
S-1129-53-10	0.01842	0.0028	0.0125	0.0922	0.0339	21.0
S-1129-54-11	0.01842	0.0028	0.0125	0.0922	0.0339	21.0
S-1129-55-10	0.01842	0.0028	0.0125	0.0922	0.0339	21.0

C. Calculations:

1. Pre-Project Potential to Emit (PE1):

Daily Emissions (PE1):

Start-up Emissions:

The applicant states that under worst-case operating scenario, three 60-minute startups may occur in a given day. The potential emissions from these startups are determined using following equation and are summarized in the following table.

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{event}} \right) \left(3 \frac{\text{startups}}{\text{day}} \right)$$

Permit #	EF1 (lb/event)			PE1 (lb/day)		
	NOx	CO	VOC	NOx	CO	VOC
S-1129-47-11	5.0	272.4	16.1	15.0	817.2	48.3
S-1129-48-11	5.0	272.4	16.1	15.0	817.2	48.3
S-1129-49-11	5.0	272.4	16.1	15.0	817.2	48.3
S-1129-53-10	5.0	272.4	16.1	15.0	817.2	48.3
S-1129-54-11	5.0	272.4	16.1	15.0	817.2	48.3
S-1129-55-10	5.0	272.4	16.1	15.0	817.2	48.3

Shutdown Emissions:

The applicant states that under worst-case operating scenario, three 30-minute shutdowns may occur in a given day. The potential emissions from these shutdowns are determined using following equation and are summarized in the following table.

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{event}} \right) \left(3 \frac{\text{shutdowns}}{\text{day}} \right)$$

Permit #	EF1 (lb/event)			PE1 (lb/day)		
	NOx	CO	VOC	NOx	CO	VOC
S-1129-47-11	2.3	163.3	9.5	6.9	489.9	28.5
S-1129-48-11	2.3	163.3	9.5	6.9	489.9	28.5
S-1129-49-11	2.3	163.3	9.5	6.9	489.9	28.5
S-1129-53-10	2.3	163.3	9.5	6.9	489.9	28.5
S-1129-54-11	2.3	163.3	9.5	6.9	489.9	28.5
S-1129-55-10	2.3	163.3	9.5	6.9	489.9	28.5

Steady State Emissions:

Scenario #1: Turbines operate in a steady-state mode all day without any startup and shutdown events

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)				
		NOx	SOx	PM ₁₀	CO	VOC
S-1129-47-11	68.7	182.4	3.8	14.6	107.8	39.6
S-1129-48-11	68.7	182.4	3.8	14.6	107.8	39.6
S-1129-49-11	68.7	182.4	3.8	14.6	107.8	39.6
S-1129-53-10	48.7	153.0	3.3	14.6	107.8	39.6
S-1129-54-11	48.7	153.0	3.3	14.6	107.8	39.6
S-1129-55-10	48.7	153.0	3.3	14.6	107.8	39.6

Scenario #2: Turbines operate in a steady-state mode for 19.5 hr/day with an assumption that maximum number of startups and shutdowns occurred during a given day any startup and shutdown events

NOx, CO and VOC emissions during Steady State:

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} - 3.0 \frac{\text{hr}}{\text{day}} - 1.5 \frac{\text{hr}}{\text{day}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)		
		NOx	CO	VOC
S-1129-47-11	68.7	148.2	87.6	32.2
S-1129-48-11	68.7	148.2	87.6	32.2
S-1129-49-11	68.7	148.2	87.6	32.2
S-1129-53-10	48.7	124.3	87.6	32.2
S-1129-54-11	48.7	124.3	87.6	32.2
S-1129-55-10	48.7	124.3	87.6	32.2

Adding startup and shutdown emissions during 3 60-minute Startups and 3 30-minute Shutdowns, as calculated above, the total daily emissions are summarized in the table below:

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)		
		NOx	CO	VOC
S-1129-47-11	68.7	170.1	1,394.7	109.0
S-1129-48-11	68.7	170.1	1,394.7	109.0
S-1129-49-11	68.7	170.1	1,394.7	109.0
S-1129-53-10	48.7	146.2	1,394.7	109.0
S-1129-54-11	48.7	146.2	1,394.7	109.0
S-1129-55-10	48.7	146.2	1,394.7	109.0

SOx and PM₁₀ :

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)	
		SOx	PM ₁₀
S-1129-47-11	68.7	3.8	14.6
S-1129-48-11	68.7	3.8	14.6
S-1129-49-11	68.7	3.8	14.6
S-1129-53-10	48.7	3.3	14.6
S-1129-54-11	48.7	3.3	14.6
S-1129-55-10	48.7	3.3	14.6

The daily emissions under operating scenario #2 (19.5 hours steady state, three 60-minutes startups, three 30-minute shutdowns) are summarized in the following table:

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)				
		NOx	SOx	PM ₁₀	CO	VOC
S-1129-47-11	68.7	170.1	3.8	14.6	1,394.7	109.0
S-1129-48-11	68.7	170.1	3.8	14.6	1,394.7	109.0
S-1129-49-11	68.7	170.1	3.8	14.6	1,394.7	109.0
S-1129-53-10	48.7	146.2	3.3	14.6	1,394.7	109.0
S-1129-54-11	48.7	146.2	3.3	14.6	1,394.7	109.0
S-1129-55-10	48.7	146.2	3.3	14.6	1,394.7	109.0

Summary:

NOx emissions are found to be maximum when each turbine operates in a steady state mode for 24 hr/day period. CO and VOC emissions are found to be maximum when startups, shutdowns and steady-state activities occurred during a given 24 hr/day period. SOx and PM₁₀ emissions are based on 24 hr/day period. Worst-case daily potential emissions are summarized in the following table.

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/day)				
		NOx	SOx	PM ₁₀	CO	VOC
S-1129-47-11	68.7	182.4	3.8	14.6	1,394.7	109.0
S-1129-48-11	68.7	182.4	3.8	14.6	1,394.7	109.0
S-1129-49-11	68.7	182.4	3.8	14.6	1,394.7	109.0
S-1129-53-10	48.7	153.0	3.3	14.6	1,394.7	109.0
S-1129-54-11	48.7	153.0	3.3	14.6	1,394.7	109.0
S-1129-55-10	48.7	153.0	3.3	14.6	1,394.7	109.0

Annual Emissions (PE1):

Start-up Emissions:

The applicant states that under worst-case operating scenario, fifteen 60-minute startups may occur in a given year. The potential emissions from these startups are determined using following equation.

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{event}} \right) \left(15 \frac{\text{startups}}{\text{yr}} \right)$$

Permit #	EF1 (lb/event)			PE1 (lb/yr)		
	NOx	CO	VOC	NOx	CO	VOC
S-1129-47-11	5.0	272.4	16.1	75	4,086	242
S-1129-48-11	5.0	272.4	16.1	75	4,086	242
S-1129-49-11	5.0	272.4	16.1	75	4,086	242
S-1129-53-10	5.0	272.4	16.1	75	4,086	242
S-1129-54-11	5.0	272.4	16.1	75	4,086	242
S-1129-55-10	5.0	272.4	16.1	75	4,086	242

Shutdown Emissions:

The applicant states that under worst-case operating scenario, fifteen 30-minute shutdowns may occur in a given year. The potential emissions from these shutdowns are determined using following equation.

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{event}} \right) \left(15 \frac{\text{shutdown}}{\text{yr}} \right)$$

Permit #	EF1 (lb/event)			PE1 (lb/yr)		
	NOx	CO	VOC	NOx	CO	VOC
S-1129-47-11	2.3	163.3	9.5	35	2,450	143
S-1129-48-11	2.3	163.3	9.5	35	2,450	143
S-1129-49-11	2.3	163.3	9.5	35	2,450	143
S-1129-53-10	2.3	163.3	9.5	35	2,450	143
S-1129-54-11	2.3	163.3	9.5	35	2,450	143
S-1129-55-10	2.3	163.3	9.5	35	2,450	143

Steady State Emissions:

It is assumed that these turbines do not operate continuously in steady-state mode for 8,760 hr/yr. Thus, the annual emissions during steady-state are quantified using the following equations. These equations deduct the potential emissions during fifteen 60-minute startups per year (15 hr/yr) and fifteen 30-minute shutdowns per year (7.5 hr/yr) to determine the potential emissions during the steady state period.

NOx, CO and VOC emissions during Steady State:

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{MMBtu}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(8,760 \frac{\text{hr}}{\text{yr}} - 15.0 \frac{\text{hr}}{\text{yr}} - 7.5 \frac{\text{hr}}{\text{yr}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/yr)		
		NOx	CO	VOC
S-1129-47-11	68.7	66,389	39,257	14,406
S-1129-48-11	68.7	66,389	39,257	14,406
S-1129-49-11	68.7	66,389	39,257	14,406
S-1129-53-10	48.7	55,700	39,233	14,425
S-1129-54-11	48.7	55,700	39,233	14,425
S-1129-55-10	48.7	55,700	39,233	14,425

Adding startup and shutdown emissions during fifteen *60-minute Startups* and fifteen *30-minute Shutdowns*, as calculated above, the total annual emissions are summarized in the table below:

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/yr)		
		NOx	CO	VOC
S-1129-47-11	68.7	66,499	45,793	14,790
S-1129-48-11	68.7	66,499	45,793	14,790
S-1129-49-11	68.7	66,499	45,793	14,790
S-1129-53-10	48.7	55,810	45,768	14,809
S-1129-54-11	48.7	55,810	45,768	14,809
S-1129-55-10	48.7	55,810	45,768	14,809

SOx and PM₁₀ :

$$PE1 = \left(EF1 \frac{\text{lb}}{\text{MMBtu}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(8,760 \frac{\text{hr}}{\text{yr}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/yr)	
		SOx	PM ₁₀
S-1129-47-11	68.7	1,384	5,326
S-1129-48-11	68.7	1,384	5,326
S-1129-49-11	68.7	1,384	5,326
S-1129-53-10	48.7	1,195	5,333
S-1129-54-11	48.7	1,195	5,333
S-1129-55-10	48.7	1,195	5,333

The annual emissions are summarized in the following table. NO_x, CO and VOC emissions are determined by taking a sum of the potential emissions during startup, shutdown and steady state periods. SO_x and PM₁₀ emissions are based on 8,760 hr/year operation.

Permit #	Heat Input (MMBtu/hr)	PE1 (lb/yr)				
		NO _x	SO _x	PM ₁₀	CO	VOC
S-1129-47-11	68.7	66,499	1,384	5,326	45,793	14,790
S-1129-48-11	68.7	66,499	1,384	5,326	45,793	14,790
S-1129-49-11	68.7	66,499	1,384	5,326	45,793	14,790
S-1129-53-10	48.7	55,810	1,195	5,333	45,768	14,809
S-1129-54-11	48.7	55,810	1,195	5,333	45,768	14,809
S-1129-55-10	48.7	55,810	1,195	5,333	45,768	14,809

2. Post Project Potential to Emit (PE2):

Start-up Emissions:

The post-project potential start-up emissions will remain same as pre-project potential start-up emissions.

Shutdown Emissions:

The post-project potential shutdown emissions will remain same as pre-project potential shutdown emissions.

Steady State Emissions:

Chevron has proposed to achieve less than or equal to 5 ppmvd NO_x @ 15% O₂ by installing an SCR system on each turbine. **CO, VOC, SO_x and PM₁₀ emissions under each of the following scenarios will stay same as the pre-project potential emissions since the applicant is not proposing any changes to the emission factors.**

Scenario #1: Turbines operate in a steady-state mode all day without any startup and shutdown events

NH₃:

$$PE2 = \frac{(EF2 \text{ ppmvd}) \left(F\text{-Factor} \frac{\text{dscf}}{\text{MMBtu}} \right) \left(MW \frac{\text{lb}}{\text{lb-mol}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} \right)}{\left(MSV \frac{\text{dscf}}{\text{lb-mol}} \right) (10^6) \left(\frac{20.95 - 15}{20.95} \right)}$$

Where:

- EF2 = post-project emission factor: 21.0 ppmvd @ 15% O₂:
- F-Factor = 8,578 ft³-exhaust/MMBtu @ 60 °F
- Molecular Weight = 17 lb-NH₃/lb-mol
- MSV = 379.5 ft³/lb-mol (Ideal Gas @ 60 °F)
- HI = Heat Input rate, MMBtu/hr

NO_x, SO_x, PM₁₀, CO and VOC emissions:

$$PE2 = \left(EF2 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} \right)$$

Permit #	PE2 (lb/day)					
	NO _x	SO _x	PM ₁₀	CO	VOC	NH ₃
S-1129-47-14	30.4	3.8	14.6	107.8	39.6	46.8
S-1129-48-14	30.4	3.8	14.6	107.8	39.6	46.8
S-1129-49-14	30.4	3.8	14.6	107.8	39.6	46.8
S-1129-53-13	21.5	3.3	14.6	107.8	39.6	33.2
S-1129-54-14	21.5	3.3	14.6	107.8	39.6	33.2
S-1129-55-13	21.5	3.3	14.6	107.8	39.6	33.2

Scenario #2: Turbines operate in a steady-state mode for 19.5 hr/day with an assumption that maximum number of startups and shutdowns occurred during a given day any startup and shutdown events

NO_x, CO and VOC Emissions during Steady State:

$$PE2 = \left(EF2 \frac{\text{lb}}{\text{MMBtu}} \right) \left(\text{Heat Input} \frac{\text{MMBtu}}{\text{hr}} \right) \left(24 \frac{\text{hr}}{\text{day}} - 3.0 \frac{\text{hr}}{\text{day}} - 1.5 \frac{\text{hr}}{\text{day}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/day)		
		NOx	CO	VOC
S-1129-47-14	68.7	24.7	87.6	32.2
S-1129-48-14	68.7	24.7	87.6	32.2
S-1129-49-14	68.7	24.7	87.6	32.2
S-1129-53-13	48.7	17.5	87.6	32.2
S-1129-54-14	48.7	17.5	87.6	32.2
S-1129-55-13	48.7	17.5	87.6	32.2

Adding startup and shutdown emissions during 3 60-minute Startups and 3 30-minute Shutdowns, as calculated above, the total daily emissions are summarized in the table below:

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/day)		
		NOx	CO	VOC
S-1129-47-14	68.7	46.6	1394.7	109.0
S-1129-48-14	68.7	46.6	1394.7	109.0
S-1129-49-14	68.7	46.6	1394.7	109.0
S-1129-53-13	48.7	39.4	1394.7	109.0
S-1129-54-14	48.7	39.4	1394.7	109.0
S-1129-55-13	48.7	39.4	1394.7	109.0

SO_x, PM₁₀, and NH₃ emissions are the same as calculated above under scenario #1, as summarized below:

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/day)		
		SO _x	PM ₁₀	NH ₃
S-1129-47-14	68.7	3.8	14.6	46.8
S-1129-48-14	68.7	3.8	14.6	46.8
S-1129-49-14	68.7	3.8	14.6	46.8
S-1129-53-13	48.7	3.3	14.6	33.2
S-1129-54-14	48.7	3.3	14.6	33.2
S-1129-55-13	48.7	3.3	14.6	33.2

The daily emissions under operating scenario #2 (19.5 hours steady state, three 60-minutes startups, three 30-minute shutdowns) are summarized in the following table:

Permit #	PE2 (lb/day)					
	NOx	SOx	PM ₁₀	CO	VOC	NH ₃
S-1129-47-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-48-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-49-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-53-13	39.4	3.3	14.6	1394.7	109.0	33.2
S-1129-54-14	39.4	3.3	14.6	1394.7	109.0	33.2
S-1129-55-13	39.4	3.3	14.6	1394.7	109.0	33.2

Summary:

NOx, CO and VOC emissions are found to be maximum when startups, shutdowns and steady-state activities occurred during a given 24 hr/day period. SOx, PM₁₀, and NH₃ emissions are based on 24 hr/day period. Worst-case potential emissions are summarized in the following table.

Permit #	PE2 (lb/day)					
	NOx	SOx	PM ₁₀	CO	VOC	NH ₃
S-1129-47-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-48-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-49-14	46.6	3.8	14.6	1394.7	109.0	46.8
S-1129-53-13	39.4	3.3	14.6	1394.7	109.0	33.2
S-1129-54-14	39.4	3.3	14.6	1394.7	109.0	33.2
S-1129-55-13	39.4	3.3	14.6	1394.7	109.0	33.2

Annual Emissions (PE2):

Start-up Emissions:

The post-project potential start-up emissions will remain same as pre-project potential start-up emissions.

Shutdown Emissions:

The post-project potential shutdown emissions will remain same as pre-project potential shutdown emissions.

Steady State Emissions:

It is assumed that these turbines do not operate continuously in steady-state mode for 8,760 hr/yr. Thus, the annual emissions during steady-state are quantified using the following equations. These equations deduct the potential emissions during fifteen 60-minute startups per year (15 hr/yr) and fifteen 30-minute shutdowns per year (7.5 hr/yr) to determine the potential emissions during the steady state period.

NOx, CO and VOC emissions during Steady State:

$$PE2 = \left(EF2 \frac{\text{lb}}{\text{MMBtu}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(8,760 \frac{\text{hr}}{\text{yr}} - 15.0 \frac{\text{hr}}{\text{yr}} - 7.5 \frac{\text{hr}}{\text{yr}} \right)$$

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/yr)		
		NOx	CO	VOC
S-1129-47-14	68.7	11,057	39,257	14,406
S-1129-48-14	68.7	11,057	39,257	14,406
S-1129-49-14	68.7	11,057	39,257	14,406
S-1129-53-13	48.7	7,838	39,233	14,425
S-1129-54-14	48.7	7,838	39,233	14,425
S-1129-55-13	48.7	7,838	39,233	14,425

Adding startup and shutdown emissions during fifteen *60-minute Startups* and fifteen *30-minute Shutdowns*, as calculated above, the total annual emissions are summarized in the table below:

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/yr)		
		NOx	CO	VOC
S-1129-47-14	68.7	11,167	45,793	14,790
S-1129-48-14	68.7	11,167	45,793	14,790
S-1129-49-14	68.7	11,167	45,793	14,790
S-1129-53-13	48.7	7,948	45,768	14,809
S-1129-54-14	48.7	7,948	45,768	14,809
S-1129-55-13	48.7	7,948	45,768	14,809

SOx and PM₁₀ :

$$PE2 = \left(EF2 \frac{\text{lb}}{\text{MMBtu}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(8,760 \frac{\text{hr}}{\text{yr}} \right)$$

NH₃ emissions:

$$PE2 = \frac{(EF2 \text{ ppmvd}) \left(F - \text{Factor} \frac{\text{dscf}}{\text{MMBtu}} \right) \left(MW \frac{\text{lb}}{\text{lb-mol}} \right) \left(HI \frac{\text{MMBtu}}{\text{hr}} \right) \left(8,760 \frac{\text{hr}}{\text{yr}} \right)}{\left(MSV \frac{\text{dscf}}{\text{lb-mol}} \right) \left(10^6 \right) \left(\frac{20.95 - 15}{20.95} \right)}$$

Where:

- EF2 = post-project emission factor in ppmvd @ 15% O₂:
- F-Factor = 8,578 ft³-exhaust/MMBtu @ 60 °F
- Molecular Weight = 17 lb-NH₃/lb-mol
- MSV = 379.5 ft³/lb-mol (Ideal Gas @ 60 °F)
- HI = Heat Input rate, MMBtu/hr

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/yr)		
		SOx	PM ₁₀	NH ₃
S-1129-47-14	68.7	1,384	5,326	17,099
S-1129-48-14	68.7	1,384	5,326	17,099
S-1129-49-14	68.7	1,384	5,326	17,099
S-1129-53-13	48.7	1,195	5,333	12,121
S-1129-54-14	48.7	1,195	5,333	12,121
S-1129-55-13	48.7	1,195	5,333	12,121

Summary:

The annual emissions are summarized in the following table. NOx, CO and VOC emissions are determined by taking a sum of the potential emissions during startup, shutdown and steady state periods. SOx, PM₁₀, and NH₃ emissions are based on 8,760 hr/year operation.

Permit #	Heat Input (MMBtu/hr)	PE2 (lb/yr)					
		NOx	SOx	PM ₁₀	CO	VOC	NH ₃
S-1129-47-14	68.7	11,167	1,384	5,326	45,793	14,790	17,099
S-1129-48-14	68.7	11,167	1,384	5,326	45,793	14,790	17,099
S-1129-49-14	68.7	11,167	1,384	5,326	45,793	14,790	17,099
S-1129-53-13	48.7	7,948	1,195	5,333	45,768	14,809	12,121
S-1129-54-14	48.7	7,948	1,195	5,333	45,768	14,809	12,121
S-1129-55-13	48.7	7,948	1,195	5,333	45,768	14,809	12,121

3. Quarterly Emissions Changes (QEC)

QEC are determined to complete the emissions profile in District's Permit Administration System (PAS) database. The annual emissions are evenly distributed throughout the quarters using the following equation:

$$\text{QEC} = (\text{PE2} - \text{PE1}) \text{ lb/year} \div 4 \text{ quarters/year}$$

Permit #	Quarterly Emission Changes in NOx emissions			
	1 st Quarter (lb)	2 nd Quarter (lb)	3 rd Quarter (lb)	4 th Quarter (lb)
S-1129-47-14	-13,833	-13,833	-13,833	-13,833
S-1129-48-14	-13,833	-13,833	-13,833	-13,833
S-1129-49-14	-13,833	-13,833	-13,833	-13,833
S-1129-53-13	-11,966	-11,966	-11,966	-11,966
S-1129-54-14	-11,966	-11,966	-11,966	-11,966
S-1129-55-13	-11,966	-11,966	-11,966	-11,966

QECs for SO_x, PM₁₀, CO and VOC emissions are zero, as PE2 is equal to PE1 for these pollutants. Refer to Appendix VI for emission profiles.

4. Adjusted increase in Permitted Emissions (AIPE) Calculations:

The proposed project is exempt from BACT requirements. Therefore, AIPE calculations are not performed. Please refer to Section VIII of this document for discussion on BACT.

D. Facility Emissions:

1. Pre-Project Stationary Source Potential to Emit (SSPE1)

Pursuant to Section 4.9 of District Rule 2201, SSPE1 is the Potential to Emit from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERCs) which have been banked since September 19, 1991 for Actual Emissions Reductions (AERs) that have occurred at the source, and which have not been used on-site.

Partial SSPE1 (lb/yr)						
Permit Number	NOx	SOx	PM ₁₀	CO	VOC	NH ₃
S-1129-47-11	66,499	1,384	5,326	45,793	14,790	0
S-1129-48-11	66,499	1,384	5,326	45,793	14,790	0
S-1129-49-11	66,499	1,384	5,326	45,793	14,790	0
S-1129-53-10	55,810	1,195	5,333	45,768	14,809	0
S-1129-54-11	55,810	1,195	5,333	45,768	14,809	0
S-1129-55-10	55,810	1,195	5,333	45,768	14,809	0
ERC	0	0	0	0	0	--
Total	366,927	7,737	31,977	274,683	88,797	0
Major Source Thresholds	50,000	200,000	140,000	140,000	50,000	--
Major Source?	Yes	No	No	Yes	Yes	--

2. Post Project Stationary Source Potential to Emit (SSPE2)

Pursuant to Section 4.10 of District Rule 2201, the Post-Project Stationary Source Potential to Emit (SSPE2) is the Potential to Emit (PE) from all units with valid Authorities to Construct (ATC) or Permits to Operate (PTO) at the Stationary Source and the quantity of emission reduction credits (ERC) which have been banked since September 19, 1991 for Actual Emissions Reductions that have occurred at the source, and which have not been used on-site.

Permit Number	NOx	SOx	PM ₁₀	CO	VOC	NH ₃
S-1129-47-14	11,167	1,384	5,326	45,793	VOC	17,099
S-1129-48-14	11,167	1,384	5,326	45,793	14,790	17,099
S-1129-49-14	11,167	1,384	5,326	45,793	14,790	17,099
S-1129-53-13	7,948	1,195	5,333	45,768	14,790	12,121
S-1129-54-14	7,948	1,195	5,333	45,768	14,809	12,121
S-1129-55-13	7,948	1,195	5,333	45,768	14,809	12,121
ERC	0	0	0	0	0	0
Total	57,345	7,737	31,977	274,683	88,797	87,660
Major Source Thresholds	50,000	200,000	140,000	140,000	50,000	--
Major Source?	Yes	No	No	Yes	Yes	--

3. Stationary Source Increase in Permitted Emissions (SSIPE)

It is a District Practice to define the SSIPE as the difference of SSPE2 and SSPE1. Negative SSIPE is equated to zero.

NOx, SOx, PM₁₀, CO and VOC

SSPE2 is less than or equal to SSPE1 for each pollutant. Thus, SSIPE must be equal to zero for each pollutant.

NH₃

$$\begin{aligned}\text{SSIPE} &= \text{SSPE2} - \text{SSPE1} \\ &= 87,660 - 0 \\ &= 87,660 \text{ lb/yr}\end{aligned}$$

4. Major Modification

Major Modification was built into Rule 2201 to meet the Federal NSR requirements for pollutants that exceed Major Source Thresholds.

To determine if a project is a Major Modification, first *“Stationary Source” must be identified* in accordance with 40 CFR Part 51.165(a)(1)(i) and 40 CFR Part 51.165(a)(1)(ii). These sections define “Stationary Source” as any building structure, facility, or installation which emits or may emit any air pollutant subject to regulation under Act. Building structure, facility, or installation means all of the pollutant emitting activities which belongs to the same industrial grouping are located on one or more contiguous or adjacent properties, and are under the control of the same person (or persons under common control) except the activities of any vessel. Pollutant-emitting activities shall be considered as part of the same industrial grouping if they belong to the same Major Group (i.e. which have same two-digit code) as described in the Standard Industrial Classification Manual, 1972, as amended by the 1977 Supplement.

For the oil and gas industry, “Stationary Source” determination becomes difficult when one pollutant emitting activity is miles away from another pollutant emitting activity over a piece of land that appears to be contiguous. EPA wrote a memo on January 12, 2007 titled “Source Determination for Oil and Gas Industry” (Refer to Appendix III of this document) that suggests that proximity of the pollutant-emitting activities from one another is the most informative factor in making source determinations. Two surface sites can be considered in close proximity if they are adjacent, or if they are separated by no more than a short distance (e.g. across a highway, separated by a city block or some similar distance).

The permittee has supplied a property map (Refer to Appendix IV of this document) showing the location of each turbine. The guidance from EPA's memo is applied to the map in determining the "Stationary Sources" for this project. Once "Stationary Source" is identified, Net Emissions Increase (NEI) is calculated for each "Stationary Source" and is compared with the Major Modification threshold level. If a project results in a Major Modification, it may trigger:

- A. Federal Major Modification and the project cannot qualify for BACT exemptions (Rule 2201, §4.2.3);
- B. Best Available Control Technology (BACT) (Rule 2201, §4.1.3); and/or
- C. 30-day public notice (Rule 2201, §5.4.1)

Step 1: Identification of Stationary Sources

Using the property map in Appendix IV together with EPA's January 12, 2007 memo, the District has determined that all emission units within adjacent section of the property map are part of the same stationary source.

Source #1:

The units in "McKittrick" cogen plant constitute a "Stationary Source" because the section in which they reside is not adjacent or in close proximity to "Source #2" in this project".

Source #2:

The units in "North Midway" cogen plant constitute a "Stationary Source" because the section in which they reside is not adjacent or in close proximity to "Source #1" in this project".

Step 2: Historical Emissions Calculations

Chevron USA supplied the heat input rate to each turbine for two consecutive years beginning 11/1/06 to 10/31/08.

Permit #	Average Heat Input Rate (MMBtu/yr)
	11/1/06 – 10/31/08
S-1129-47	309,071.7
S-1129-48	300,824.9
S-1129-49	362,228.5
S-1129-53	281,434.7
S-1129-54	290,207.6
S-1129-55	161,003.1

For Major Modification calculations, it is assumed that this facility is a Major Source for NOx, SOx, CO, VOC and PM₁₀ emissions.

No Major Modification Threshold exists for CO. Thus, this project cannot be a Major Modification for CO emissions.

Source test results have been provided by the applicant for NOx and SOx emissions. PM₁₀ and VOC emission factors are taken from the existing permits (as calculated in Section VII.B.1 of this document).

Permit #	EF _{NOx}			EF _{SOx}	EF _{PM10}	EF _{VOC}
	lb/MMBtu					
	2007	2008	Avg ST EF	Current PTO's		
S-1129-47	0.0884	0.0834	0.0859	0.0023	0.00885	0.024
S-1129-48	0.0896	0.0853	0.0875	0.0023	0.00885	0.024
S-1129-49	0.0761	0.0845	0.0803	0.0023	0.00885	0.024
S-1129-53	0.095	0.1134	0.1042	0.0028	0.0125	0.0339
S-1129-54	0.0948	0.1031	0.0990	0.0028	0.0125	0.0339
S-1129-55	0.1077	0.1082	0.1080	0.0028	0.0125	0.0339

Historical emissions (HE) are calculated using the following equations:

$$HE_{NOx} = \left(EF_{NOx} \frac{lb}{MMBtu} \right) \left(\text{Average} \frac{MMBtu}{yr} \right)$$

$$HE_{SOx} = \left(EF_{SOx} \frac{lb}{MMBtu} \right) \left(\text{Average} \frac{MMBtu}{yr} \right)$$

$$HE_{PM10} = \left(EF_{PM10} \frac{lb}{MMBtu} \right) \left(\text{Average} \frac{MMBtu}{yr} \right)$$

$$HE_{VOC} = \left(EF_{VOC} \frac{lb}{MMBtu} \right) \left(\text{Average} \frac{MMBtu}{yr} \right)$$

Permit #	HE (lb/yr)					
	NOx		NOx	SOx	PM ₁₀	VOC
	2007	2008				
S-1129-47	53,200	50,191	51,696	1,384	5,326	14,443
S-1129-48	53,922	51,335	52,659	1,384	5,326	14,443
S-1129-49	45,798	50,853	48,326	1,384	5,326	14,443
S-1129-53	40,528	48,378	44,453	1,195	5,333	14,462
S-1129-54	40,443	43,984	42,235	1,195	5,333	14,462
S-1129-55	45,946	46,159	46,074	1,195	5,333	14,462

Step 3: Potential to Emit (PE2)

Per section VII.C.2 of this document,

Permit #	PE2 (lb/yr)			
	NOx	SOx	PM ₁₀	VOC
S-1129-47-14	11,167	1,384	5,326	14,790
S-1129-48-14	11,167	1,384	5,326	14,790
S-1129-49-14	11,167	1,384	5,326	14,790
S-1129-53-13	7,948	1,195	5,333	14,809
S-1129-54-14	7,948	1,195	5,333	14,809
S-1129-55-13	7,948	1,195	5,333	14,809

Step 4: Net Emissions Increase (NEI) Calculations

NEI is sum of the difference of post-project potential emissions (PE2) and historical emissions (HE) for the emissions units involved in each Stationary Source project.

$$NEI = \Sigma(PE2 - HE)$$

NEI for each stationary source identified in Step 1 is summarized in the following tables. NEI values are compared with the Major Modification Thresholds given in Table 3-3 of Rule 2201 to determine if a stationary source project triggers a Major Modification or not.

Source #1:

Site	Permit #	NEI (lb/yr)			
		NOx	SOx	PM ₁₀	VOC
McKittrick Cogen Plant	S-1129-47	-40,529	0	0	347
	S-1129-48	-41,492	0	0	347
	S-1129-49	-37,159	0	0	347
Total (lb/yr):		-119,180	0	0	1,041
Major Modification Thresholds (lb/yr):		50,000	80,000	30,000	50,000
Major Modification?		No	No	No	No

Source #2:

Site	Permit #	NEI (lb/yr)			
		NOx	SOx	PM ₁₀	VOC
North Midway Cogen Plant	S-1129-53	-36,505	0	0	347
	S-1129-54	-34,287	0	0	347
	S-1129-55	-38,126	0	0	347
Total (lb/yr):		-108,918	0	0	1,041
Major Modification Thresholds (lb/yr):		50,000	80,000	30,000	50,000
Major Modification?		No	No	No	No

Summary

The proposed modification to each gas turbine system is not a Major Modification under District and Federal regulations.

VIII. COMPLIANCE:

Rule 1080 Stack Monitoring

This rule grants the APCO the authority to request the installation, use, maintenance, and inspection of continuous emissions monitors (CEMs), and specifies performance standards for the equipment and administrative requirements for recordkeeping, reporting, and notification.

Chevron has proposed to monitor NO_x, CO and O₂ concentrations from each gas turbine system using CEMS that meet the requirements of applicable District rules and Federal regulations. Therefore, the following conditions will be placed on each permit:

- The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO_x, CO, and O₂ concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)]
- The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)]
- The NO_x, CO and O₂ CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)]
- In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080]

- APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080]
- The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)]
- Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080]
- The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system and shall make CEMS data available to the District's automated polling system on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080]
- The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)]
- The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO_x emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]

Chevron has stated that the McKittrick and North Midway cogen plants are located several miles from each other, so each will be served by separate CEMS systems. Therefore, the following conditions will be placed on the ATC's:

S-1129-47-14, -48-14, and -49-14:

- The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (S-1129-47, -48, -49), and rotate the unit tested so that all three units are tested over three years, 2) annual RAA testing for the two gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rule 1080]

S-1129-53-13, -54-14, and -55-13:

- The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (S-1129-53, -54, -55), and rotate the unit tested so that all three units are tested over three years, 2) annual RAA testing for the two gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rule 1080]

Rule 1081 Source Sampling

This Rule requires adequate and safe sampling facilities such as sampling ports, sampling platforms, access to the sampling platforms for use in sampling to determine compliance with emissions limits, and specifies methods and procedures for source testing and sample collection. The following conditions will be placed to ensure compliance with the requirements of this rule.

- The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081]
- Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081]

- Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081]
- For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O₂) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081]
- The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081]

S-1129-47-14, -48-14, and -49-14:

- Source testing to measure start-up mass emission rates of NO_x, CO, and VOC shall be conducted for one of the gas turbine engines (S-1129-47, -48, -49) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]

S-1129-53-13, -54-14, and -55-13:

- Source testing to measure start-up mass emission rates of NO_x, CO, and VOC shall be conducted for one of the gas turbine engines (S-1129-53, -54, -55) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081]

Rule 1100 Equipment Breakdown

This Rule defines a breakdown condition and the procedures to follow if one occurs. The corrective action, the issuance of an emergency variance, and the reporting requirements are also specified. The following conditions are already included on facility-wide permit S-1129-0-1, to ensure compliance with the requirements of this rule. Therefore, these conditions are not included on the ATCs being issued under this project.

- The owner or operator shall notify the District of any breakdown condition as soon as reasonably possible, but no later than one hour after its detection, unless the owner or operator demonstrates to the District's satisfaction that the longer reporting period was necessary. [District Rule 1100]

- The District shall be notified in writing within ten days following the correction of any breakdown condition. The breakdown notification shall include a description of the equipment malfunction or failure, the date and cause of the initial failure, the estimated emissions in excess of those allowed, and the methods utilized to restore normal operations. [District Rule 1100]

Compliance is expected with this Rule.

Rule 2201 New and Modified Stationary Source Review Rule

1. Best Available Control Technology (BACT)

Section 4.2.3 of Rule 2201 provides an exemption from BACT requirements. This section states the following:

4.2.3 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from Best Available Control Technology for all air pollutants, provided all of the following conditions are met:

4.2.3.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.2.3.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.2.3.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas;

4.2.3.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM₁₀, or 50 tons per year of CO; and

4.2.3.5 The project shall not constitute a federal major modification.

The proposed project is to comply with emission standards in the Rule 4703, and do not result in increase in the physical or operational design or permitted rating of the unit. There is no increase in permitted emissions for any affected pollutant for which National Ambient Air Quality Standard (NAAQS) exists at this time¹. Furthermore, the project does not constitute a federal major modification. Therefore, the proposed project is exempt from BACT requirements.

2. Offsets

Section 4.6.8 of Rule 2201 provides an exemption from offsets. This section states the following:

4.6.8 For existing facilities, the installation or modification of an emission control technique performed solely for the purpose of compliance with the requirements of District, State or Federal air pollution control laws, regulations, or orders, as approved by the APCO, shall be exempt from offset requirements for all air pollutants provided all of the following conditions are met:

4.6.8.1 There shall be no increase in the physical or operational design of the existing facility, except for those changes to the design needed for the installation or modification of the emission control technique itself;

4.6.8.2 There shall be no increase in the permitted rating or permitted operating schedule of the permitted unit;

4.6.8.3 There shall be no increase in emissions from the stationary source that will cause or contribute to any violation of a National Ambient Air Quality Standard, Prevention of Significant Deterioration increment, or Air Quality Related Value in Class I areas; and

4.6.8.4 The project shall not result in an increase in permitted emissions or potential to emit of more than 25 tons per year of NO_x, or 25 tons per year of VOC, or 15 tons per year of SO_x, or 15 tons per year of PM-10, or 50 tons per year of CO.

The proposed project is to comply with emission standards in the Rule 4703, and do not result in increase in the physical or operational design or permitted rating of the unit. There is no increase in permitted emissions for any affected pollutant for which National Ambient Air Quality Standard (NAAQS) exists at this time. Therefore, the proposed project is exempt from offset requirements.

¹ Per District Technical Services Division, no NAAQS exist for ammonia at this time.

3. Public Notice

District Rule 2201, section 5.4, requires a public notification for the affected pollutants from the following types of projects:

- New Major Sources
- Major Modifications
- New emission units with a PE>100 lb/day of any one pollutant
- Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis
- New stationary sources with SSPE2 exceeding Offset thresholds
- Any permitting action with a SSIPE exceeding 20,000 lb/yr for any one pollutant

New Major Sources: This facility is not a new Major Source. Therefore, public noticing is not required under this section.

Major modifications: Per section VII.D.4 of this document, the proposed project is not a Major Modification. Thus, public notice is not required under this section.

New emission units with a PE>100 lb/day of any one pollutant: Chevron is not installing a new emissions unit under this project. Therefore, public notice is not required under this section.

Modifications with SSPE1 below an Offset threshold and SSPE2 above an Offset threshold on a pollutant-by-pollutant basis: The proposed project does not result an increase in emissions from below offset level to above offset level. Thus, public notice is not required under this section.

New stationary sources with SSPE2 exceeding Offset thresholds: This facility is not a new stationary source. Therefore, this section is not applicable to this project.

Any permitting action with an SSIPE exceeding 20,000 lb/yr for any one pollutant: **Per section VII.D.3 of this document, SSIPE of ammonia is greater than 20,000 lb/yr. Thus, public notice is required under this section.**

Summary:

Public notice is required for this project.

4. Daily Emission Limits (DELs)

Daily Emissions Limitations (DELs) and other enforceable conditions are required by Section 3.15 to restrict a unit's maximum daily emissions.

S-1129-47, -48, and -49:

- During an initial shakedown period, the emissions shall not exceed any of the following limits: 30 ppmvd NOx @ 15% O2 referenced as NO2; 29 ppmvd CO @ 15% O2; 0.61 lb-PM10/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SOx/hr referenced as SO2. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NOx and CO over 3-hour rolling average period from CEMS (if operational). These records shall be made readily available for District inspection upon request. [District Rule 2201]
- Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 5 ppmvd NOx @ 15% O2 referenced as NO2; 29 ppmvd CO @ 15% O2; 0.61 lb-PM10/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SOx/hr referenced as SO2. NOx and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NOx and CO during that clock hour. [District Rules 2201 and 4703]
- Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 46.6 lb-NOx/day referenced as NO2; 1,394.7 lb-CO/day; 3.8 lb-SOx/day; 14.6 lb-PM10/day; 109.0 lb-VOC/day referenced as methane; and 46.8 lb-NH3/day. [District Rule 2201]

S-1129-53, -54, and -55:

- During an initial shakedown period, the emissions shall not exceed any of the following limits: 30 ppmvd NOx @ 15% O2 referenced as NO2; 41 ppmvd CO @ 15% O2; 0.61 lb-PM10/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SOx/hr referenced as SO2. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NOx and CO over 3-hour rolling average period from CEMS (if operational).

These records shall be made readily available for District inspection upon request.
[District Rule 2201]

- Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 5 ppmvd NO_x @ 15% O₂ referenced as NO₂; 41 ppmvd CO @ 15% O₂; 0.61 lb-PM₁₀/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SO_x/hr referenced as SO₂. NO_x and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO_x and CO during that clock hour. [District Rules 2201 and 4703]
- Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 39.4 lb-NO_x/day referenced as NO₂; 1,394.7 lb-CO/day; 3.3 lb-SO_x/day; 14.6 lb-PM₁₀/day; 109.0 lb-VOC/day referenced as methane; and 33.2 lb-NH₃/day. [District Rule 2201]

5. Compliance Assurance

Source Testing

Source test to determine NO_x, CO and VOC emissions during start-up of each turbine is required to verify the worst-case daily emission rates.

Rule 4703 (Section 6.3.1 and 6.3.3) requires the gas turbine system to be tested on annual basis for NO_x and CO emissions with duct burners "on" and "off" configurations. The emission units under this project are not equipped with duct burner(s). The exhaust from each gas turbine will be routed through its own SCR system to minimize NO_x emissions. For an SCR system, ammonia (NH₃) slip is an indicator of SCR performance. Therefore, each unit is required to be tested within 60 days of initial startup and annually thereafter for NO_x, CO and NH₃ emissions.

No additional testing is required to verify VOC, SO_x and PM₁₀ emissions from the gas turbines, as this project does not result an increase in any of these pollutants. However, existing source testing requirement (if any) will be replicated on the permits being issued under this project.

Monitoring

The permittee has proposed to use a continuous emissions monitoring system (CEMS) to monitor NO_x, CO and O₂ concentrations from each gas turbine system.

Currently, the permittee is required to test fuel sulfur content if a gas turbine is operated on fuel other than PUC-regulated or FERC-regulated natural gas. Based on recent source test, it is expected that each gas turbine system stay in compliance with the permitted SO_x emissions limit. No separate SO₂ monitor is proposed at this time or is required by the applicable District Rules or Federal regulations.

The permitted emission factor for VOC and PM₁₀ emissions factors along with the heat input rate could be used to determine daily emissions from each turbine.

Recordkeeping

The permittee is required to keep records of as to when startup, shutdown or black start event occurs, daily emissions, source tests and monitoring parameters. These records are required to be kept for at least five years.

Reporting

The permittee is required to submit source test results within 60 after each source test.

Compliance is expected with this Rule.

Rule 2520 Federally Mandated Operating Permits

Chevron USA Inc possesses a Title V permit. The proposed are considered "Minor Modification" as defined in this rule. The applicant has proposed to receive the Authorities to Construct with Certificates of Conformity in accordance with the requirements of 40 CFR 70.6(c), 70.7 and 70.8. Therefore, the 45-day EPA notice will be conducted prior to the issuance of the ATCs. The following federally enforceable conditions will be placed on the Authorities to Construct:

- {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule]
- {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4]

In accordance with Rule 2520, the application meets the procedural requirements of section 11.4 by including:

- A description of the change, the emissions resulting from the change, and any new applicable requirements that will apply if the change occurs and

- The source's suggested draft permits (Appendix I of this document) and
- Certification by a responsible official that the proposed modification meets the criteria for use of major permit modification procedures and a request that such procedures be used (Appendix VII of this document).

Per section 5.3.2 of this rule, the applicant must submit an application for a Title V permit modification prior to implementing the requested changes.

Compliance is expected with this Rule.

Rule 4001 New Source Performance Standards

40 CFR Part 60 Subpart GG – Standards of Performance for Stationary Gas Turbines

Based on the conditions in Permits to Operate, each gas turbine engine is subject to the requirements of this subpart. These requirements and their compliance determination are briefly discussed in the following section.

§60.332 Standard for NO_x:

§60.332(c) requires that a stationary gas turbine with a heat input rate greater than 10 MMBtu/hr but less than or equal to 100 MMBtu/hr shall comply with the NO_x emission limit calculated using the following equation:

$$\text{STD} = 0.0150 \frac{(14.4)}{Y} + F; \text{ where}$$

STD = allowable ISO corrected NO_x emission concentration in % by volume @ 15% O₂ on dry basis

Y = Manufacturer's rated heat rate at manufacturer's rated load (kJ/w-hr) or, actual measured heat rate based on lower heating value of fuel as measured at actual peak load for the facility. The Y shall not exceed 14.4 kJ/w-hr.

F = NO_x emission allowance for fuel-bound nitrogen.

For example, for each of the units under permit S-1129-47 through -49,

Heat input rate = 68.7 x 10⁶ Btu/hr

Power Rating = 3.5 MW

$$Y = \left(68.7 \times 10^6 \frac{\text{Btu}}{\text{hr}} \right) \times \left(\frac{1 \text{ kJ}}{0.9478 \text{ Btu}} \right) \times \left(\frac{1}{3.5 \times 10^6 \text{ w}} \right) = 20.7 \frac{\text{kJ}}{\text{w-hr}}$$

Since Y exceeds 14.4 kJ/w-hr, Y is set equal to 14.4 kJ/w-hr.

F = 0; for conservative calculations

$$\text{STD} = 0.0150 \frac{(14.4)}{14.4} + 0 = 0.015 \% \text{ by volume @ } 15\% \text{ O}_2 \text{ (150 ppmv @ } 15\% \text{ O}_2)$$

Similarly, NOx emissions standards for other units are determined. NOx standards are summarized in the following table.

NSPS – NOx Limits				
Permit #	Heat Input (MMBtu/hr)	Power Rating (MW)	F	STD (ppmv @ 15% O ₂)
S-1129-47-11	68.7	3.5	0	150
S-1129-48-11	68.7	3.5	0	150
S-1129-49-11	68.7	3.5	0	150
S-1129-53-10	48.7	3.5	0	150
S-1129-54-11	48.7	3.5	0	150
S-1129-55-10	48.7	3.5	0	150

Chevron is required to demonstrate compliance with 5 ppmvd @ 15% O₂ on 3-hour rolling average basis for each gas turbine engine. Therefore, each unit is expected to operate in compliance with the NOx standards.

§60.333 Standard for SOx:

§60.333(a) requires that emissions of sulfur dioxide shall not exceed 0.015 percent by volume dry @ 15% O₂ (150 ppmvd @ 15% O₂).

The 150 ppmvd @ 15% O₂ limit specified in §60.333(a) is equivalent to 0.764 lb-SO₂/MMBtu. This number determined as follows:

$$\frac{(150 \times 10^{-6}) \times \left(8,578 \frac{\text{ft}^3}{\text{MMBtu}}\right) \times \left(64 \frac{\text{lb} - \text{SO}_2}{\text{lb} - \text{mol}}\right) \times \left(\frac{20.95}{20.95 - 15}\right)}{\left(379.5 \frac{\text{ft}^3}{\text{lb} - \text{mol}}\right)} = 0.764 \frac{\text{lb} - \text{SO}_2}{\text{MMBtu}}$$

Permit #	Emission Factor (lb-SO ₂ /MMBtu)	NSPS Limit (lb-SO ₂ /MMBtu)
S-1129-47-11	0.0023	0.764
S-1129-48-11	0.0023	0.764
S-1129-49-11	0.0023	0.764
S-1129-53-10	0.0028	0.764
S-1129-54-11	0.0028	0.764
S-1129-55-10	0.0028	0.764

For each unit, the permitted emission factors are less than that of the maximum allowable emission standards. Thus, compliance is expected with §60.333(a).

§60.334 Monitoring of Operations

§60.334(b) states that the owner or operator of a stationary gas turbine constructed between October 3, 1977 and July 8, 2004 and using water or steam to control NO_x emissions may, as an alternative to operating the continuous emissions monitoring system to monitor and record the fuel consumption and the ratio of water or steam to fuel being fired in the turbine, can install, calibrate, certify, maintain, operate, and quality-assure a continuous monitoring system (CEMS) consisting of NO_x and O₂ monitors.

These turbines were constructed between October 3, 1977 and July 8, 2004. Chevron has proposed to use CEMS to measure NO_x, CO and O₂ concentrations. The following conditions will be placed on each permit:

- The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO_x, CO, and O₂ concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)] Y
- The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)] Y
- The NO_x, CO and O₂ CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)] Y

§60.334(h)(3)(i) and (ii) requires the owner or operator to keep sulfur content records using valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying that the maximum sulfur content of the fuel is 20 grains/100 scf or less or perform a *representative fuel sampling* to show the sulfur content of gaseous fuel does not exceed 20 grains/100 scf.

Chevron has been complying with the following requirement for each permit unit in this project. Thus, continued compliance is expected.

- If the gas turbine system is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)]

§60.334(j)(1)(iii)(A) defines excess NO_x emissions shall be any unit-operating hour in which the 4-hour rolling average NO_x concentration exceeds the NO_x emission limit calculated in §60.332.

Chevron has proposed to demonstrate compliance with NO_x emissions of 5 ppmvd @ 15% O₂ on 3-hour rolling average basis, which is considered to be more stringent than the NSPS limit (given above under §60.332 Standard for NO_x for each turbine) over 4-hour rolling average period. Therefore, it is not necessary to define excess NO_x emissions separately.

§60.334(j)(1)(iii)(B) defines a period of monitor downtime shall be any operating hour in which sufficient data are not obtained to validate the hour for either NO_x concentration or diluent (or both).

- Monitor downtime for NO_x shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NO_x concentration or diluent O₂ (or both). [40 CFR 60.334(j)(1)(iii)(B)]

§60.334(j)(2)(i) states for samples of gaseous fuel and for oil samples obtained using daily sampling, flow proportional sampling, or sampling for the unit's storage tank, an excess sulfur dioxide emissions occurs each unit operating hour included in the period beginning on the date and hour of any sample for which sulfur content of the fuel fired in the gas turbine exceeds 0.8% (by weight) and ending on the date and hour that a subsequent sample is taken that demonstrate compliance with the sulfur limit.

Each of the three permit units S-1129-47 through 49 has been permitted with a SO_x emission rate of 0.0023 lb/MMBtu. Similarly, each of the remaining three permit units in this project S-1129-53 through 55 has been permitted with a SO_x emission rate of 0.0028 lb/MMBtu. Each of the two emission rates is less than 0.689 lb/MMBtu (0.8 lb-S/100 lb-fuel x 64 lb-SO₂/32 lb-S x 0.0439 lb-fuel/ft³ x ft³/1,020 Btu x 10⁶ Btu/MMBtu). Therefore, it is not necessary to define a less stringent limit.

§60.334(j)(2)(ii) defines excess sulfur dioxide emissions when each delivery of fuel oil has been selected. Each turbine is fired exclusively on natural gas fuel. Thus, requirements of this section are not applicable.

§60.334(j)(2)(iii) defines monitor downtime for sulfur dioxide emissions occur when a required sample is not taken by its due date. Monitor downtime also begins if invalid results are obtained for a fuel sample.

Chevron is not using sulfur dioxide monitors, and the turbines are exclusively fired on natural gas fuel. Therefore, it is not necessary to define monitor down for sulfur dioxide emissions.

§60.334(j)(5) requires the owner or operator to postmark the reports required under §60.7(c) by the 30th day following the end of each 6-month period. The permittee is required to submit quarterly reports, as it is required by District Rule 1080. Thus, compliance is expected with this section.

- The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NOx emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)]

§60.335 Test Methods and Procedure

§60.335(a) states that the owner or operator shall conduct the performance tests required in §60.8 using EPA Method 20, ASTM D6522-00 or EPA Method 7E and either EPA Method 3 or 3A to determine NOx and diluent concentration. Sampling traverse points are to be selected following Method 20 or Method 1. The following condition will be placed on each permit.

- The following test methods shall be used: NOx - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM10 - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O2 - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)]

§60.335(b)(1) states that for each run of the performance test, the mean nitrogen oxide emission concentration @ 15% O₂ shall be corrected to ISO standard conditions using the equation listed in this section to demonstrate compliance with NSPS NO_x standard. NO_x correction to ISO standard is optional for the units equipped with add-on emissions control devices. Therefore, ISO correction is not mentioned in the above condition.

§60.335(b)(2) states that the 3-run performance test must be performed within +/-5% at 30, 50, 75, and 90-to-100 percent of peak load or at four evenly-spaced load points in the normal operating range of the gas turbine, including the minimum point in the operating range and 90-to-100 percent of peak load, or at the highest achievable load point if 90-to-100 percent of peak load cannot be physically achieved in practice. The following condition will be placed to satisfy the requirement of this section:

- Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these run can be used to demonstrate compliance with the applicable NO_x emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)]

§60.335(b)(3) states that for a combined cycle turbine system with duct burner, the owner may elect to measure turbine NO_x emissions after the duct burner rather than directly after turbine. The turbines under this project are not equipped with supplemental heat or duct burner. Therefore, no further discussion is required.

§60.335(b)(4) states that if water or steam injection is used to control NO_x with no additional post-combustion NO_x control and the owner or operator chooses to monitor the steam or water to fuel ratio then that monitoring system must be operated with each performance test run to determine the fuel consumption and the steam or water to fuel ratio to demonstrate on-going compliance with the NO_x standard.

Each turbine is equipped with an SCR system, and will have operational CEMS to directly measure NO_x, CO and O₂ concentrations. Therefore, the permittee is not required to monitor fuel consumption and water or steam injection during a performance test.

§60.335(b)(5) states that if the owner elects to claim an emission allowance for fuel bound nitrogen, then concurrently with each reference method run, a representative sample of the fuel used shall be collected and analyzed following the applicable procedure described in §60.335(b)(9). These data shall be used to determine the maximum fuel nitrogen content for which the established water or steam to fuel ratio will be valid.

Per <http://www.naturalgas.org/overview/background.asp>, nitrogen content in a natural gas varies between 0-5%. There would not be any significant variation in the NOx emission limit if the permittee was given an allowance for fuel bound nitrogen. Furthermore, the proposed NOx emission limit of 5.0 ppmvd NOx @ 15% O2 (required by Rule 4703) accounts for the fuel bound nitrogen. Given that this limit is more stringent than that of the NSPS NOx emission limit, allowance for fuel bound nitrogen is not considered for this project.

§60.335(b)(6) states that if the owner or operator elects to install a CEMS, the performance evaluation of CEMS may either be conducted separately or as part of the initial performance test of the affected unit as described in paragraph (b)(7). The following conditions will be placed on the permit:

- Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these run can be used to demonstrate compliance with the applicable NOx emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)]

§60.335(b)(7), (b)(8) are not applicable to the turbines in this project.

§60.335(b)(10) if the owner or operator is required to determine the sulfur content of the fuel combusted in the turbine then a minimum of three fuel samples shall be collected during the performance test. The following conditions will be placed on the permit:

- If the gas turbine system is not fired on PUC-regulated or FERC-regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3246; D4084; D4468; D6228; or D6667; or double GC for H2S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)]

Compliance is expected with this subpart.

40 CFR 60, Subpart KKKK—Standards of Performance for Stationary Combustion Turbines

The purpose of 40 CFR 60, Subpart KKKK is to establish emission standards and compliance schedules for the control of emissions from stationary combustion turbines that commenced construction, modification, or reconstruction after February 18, 2005. This subpart applies to any stationary combustion turbine 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 of the fuel, which commenced construction, modification, or reconstruction after February 18, 2005.

For the purpose of determining applicability with this Subpart, only heat input to the combustion turbine will be included. Any additional heat input to associated heat recovery steam generators (HRSG) or duct burners will not be included when determining the turbine's peak heat input.

Since all of the turbines involved with this project were installed prior to February 18, 2005, this Subpart is not applicable and no further discussion is necessary.

Furthermore, 40 CFR Part 60, Subpart A, section 14, defines the meaning of modification to which the the standards are applicable. §60.14, paragraph (e)(5) states that the following will not be considered as a modification: *"the addition or use of any system or device whose primary funtion is the reduction of air pollutants, except when an emission control system is removed or replaced by a system which the Administrator determines to be less environmentally beneficial"*.

No newly constructed or reconstructed units are proposed in this project, nor are the units being modified (as defined above). Since Chevron is proposing to retrofit each gas turbine with SCR system solely for compliance with District Rule 4703, the requirements of these sections do not apply to the units.

Rule 4101 Visible Emissions

District Rule 4101, Section 5.0, indicates that no air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour, which is dark or darker than Ringelmann 1 or equivalent to 20% opacity. The following condition will be placed on the permit:

- No air contaminant shall be discharged into the atmosphere for a period or periods aggregating more than three minutes in any one hour which is as dark as, or darker than, Ringelmann 1 or 20% opacity. [District Rule 4101]

Compliance is expected with this Rule.

Rule 4102 Nuisance

Section 4.0 prohibits discharge of air contaminants, which could cause injury, detriment, nuisance or annoyance to the public. Public nuisance conditions are not expected as a result of these operations, provided the equipment is well maintained. Therefore, compliance with this rule is expected. The following condition will be placed on each permit:

- No air contaminant shall be released into the atmosphere, which causes a public nuisance. [District Rule 4102]

California Health & Safety Code 41700

District Policy APR 1905 - Risk Management Policy for Permitting New and Modified Sources specifies that for an increase in emissions associated with a proposed new source or modification, the District perform an analysis to determine the possible impact to the nearest resident or worksite. Risk management review results for the project are summarized in the following table (see Appendix V):

Category	Ammonia Injection (Units S-1129-47, -48, -49, -53, -54, and -55)	Project Total	Facility Total
Prioritization Score	6.6	6.3	> 1.0
Acute Hazard Index	0.1	0.1	0.1
Chronic Hazard Index	0.05	0.05	0.05
Maximum Individual Cancer Risk	0.0	0.0	0.0
T-BACT Required?	No		
Special Conditions Required?	No		

The acute and chronic indices are below 1.0 and the cancer risk factor associated with the ammonia injection is less than 1.0 in a million. In accordance with the District's Risk Management Policy, the project is approved without Toxic Best Available Control Technology (T-BACT).

Compliance is expected with this Rule.

Rule 4201 Particulate Matter Concentration

Section 3.0 prohibits discharge of dust, fumes, or total particulate matter into the atmosphere from any single source operation in excess of 0.1 grain per dry standard cubic foot.

The proposed installation of an SCR system on each turbine does not affect any changes to the particulate matter emissions. Furthermore, each gas turbine permit contains a condition to comply with the requirements of this Rule. Therefore, continued compliance is expected with this Rule.

Rule 4301 Fuel Burning Equipment

The provisions of this rule shall apply to any fuel burning equipment except air pollution control equipment which is exempted according to Section 4.0. Fuel burning equipment is defined as any furnace, boiler, apparatus, stack, and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer.

Gas turbines primarily produce power mechanically, i.e. the products of combustion pass directly across the turbine blades which causes the turbine shaft to rotate. The turbine shaft is coupled to an electrical generator shaft, which rotates and produces electricity. Because gas turbines primarily produce power by mechanical means, it does not meet the definition of fuel burning equipment (stated above). Therefore, Rule 4301 does not apply to the affected equipment and no further discussion is required.

Rule 4703 Stationary Gas Turbines

Section 2.0 of this rule states that the provisions of this rule apply to all stationary gas turbine systems, which are subject to District permitting requirements, and with ratings equal to or greater than 0.3 megawatt (MW) or a maximum heat input rating of more than 3,000,000 Btu per hour, except as provided in Section 4.0.

Each gas turbine is rated at heat input rate greater than 3 MMBtu/hour. Therefore, each turbine is subject to the requirements of this rule.

Section 5.1 – NO_x Emission Requirements

Section 5.1.3, Table 5-3, Tier 3 NO_x Compliance Limits, requires the owner or operator to achieve less than or equal to 5 ppmvd NO_x @ 15% O₂ to meet Tier-3 compliance schedule listed in Section 7.3.

Chevron has proposed to achieve Tier 3 NO_x emission standards of 5 ppmvd NO_x @ 15% O₂ using SCR with ammonia injection systems. Therefore, compliance is expected with this section.

Section 5.2 – CO Emission Requirements

Section 5.2, Table 5-4, CO Compliance Limits, requires the owner or operator to operate and maintain the gas turbine such that CO emissions must be less than 200 ppmvd @ 15% O₂. Rule 4703 does not include a specific averaging period requirement for demonstrating compliance with the CO emission limit. The District practice is to require CO emissions compliance demonstration on 3-hour rolling average period.

Each turbine is restricted to emit less or equal to 200 ppmvd CO @ 15% O₂ on 3-hour rolling average period. Thus, compliance is expected with this section.

Section 5.3 – Transitional Operation Periods

NO_x and CO emission limits (listed above) shall not apply during a transitional operation period, which includes bypass transition period, primary re-ignition period, reduced load period, start-up or shutdown (each term is defined in Section 3.0 of Rule 4703), provided an operator shall meet the following conditions:

- The duration of each startup or each shutdown shall not exceed two hours.
- For each bypass transition period, the requirements specified in Section 3.2 shall be met.
- For each primary re-ignition period, the requirements specified in Section 3.20 shall be met².
- Each reduced load period shall not exceed one hour.

Chevron is expected to complete each startup or shutdown within two hours. However, under “black start”, it may take them 4.0 hours to achieve the required NO_x and CO emission limits. Chevron has provided a general overview of the “black start” procedure (Refer to Appendix VIII of this document). The following conditions will be placed on each permit:

- Except during black start, startup shall not exceed 2.0 hours per event. [District Rule 4703]
- Shutdown shall not exceed 2.0 hours per event. [District Rule 4703]
- A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start shall not exceed 4.0 hours per event. [District Rules 2201 and 4703]

² This requirement is applicable to a gas turbine with dry low-NO_x combustors. Each turbine under this project is equipped with water injection system. Thus, this requirement is not applicable to these units.

- The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup and shutdown. [District Rule 4703]
- Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703]
- Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703]
- Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703]

Section 6.2 - Monitoring and Recordkeeping

Section 6.2.1 requires the owner to operate and maintain continuous emissions monitoring equipment for NO_x and oxygen, or install and maintain APCO-approved alternate monitoring.

Chevron has proposed to install a Continuous Emissions Monitoring System (CEMS) that will monitor NO_x, CO and O₂ in the exhaust gas. Therefore, the requirements of this section have been satisfied.

Section 6.2.2 specifies monitoring requirements for turbines without exhaust-gas NO_x control devices. Each gas turbine will be equipped with an SCR system that is designed to control NO_x emissions. Therefore, the requirements of this section are not applicable and no further discussion is required.

Section 6.2.3 requires that for units 10 MW and greater that operated an average of more than 4,000 hours per year over the last three years before August 18, 1994, the owner or operator shall monitor the exhaust gas NO_x emissions. The section is not applicable, as each turbine engine is rated at less than 10 MW.

Section 6.2.4 requires the facility to maintain all records for a period of five years from the date of data entry and shall make such records available to the APCO upon request.

Chevron will be required to maintain all records for at least five years and make them available to the APCO upon request. The following condition will be placed on each permit:

- The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703]

Section 6.2.5 requires that the owner or operator shall submit to the APCO, before issuance of the Permit to Operate, information correlating the control system operating to the associated measure NO_x output. This information may be used by the APCO to determine compliance when there is no continuous emission monitoring system for NO_x available or when the continuous emissions monitoring system is not operating properly. The following condition will be placed on the permit:

- The owner or operator shall submit to the District information correlating the NO_x control system operating parameters to the associated measured NO_x output. The information must be sufficient to allow the District to determine compliance with the NO_x emission limits of this permit when the CEMS is not operating properly. [District Rule 4703]

Section 6.2.6 requires the owner or operator to maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, and the type and quantity of fuel used.

Section 6.2.7 requires the owner or operator shall maintain a stationary gas turbine system log for units exempt under Section 4.2 of this Rule. Chevron's gas turbine system is not exempt under Section 4.2 of this Rule. Therefore, no further discussion is required.

Section 6.2.8 requires the operator performing start-up or shutdown of a unit shall keep records of the duration of start-up or shutdown.

Chevron will be required to maintain records of the items listed in above applicable sections. The following conditions will be placed on each permit:

- The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703]

Sections 6.3 and 6.4 - Compliance Testing

Section 6.3.1 states that the owner or operator of any stationary gas turbine system subject to the provisions of Section 5.0 of this rule shall provide source test information annually regarding the exhaust gas NO_x and CO concentrations.

Each gas turbine is required to be tested annually to ensure compliance with NO_x and CO concentrations. The following condition will be placed on the permit:

- Source testing to determine compliance with the NO_x, CO and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)]

Section 6.3.2 specifies source testing requirements for units operating less than 877 hours per year. As discussed above, each turbine system will be allowed to operate in excess of 877 hours per year. Therefore, the requirements of this section are not applicable and no further discussion is required.

Section 6.3.3 states that units with intermittently operated auxiliary burners shall demonstrate compliance with the auxiliary burner in both "on" and "off" configurations.

These gas turbines are not equipped with auxiliary burners. Therefore, this section is not applicable.

Section 6.4 states that the facility must demonstrate compliance annually with the NO_x and CO emission limits using the following test methods, unless otherwise approved by the APCO and EPA:

- Oxides of nitrogen emissions for compliance tests shall be determined by using EPA Method 7E or EPA Method 20.
- Carbon monoxide emissions for compliance tests shall be determined by using EPA Test Methods 10 or 10B.
- Oxygen content of the exhaust gas shall be determined by using EPA Methods 3, 3A, or 20.
- HHV and LHV of gaseous fuels shall be determined by using ASTM D3588-91, ASTM 1826-88, or ASTM 1945-81.

The following condition will ensure continued compliance with the test method requirements of this section:

- The following test methods shall be used: NO_x - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM₁₀ - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O₂ - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)]

Compliance is expected with this Rule.

Rule 4801 Sulfur Compounds

Section 3.1 states that a person shall not discharge into the atmosphere sulfur compounds, which would exist as a liquid or gas at standard conditions, exceeding a concentration of two-tenths (0.2) percent by volume calculated as sulfur dioxide (SO₂) at the point of discharge on a dry basis averaged over 15 consecutive minutes.

For the proposed gaseous fuel combustion at a reference state of 60 °F, the Rule 4801 limit of 2,000 ppmvd is equivalent to:

$$\frac{(2000 \text{ ppmvd}) \left(8,578 \frac{\text{dscf}}{\text{MMBtu}} \right) \left(64 \frac{\text{lb} - \text{SO}_x}{\text{lb} - \text{mol}} \right)}{\left(379.5 \frac{\text{dscf}}{\text{lb} - \text{mol}} \right) (10^6)} \cong 2.9 \frac{\text{lb} - \text{SO}_x}{\text{MMBtu}}$$

Each of the permit units S-1129-47 through -49 contains a SO_x emission factor of 0.0023 lb/MMBtu, whereas each of the permit units S-1129-53 through -55 contains a SO_x emission factor of 0.0028 lb/MMBtu. Since these emission factors are less than 2.9 lb-SO_x/MMBtu, compliance is expected with this Rule.

California Environmental Quality Act (CEQA)

The California Environmental Quality Act (CEQA) requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The San Joaquin Valley Unified Air Pollution Control District (District) adopted its *Environmental Review Guidelines* (ERG) in 2001. The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through the use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

The District performed an Engineering Evaluation (this document) for the proposed project and determined that the activity will occur at an existing facility and the project involves negligible expansion of the existing use. Furthermore, the District determined that the activity will not have a significant effect on the environment. The District finds that the activity is categorically exempt from the provisions of CEQA pursuant to CEQA

Guideline § 15031 (Existing Facilities), and finds that the project is exempt per the general rule that CEQA applies only to projects which have the potential for causing a significant effect on the environment (CEQA Guidelines §15061(b)(3)).

IX. RECOMMENDATION

Issue the ATCs after addressing comments from EPA, CARB, the applicant, and the public.

X. BILLING INFORMATION

Permit #	Fee Schedule	Fee Description	Previous Fee Schedule
S-1129-47 through -49	3020-08A C	3.5 MW	3020-08A C
S-1129-53 through -55	3020-08A C	3.5 MW	3020-08A C

APPENDICES

- Appendix I: Draft Authority to Construct Permits
- Appendix II: Current Permits to Operate
- Appendix III: EPA Memo
- Appendix IV: Property Map
- Appendix V: Risk Management Review
- Appendix VI: Emissions Profiles
- Appendix VII: TV-Form 009
- Appendix VIII: Overview of Black Start Procedure
- Appendix IX: Emission Estimates as Start-up and Shutdown

Appendix I
Draft Authority to Construct Permits

DEU ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-47-13

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 18 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 - MCKITTRICK: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b);60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-47-13 : May 25 2009 10:17AM - AHMADS : Joint Inspection NOT Required

7. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
8. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. {726} If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2)] Federally Enforceable Through Title V Permit
11. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
12. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
13. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
14. Unit shall demonstrate compliance annually with NO_x and CO emissions limits with the duct burner in operation and not in operation. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [40 CFR 60.335(b) and District Rule 4703, 6.3.2] Federally Enforceable Through Title V Permit
15. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
16. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
17. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
18. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

19. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
20. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
21. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
22. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NOx concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
23. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NOx output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
24. {793} Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [40 CFR 60.334 and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
25. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
26. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NOx compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
27. Cogeneration unit includes 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas fired turbine engine with either pilotless fuel nozzles or conventional fuel nozzles and 20.0 MMBtu/hr (nominal rating) gas fired Forney duct burner. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Cogeneration unit includes Ideal synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator, and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Fuel gas sulfur content shall not exceed 14 ppmv as hydrogen sulfide (H2S). [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM10: 0.61 lb/hr; SOx (as SO2): 0.16 lb/hr; NOx (as NO2): 30 ppmvd @ 15% O2; VOC: 1.65 lb/hr; and CO: 29 ppmvd @ 15% O2. [District NSR Rule] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

33. NO_x (as NO₂) and SO_x (as SO₂) emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O₂, and 150 ppmv-dry @ 15% O₂, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c) and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit
34. Emissions shall not exceed the following: PM₁₀: 14.6 lb/day; SO_x (as SO₂): 3.8 lb/day; NO_x (as NO₂): 182.4 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
35. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
36. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
37. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
38. Gas turbine engine shall be equipped with operational water injection system for NO_x control. [District NSR Rule] Federally Enforceable Through Title V Permit
39. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
41. Gas turbine shall be fired exclusively with PUC quality natural gas or equivalent. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
43. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
44. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit
45. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
46. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
47. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
48. Annual compliance with GTE/duct burner NO_x and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
49. The following test methods shall be used: CO (ppmv) - EPA Method 10 or 10B. [District Rules 2520, 9.3.2 and 4703] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-48-13

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 18 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #2 - MCKITTRICK: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b); 60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-48-13 - May 25 2009 10 17AM - AHMADS : Joint Inspection NOT Required

7. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
8. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. {726} If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2)] Federally Enforceable Through Title V Permit
11. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
12. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
13. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
14. Unit shall demonstrate compliance annually with NO_x and CO emissions limits with the duct burner in operation and not in operation. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [40 CFR 60.335(b) and District Rule 4703, 6.3.2] Federally Enforceable Through Title V Permit
15. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
16. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
17. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
18. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

19. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
20. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
21. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
22. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NOx concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
23. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NOx output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
24. {793} Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [40 CFR 60.334 and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
25. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
26. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NOx compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
27. Cogeneration unit includes 48.7 MMBtu/hr Allison (nominal rating), model 501-KB-5, gas fired turbine engine with either pilotless fuel nozzles or conventional fuel nozzles and 20.0 MMBtu/hr (nominal rating) gas fired Forney duct burner. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Cogeneration unit includes Ideal synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator, and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Fuel gas sulfur content shall not exceed 14 ppmv as hydrogen sulfide (H2S). [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM10: 0.61 lb/hr; SOx (as SO2): 0.16 lb/hr; NOx (as NO2): 30 ppmvd @ 15% O2; VOC: 1.65 lb/hr; and CO: 29 ppmvd @ 15% O2. [District NSR Rule] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

33. NO_x (as NO₂) and SO_x (as SO₂) emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O₂, and 150 ppmv-dry @ 15% O₂, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c) and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit
34. Emissions shall not exceed the following: PM₁₀: 14.6 lb/day; SO_x (as SO₂): 3.8 lb/day; NO_x (as NO₂): 182.4 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
35. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
36. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
37. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
38. Gas turbine engine shall be equipped with operational water injection system for NO_x control. [District NSR Rule] Federally Enforceable Through Title V Permit
39. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
41. Gas turbine shall be fired exclusively with PUC quality natural gas or equivalent. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
43. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
44. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit
45. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
46. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
47. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
48. Annual compliance with GTE/duct burner NO_x and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
49. The following test methods shall be used: CO (ppmv) - EPA Method 10 or 10B. [District Rules 2520, 9.3.2 and 4703] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-49-13

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 18 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #3 - MCKITTRICK: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b); 60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-49-13 : May 25 2009 10:17AM - AHMADS : Joint Inspection NOT Required

7. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
8. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. {726} If the turbine is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(b)(2)] Federally Enforceable Through Title V Permit
11. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
12. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
13. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
14. Unit shall demonstrate compliance annually with NO_x and CO emissions limits with the duct burner in operation and not in operation. An annual demonstration of compliance with the duct burner in operation is not required in any year in which the duct burner is not operated at all in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of resumption of operation of the duct burner. An annual demonstration of compliance with the duct burner not in operation is not required in any year in which the duct burner operated continuously in conjunction with the turbine in the preceding 12 months, in such case, the unit shall be compliance source tested within 60 days of shutdown of operation of the duct burner. [40 CFR 60.335(b) and District Rule 4703, 6.3.2] Federally Enforceable Through Title V Permit
15. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
16. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
17. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
18. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

19. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
20. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
21. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
22. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NOx concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
23. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NOx output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
24. {793} Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [40 CFR 60.334 and District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
25. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
26. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NOx compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
27. Cogeneration unit includes 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas fired turbine engine with either pilotless fuel nozzles or conventional fuel nozzles and 20.0 MMBtu/hr (nominal rating) gas fired Forney duct burner. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Cogeneration unit includes Ideal synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator, and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Fuel gas sulfur content shall not exceed 14 ppmv as hydrogen sulfide (H2S). [District NSR Rule] Federally Enforceable Through Title V Permit
31. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM10: 0.61 lb/hr; SOx (as SO2): 0.16 lb/hr; NOx (as NO2): 30 ppmvd @ 15% O2; VOC: 1.65 lb/hr; and CO: 29 ppmvd @ 15% O2. [District NSR Rule] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

33. NO_x (as NO₂) and SO_x (as SO₂) emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O₂, and 150 ppmv-dry @ 15% O₂, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c) and 40 CFR 60.333(a)] Federally Enforceable Through Title V Permit
34. Emissions shall not exceed the following: PM₁₀: 14.6 lb/day; SO_x (as SO₂): 3.8 lb/day; NO_x (as NO₂): 182.4 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
35. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
36. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
37. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
38. Gas turbine engine shall be equipped with operational water injection system for NO_x control. [District NSR Rule] Federally Enforceable Through Title V Permit
39. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
41. Gas turbine shall be fired exclusively with PUC quality natural gas or equivalent. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
43. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
44. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit
45. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
46. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
47. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
48. Annual compliance with GTE/duct burner NO_x and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
49. The following test methods shall be used: CO (ppmv) - EPA Method 10 or 10B. [District Rules 2520, 9.3.2 and 4703] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-53-12

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 34 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #7: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b); 60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-53-12 : May 25 2009 10:17AM - AHMADS : Joint Inspection NOT Required

7. Gas turbine shall be fired exclusively with PUC-quality natural gas or equivalent with total sulfur content of less than or equal to 1.0 gr S/100 scf of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
11. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
12. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
13. Carbon monoxide (CO) concentrations shall be determined using EPA Method 10 or 10B. [District Rule 4703] Federally Enforceable Through Title V Permit
14. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
15. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
16. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
17. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NO_x concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
18. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NO_x output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
19. Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
20. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
21. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NO_x compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
22. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401, 5.0] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

23. Cogeneration unit shall include 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas-fired turbine engine with pilotless fuel nozzles or conventional fuel nozzles, Ideal Synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
25. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
26. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
27. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Gas turbine engine shall be equipped with operational water injection system for NOx control. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Evaporative cooler shall use only fresh and filtered water. [District NSR Rule] Federally Enforceable Through Title V Permit
33. Fiber bed filter system shall be maintained and operated in accordance with the manufacturer's plans and specifications. [District NSR Rule] Federally Enforceable Through Title V Permit
34. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
35. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM10: 0.61 lb/hr; SOx (as SO2): 0.16 lb/hr; NOx: 42 ppmvd @ 15% O2; VOC: 1.65 lb/hr; and CO: 41 ppmvd @ 15% O2. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
36. Except during periods of startup/shutdown, NOx emission rate (3 hr average) shall not exceed 35 ppmvd NO2 @ 15% O2. [District Rule 4703]
37. Emissions shall not exceed the following: PM10: 14.6 lb/day; SOx (as SO2): 3.3 lb/day; NOx (as NO2): 153.0 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
38. NOx and SOx emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O2, and 150 ppmv-dry @ 15% O2, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c); 40CFR 60.333(a)] Federally Enforceable Through Title V Permit
39. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

41. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
43. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
44. Annual compliance with GTE NOx and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
45. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
46. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
48. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
49. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-54-13

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 34 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #8: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b); 60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-54-13 : May 25 2009 10:17AM - AHMAADS : Joint Inspection NOT Required

7. Gas turbine shall be fired exclusively with PUC-quality natural gas or equivalent with total sulfur content of less than or equal to 1.0 gr S/100 scf of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
11. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
12. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
13. Carbon monoxide (CO) concentrations shall be determined using EPA Method 10 or 10B. [District Rule 4703] Federally Enforceable Through Title V Permit
14. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
15. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
16. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
17. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NO_x concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
18. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NO_x output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
19. Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
20. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
21. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NO_x compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
22. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401, 5.0] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

23. Cogeneration unit shall include 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas-fired turbine engine with pilotless fuel nozzles or conventional fuel nozzles, Ideal Synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
25. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
26. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
27. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Gas turbine engine shall be equipped with operational water injection system for NOx control. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Evaporative cooler shall use only fresh and filtered water. [District NSR Rule] Federally Enforceable Through Title V Permit
33. Fiber bed filter system shall be maintained and operated in accordance with the manufacturer's plans and specifications. [District NSR Rule] Federally Enforceable Through Title V Permit
34. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
35. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM10: 0.61 lb/hr; SOx (as SO2): 0.16 lb/hr; NOx: 42 ppmvd @ 15% O2; VOC: 1.65 lb/hr; and CO: 41 ppmvd @ 15% O2. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
36. Except during periods of startup/shutdown, NOx emission rate (3 hr average) shall not exceed 35 ppmvd NO2 @ 15% O2. [District Rule 4703]
37. Emissions shall not exceed the following: PM10: 14.6 lb/day; SOx (as SO2): 3.3 lb/day; NOx (as NO2): 153.0 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
38. NOx and SOx emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O2, and 150 ppmv-dry @ 15% O2, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c); 40CFR 60.333(a)] Federally Enforceable Through Title V Permit
39. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

41. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
43. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
44. Annual compliance with GTE NO_x and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
45. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
46. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
48. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
49. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-55-12

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 34 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW COMBINED CYCLE GAS TURBINE TOPPING CYCLE COGENERATION NORTH MIDWAY UNIT #9: DESIGNATE AS A NON-COMPLIANT DORMANT EMISSIONS UNIT (DEU) FOR TIER-3 NOX STANDARD OF RULE 4703

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. No modification to this unit shall be performed without an Authority to Construct for such modification(s), except for changes specified in conditions below. [District Rule 2010]
4. The fuel supply line shall be physically disconnected from this unit. [District Rule 4703]
5. This equipment shall not be operated for any reason until an Authority to Construct permit is issued approving all necessary retrofits required to comply with the applicable requirements of District Rule 4703 and all other applicable District regulations. [District Rule 4703]
6. Units shall be fired exclusively on PUC-quality natural gas which has a sulfur content of less than or equal to 0.017% by weight. [40 CFR 60.333(a) & (b); 60.332(a); Kern County Rule 407] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU **MUST** NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
S-1129-55-12 : May 25 2009 10:17AM - AHMADS : Joint Inspection NOT Required

7. Gas turbine shall be fired exclusively with PUC-quality natural gas or equivalent with total sulfur content of less than or equal to 1.0 gr S/100 scf of gas. [District NSR Rule] Federally Enforceable Through Title V Permit
8. Operator shall not discharge into the atmosphere combustion contaminants (PM) exceeding in concentration at the point of discharge, 0.1 gr/dscf. [District Rule 4201; Kern County Rule 404] Federally Enforceable Through Title V Permit
9. If the turbine is not fired on PUC-regulated natural gas, then the sulfur content of the natural gas being fired in the turbine shall be determined using ASTM method D 1072, D 3031, D 4084, D 3246 or Double GC for H₂S and Mercaptans. [40 CFR 60.335(d)] Federally Enforceable Through Title V Permit
10. HHV and LHV of the fuel shall be determined using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b) and District Rule 4703, 6.4.5] Federally Enforceable Through Title V Permit
11. {758} Nitrogen oxides (NO_x) concentrations shall be determined using EPA Method 7E or 20, and oxygen (O₂) concentrations shall be determined using EPA Method 3, 3A, or 20. [40 CFR 60.335(b) and District Rule 4703, 6.4] Federally Enforceable Through Title V Permit
12. {783} The operator shall provide source test information annually regarding the exhaust gas NO_x concentration corrected to 15% O₂ (dry). [40 CFR 60.332(a), (b) and District Rule 4703, 5.1] Federally Enforceable Through Title V Permit
13. Carbon monoxide (CO) concentrations shall be determined using EPA Method 10 or 10B. [District Rule 4703] Federally Enforceable Through Title V Permit
14. If the turbine is fired on PUC-regulated natural gas, then the operator shall maintain a log describing the source of natural gas and the quantity used. [District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
15. The operator of a stationary gas turbine system shall maintain all records of required monitoring data and support information for inspection at any time for a period of five years. [District Rule 2520, 9.4.2] Federally Enforceable Through Title V Permit
16. Operator shall maintain a stationary gas turbine operating log that includes, on a daily basis, the actual local start-up and stop time, length and reason for reduced load periods, total hours of operation, source(s) of and quantity of fuel used, fuel sulfur content and fuel nitrogen content. [40 CFR 60.332(a),(b); District Rules 2520, 9.3.2 and 4703, 6.2.4] Federally Enforceable Through Title V Permit
17. Permittee shall install, operate and maintain in calibration a predictive emissions monitoring system which continuously measures and records the water-to-fuel ratio and which correlates the water-to-fuel ratio with the NO_x concentration in the exhaust by using the method described in 40 CFR 60.335(c). [Rule 4703 and 40 CFR 60.334] Federally Enforceable Through Title V Permit
18. {792} Permittee shall submit to the APCO the information correlating the control system operating parameters to the associated measured NO_x output. [District Rule 4703, 6.2.5] Federally Enforceable Through Title V Permit
19. Permittee shall install, operate and maintain in calibration a system which continuously measures and records elapsed time of turbine operation. [District Rule 4703, 6.2.1] Federally Enforceable Through Title V Permit
20. {795} Permittee shall submit an excess emissions and monitoring systems performance report (excess emissions are defined in applicable subparts) and/or a summary report form to the APCO semiannually, except when more frequent reporting is specifically required by an applicable subpart. All reports shall be postmarked by the 30th day of each calendar half (or quarter, as appropriate). [40 CFR 60.7(c)] Federally Enforceable Through Title V Permit
21. Any one-hour period during which the average water-to-fuel ratio, as measured by the continuous monitoring system, falls below the water-to-fuel ratio determined to demonstrate NSPS NO_x compliance shall be reported to the APCO. Each report shall include the average water-to-fuel ratio, average fuel consumption, ambient conditions, turbine gas load and nitrogen content of the fuel during the period of excess emissions. [40 CFR 60.334(c)] Federally Enforceable Through Title V Permit
22. All wells producing from strata steamed by this unit shall be connected to a District-approved emissions control system, have District-approved closed casing vents or be District-approved uncontrolled cyclic wells. [District Rule 4401, 5.0] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

23. Cogeneration unit shall include 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas-fired turbine engine with pilotless fuel nozzles or conventional fuel nozzles, Ideal Synchronous electrical generator, Struthers-Wells unfired 22.5 MMBtu/hr steam generator and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit
24. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
25. Generator gearbox lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
26. Permittee shall notify the District by fax or in writing prior to or within 4 hours of any turbine nozzle replacement, except for identical replacement. [District NSR Rule] Federally Enforceable Through Title V Permit
27. Gas turbine engine shall be equipped with continuously recording fuel gas flow rate monitor. [District NSR Rule] Federally Enforceable Through Title V Permit
28. Gas turbine engine shall be equipped with operational water injection system for NO_x control. [District NSR Rule] Federally Enforceable Through Title V Permit
29. Gas turbine engine shall be equipped with continuously recording water injection rate monitor accurate to within 5%. [District NSR Rule] Federally Enforceable Through Title V Permit
30. Waste heat recovery steam generator exhaust shall be equipped with permanent provisions to allow collection of gas samples consistent with EPA methods. [District NSR Rule] Federally Enforceable Through Title V Permit
31. Gas turbine engine water injection rate shall be maintained at a water to fuel ratio no less than 0.48/1.0 by weight while operating with pilotless fuel nozzles and no less than 0.8/1.0 by weight while operating with conventional fuel nozzles. [District NSR Rule] Federally Enforceable Through Title V Permit
32. Evaporative cooler shall use only fresh and filtered water. [District NSR Rule] Federally Enforceable Through Title V Permit
33. Fiber bed filter system shall be maintained and operated in accordance with the manufacturer's plans and specifications. [District NSR Rule] Federally Enforceable Through Title V Permit
34. Maximum emission rate of volatile organic compounds (VOC's) from turbine lube oil vent shall not exceed 0.02 lb/hr. [District NSR Rule] Federally Enforceable Through Title V Permit
35. Except during periods of startup/shutdown, emission rates (3 hr average) shall not exceed: PM₁₀: 0.61 lb/hr; SO_x (as SO₂): 0.16 lb/hr; NO_x: 42 ppmvd @ 15% O₂; VOC: 1.65 lb/hr; and CO: 41 ppmvd @ 15% O₂. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
36. Except during periods of startup/shutdown, NO_x emission rate (3 hr average) shall not exceed 35 ppmvd NO₂ @ 15% O₂. [District Rule 4703]
37. Emissions shall not exceed the following: PM₁₀: 14.6 lb/day; SO_x (as SO₂): 3.3 lb/day; NO_x (as NO₂): 153.0 lb/day; VOC: 39.6 lb/day; and CO: 107.8 lb/day. [District NSR Rule] Federally Enforceable Through Title V Permit
38. NO_x and SO_x emission rates (1 hr average) shall not exceed NSPS standard of 150 ppmv-dry @ 15% O₂, and 150 ppmv-dry @ 15% O₂, respectively. [District Rule 2520, 9.3.2; 40 CFR 60.332(c); 40CFR 60.333(a)] Federally Enforceable Through Title V Permit
39. During days of gas turbine startup/shutdown, permittee shall maintain accurate daily records of natural gas consumption in gas turbine for normal operation and startup/shutdown periods. [District NSR Rule] Federally Enforceable Through Title V Permit
40. Compliance testing of lube oil vent and gearbox vent shall be required if monthly visible emissions checks from either vent exceeds 5% opacity or equivalent Ringelmann 1/4. If visible emissions are observed, corrective action shall be taken to eliminate visible emissions. If visible emissions cannot be corrected within 24 hours, a visible emissions test using EPA Method 9 shall be conducted. [District Rules 2520, 9.3.2 and NSR] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

41. Thermal stabilization period shall be defined as the start-up or shutdown time necessary to bring the heat recovery steam generator to proper temperature, not exceeding two hours. [District NSR Rule] Federally Enforceable Through Title V Permit
42. Startup and shutdown of gas turbine engine, as defined in 40 CFR Subpart A 60.2, shall not exceed a time period of two hours and two hours, respectively, per occurrence. [40 CFR Subpart A 60.2, District NSR Rule] Federally Enforceable Through Title V Permit
43. Permittee shall keep accurate records of fuel sulfur content, and such records shall be made available for District inspection for five years. [40 CFR 60.334(b)(2), District Rule 2520, 9.3.2] Federally Enforceable Through Title V Permit
44. Annual compliance with GTE NOx and CO emission limits (pursuant to Rule 4703 (10/16/97)) and fuel sulfur limit shall be demonstrated by District witnessed or authorized sample collection by independent laboratory. Test results shall be submitted within 60 days. [District NSR Rule and Rule 4703] Federally Enforceable Through Title V Permit
45. Operator shall be required to conform to the compliance testing procedures described in District Rule 1081. [District Rule 1081; Kern County Rule 108.1] Federally Enforceable Through Title V Permit
46. {1713} The following types of units are not affected units subject to the requirements of the Acid Rain Program: 1) A simple combustion turbine that commenced operation before November 15, 1990, 2) Any unit that, during 1985, did not serve a generator that produced electricity for sale and that did not, as of November 15, 1990, and does not currently, serve a generator that produces electricity for sale, 3) A cogeneration facility which for a unit that commenced construction prior to November 15, 1990, was constructed for the purpose of supplying equal to or less than one-third its potential electrical output capacity or equal to or less than 219,000 Mwe-hrs actual electric output on an annual basis to any utility power distribution system for sale. Therefore, the requirements of 40 CFR 72.6 do not apply to this source. A permit shield is granted from this requirement. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
47. {788} Compliance with permit conditions in the Title V permit shall be deemed in compliance with the following applicable requirements: SJVUAPCD Rule 1081, 4201, 3.1; Rules 406 (Fresno), 407 (Kings, San Joaquin, Stanislaus, Tulare, Merced, and Kern), and 404(Madera); 40 CFR 60.332(c), (d); 60.334 (b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
48. {789} Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; Rules 108 (Kings), 108.1 (Fresno, Merced, San Joaquin, Tulare, Kern and Stanislaus), and 110 (Madera); Rules 402 (Madera) and 404 (Fresno, Kern, Kings, San Joaquin, Merced, Stanislaus, Tulare); 40 CFR 60.332 (a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335 (a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
49. {790} Compliance with the permit conditions in the Title V permit shall be deemed compliance with the following applicable requirements: SJVUAPCD Rule 4703, sections 5.0, 5.1.1, 6.2.1, 6.2.4, 6.3, 6.4.1, 6.4.3, 6.4.5, 6.4.6. A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT

SCR/CEMS ATCs

San Joaquin Valley
Air Pollution Control District

AUTHORITY TO CONSTRUCT

ISSUANCE DATE: DRAFT
DRAFT

PERMIT NO: S-1129-47-14

LEGAL OWNER OR OPERATOR: CHEVRON U S A INC
MAILING ADDRESS: PO BOX 1392
BAKERSFIELD, CA 93302

LOCATION: HEAVY OIL WESTERN
CA

SECTION: 18 TOWNSHIP: 30S RANGE: 22E

EQUIPMENT DESCRIPTION:

MODIFICATION OF 3.5 MW GAS TURBINE ENGINE COGENERATION UNIT #1 - MCKITTRICK: INSTALL A SELECTIVE CATALYTIC REDUCTION (SCR) SYSTEM WITH AMMONIA INJECTION TO COMPLY WITH RULE 4703 TIER 3 EMISSION LIMIT OF 5 PPMVD NOX @ 15% O2; INSTALL A CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS) TO MEASURE NOX, CO AND O2 CONCENTRATIONS; REPLACE STRUTHERS-WELLS HEAT RECOVERY STEAM GENERATOR (HRSG) WITH ANOTHER HRSG (IF NECESSARY); AND REPLACE THE EXISTING 20.0 MMBTU/HR DUCT BURNER WITH A NEW 20.0 MMBTU/HR (NOMINAL RATING) DUCT BURNER (IF NECESSARY)

CONDITIONS

1. {1830} This Authority to Construct serves as a written certificate of conformity with the procedural requirements of 40 CFR 70.7 and 70.8 and with the compliance requirements of 40 CFR 70.6(c). [District NSR Rule] Federally Enforceable Through Title V Permit
2. {1831} Prior to operating with modifications authorized by this Authority to Construct, the facility shall submit an application to modify the Title V permit with an administrative amendment in accordance with District Rule 2520 Section 5.3.4. [District Rule 2520, 5.3.4] Federally Enforceable Through Title V Permit
3. Cogeneration unit includes 48.7 MMBtu/hr (nominal rating) Allison, model 501-KB-5, gas fired turbine engine with either pilotless fuel nozzles or conventional fuel nozzles and 20.0 MMBtu/hr (nominal rating) gas fired duct burner. [District NSR Rule] Federally Enforceable Through Title V Permit
4. Cogeneration unit includes Ideal synchronous electrical generator, heat recovery steam generator (HRSG), and an inlet air evaporative cooler. [District NSR Rule] Federally Enforceable Through Title V Permit

CONDITIONS CONTINUE ON NEXT PAGE

YOU MUST NOTIFY THE DISTRICT COMPLIANCE DIVISION AT (661) 392-5500 WHEN CONSTRUCTION IS COMPLETED AND PRIOR TO OPERATING THE EQUIPMENT OR MODIFICATIONS AUTHORIZED BY THIS AUTHORITY TO CONSTRUCT. This is NOT a PERMIT TO OPERATE. Approval or denial of a PERMIT TO OPERATE will be made after an inspection to verify that the equipment has been constructed in accordance with the approved plans, specifications and conditions of this Authority to Construct, and to determine if the equipment can be operated in compliance with all Rules and Regulations of the San Joaquin Valley Unified Air Pollution Control District. Unless construction has commenced pursuant to Rule 2050, this Authority to Construct shall expire and application shall be cancelled two years from the date of issuance. The applicant is responsible for complying with all laws, ordinances and regulations of all other governmental agencies which may pertain to the above equipment.

Seyed Sadredin, Executive Director APCO

DRAFT

DAVID WARNER, Director of Permit Services
5-1129-47-14 : Oct 20 2009 9:15AM - AHMADS : Joint Inspection NOT Required

5. Turbine lube oil tank shall vent only through CECO Model #STTOR-10 fiber bed filter system. [District NSR Rule] Federally Enforceable Through Title V Permit
6. {98} No air contaminant shall be released into the atmosphere which causes a public nuisance. [District Rule 4102]
7. Particulate matter emissions shall not exceed 0.1 grains/dscf in concentration. [District Rule 4201] Federally Enforceable Through Title V Permit
8. The gas turbine system (i.e. gas turbine and duct burner) shall be fired exclusively on PUC-regulated gas or PUC-quality natural gas which has a sulfur content less than or equal to 0.017% by weight. [40 CFR 60.333(a) and District Rule 4801] Federally Enforceable Through Title V Permit
9. The sulfur content in the fuel being combusted shall not exceed 0.71 grains/100 scf, otherwise, the fuel shall be of PUC-regulated quality. [District Rule 2201] Federally Enforceable Through Title V Permit
10. If the gas turbine system is fired on PUC-regulated natural gas, then maintain on file copies of natural gas bills. [District Rule 2520] Federally Enforceable Through Title V Permit
11. If the gas turbine system is not fired on PUC-regulated natural gas, the sulfur content of each fuel source shall be tested weekly except that if compliance with the fuel sulfur content limit has been demonstrated for 8 consecutive weeks for a fuel source, then the testing frequency shall be quarterly. If a test shows noncompliance with the sulfur content requirement, the source must return to weekly testing until eight consecutive weeks show compliance. [40 CFR 60.334(h)(3)] Federally Enforceable Through Title V Permit
12. HHV and LHV of the fuel shall be determined by using ASTM D3588, ASTM 1826, or ASTM 1945. [40 CFR 60.335(b), District Rule 4703] Federally Enforceable Through Title V Permit
13. During an initial shakedown period, the emissions shall not exceed any of the following limits: 30 ppmvd NO_x @ 15% O₂ referenced as NO₂; 29 ppmvd CO @ 15% O₂; 0.61 lb-PM₁₀/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SO_x/hr referenced as SO₂. The shakedown period shall not exceed 60 calendar days from the initial startup of the unit under this permit. The shakedown period must be concluded prior to the applicable Rule 4703 compliance deadline selected for this unit. The permittee shall maintain a record of the date of initial operation of this unit, fuel combusted (scf/day) on daily basis, and water-to-fuel ratio or results of NO_x and CO over 3-hour rolling average period from CEMS (if operational). These records shall be made readily available for District inspection upon request. [District Rule 2201] Federally Enforceable Through Title V Permit
14. Upon concluding the initial shakedown period, emissions from the gas turbine system, when startup or shutdown or black start do not occur, shall not exceed any of the following limits: 5 ppmvd NO_x @ 15% O₂ referenced as NO₂; 29 ppmvd CO @ 15% O₂; 0.61 lb-PM₁₀/hr; 1.65 lb-VOC/hr referenced as methane; and 0.16 lb-SO_x/hr referenced as SO₂. NO_x and CO emission limits are based on 3-hour rolling average period. If unit is in either startup, shutdown, or black start mode during any portion of a clock hour, the unit will not be subject to the ppmvd limits for NO_x and CO during that clock hour. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
15. Upon concluding the initial shakedown period, emissions from the gas turbine system, on days when startup, shutdown, or black start occurs, shall not exceed any of the following limits: 46.6 lb-NO_x/day referenced as NO₂; 1,394.7 lb-CO/day; 3.8 lb-SO_x/day; 14.6 lb-PM₁₀/day; 109.0 lb-VOC/day referenced as methane; and 46.8 lb-NH₃/day. [District Rule 2201] Federally Enforceable Through Title V Permit
16. Upon concluding the initial shakedown period, the emissions from the gas turbine system shall not exceed any of the following limits: 11,167 lb-NO_x/year; 45,793 lb-CO/year; 1,384 lb-SO_x/year; 5,326 lb-PM₁₀/year; 14,790 lb-VOC/year; 17,099 lb-NH₃/year. All annual emission limits are based on 12 consecutive month rolling emissions totals. [District Rule 2201] Federally Enforceable Through Title V Permit
17. Ammonia (NH₃) emissions shall not exceed 21 ppmvd @ 15% O₂ over a 24-hour average period. [District Rule 2201] Federally Enforceable Through Title V Permit
18. Each three hour rolling average will be compiled from the three most recent one hour periods. Each one hour period shall commence on the hour. Each one hour period in a twenty-four hour average for ammonia slip will commence on the hour. The twenty-four hour average will be calculated starting and ending at twelve-midnight. [District Rule 2201] Federally Enforceable Through Title V Permit

19. Daily emissions shall be compiled for a twenty-four hour period starting and ending at twelve-midnight. Each calendar month in a twelve consecutive month rolling emissions total shall commence at the beginning of the first day of the month. The twelve consecutive month rolling emissions totals used to determine compliance with annual emission limits shall be compiled from the twelve most recent calendar months. [District Rule 2201] Federally Enforceable Through Title V Permit
20. The exhaust stack shall be equipped with permanent provisions to allow collection of stack gas samples consistent with EPA test methods and shall be equipped with safe permanent provisions to sample stack gases with a portable NO_x, CO, and O₂ analyzer during District inspections. The sampling ports shall be located in accordance with the CARB regulation titled California Air Resources Board Air Monitoring Quality Assurance Volume VI, Standard Operating Procedures for Stationary Emission Monitoring and Testing. [District Rule 1081] Federally Enforceable Through Title V Permit
21. Source testing shall be conducted using the methods and procedures approved by the District. The District must be notified at least 30 days prior to any compliance source test, and a source test plan must be submitted for approval at least 15 days prior to testing. [District Rule 1081] Federally Enforceable Through Title V Permit
22. Source testing shall be witnessed or authorized by District personnel and samples shall be collected by a California Air Resources Board (CARB) certified testing laboratory or a CARB certified source testing firm. [District Rule 1081] Federally Enforceable Through Title V Permit
23. Source testing to measure start-up mass emission rates of NO_x, CO, and VOC shall be conducted for one of the gas turbine engines (S-1129-47, -48, -49) within 60-days of initial startup under this permit and at least once every seven years thereafter. CEMS relative accuracy shall be determined during source testing in accordance with the procedure listed in 40 CFR Part 60, Appendix F with any necessary changes approved by the District. [District Rule 1081] Federally Enforceable Through Title V Permit
24. Source testing to determine compliance with the NO_x, CO and NH₃ emission rates (ppmvd @ 15% O₂) during normal operation shall be conducted within 60 days of initial startup under this permit and annually thereafter. [District Rules 2201 and 4703, CFR 60.335(a)] Federally Enforceable Through Title V Permit
25. For the purpose of determining compliance with the emissions limits (ppmvd @ 15% O₂) during normal operation in this permit, the arithmetic mean of three test runs shall apply, unless two of the three results are above an applicable limit. If two of three runs are above the applicable limit the test cannot be used to demonstrate compliance with an applicable limit. [District Rule 1081] Federally Enforceable Through Title V Permit
26. The following test methods shall be used: NO_x - EPA Method 7E or 20 or CARB Method 100; CO - EPA Method 10 or 10B or CARB Method 100; VOC - EPA Method 18 or 25; PM₁₀ - EPA Method 5 (front half and back half) or 201 and 202a; ammonia - BAAQMD ST-1B; and O₂ - EPA Method 3, 3A, or 20 or CARB Method 100. EPA approved alternative test methods as approved by the District may also be used to address the source testing requirements of this permit. [District Rules 1081 and 4703, 40 CFR 60.335(a), and 40 CFR 60.335(b)(1)] Federally Enforceable Through Title V Permit
27. The results of each source test shall be submitted to the District within 60 days thereafter. [District Rule 1081] Federally Enforceable Through Title V Permit
28. The owner or operator shall install, certify, maintain, operate, and quality-assure a continuous emission monitor system (CEMS) which continuously measures and records the exhaust gas NO_x, CO, and O₂ concentrations. Continuous emissions monitors shall be capable of monitoring emissions during normal operating conditions and during startups and shutdowns, provided that CEMS passes the relative accuracy requirements of 40 CFR Part 60, Appendix B, Performance Specification 2 (PS-2) and District approved protocol for startups. If relative accuracy of CEMS cannot be demonstrated during the startup, CEMS results during startup and shutdown events shall be replaced with startup emission rates obtained from the source test conducted by the facility to determine compliance with emission limits contained in this document. [District Rules 1080, 2201 and 4703, 40 CFR 60.334(b)(1)] Federally Enforceable Through Title V Permit
29. The CEMS shall complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each 15-minute quadrant of the hour or shall meet equivalent specifications established by mutual agreement of the District, the ARB and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(2)] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

30. The NO_x, CO and O₂ CEMS shall meet the requirements in 40 CFR 60, Appendix F Procedure 1 and Part 60, Appendix B Performance Specification 2 (PS 2), or shall meet equivalent specifications established by mutual agreement of the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(1)] Federally Enforceable Through Title V Permit
31. In accordance with 40 CFR Part 60, Appendix F, 5.1, the CEMS must be audited at least once each calendar quarter. The District shall be notified prior to completion of the audits. Audit reports shall be submitted along with quarterly compliance reports to the District. [District Rule 1080] Federally Enforceable Through Title V Permit
32. The requirements in 40 CFR 60, Appendix F, shall be met through the following EPA and District approved modified procedures: 1) annual RATA testing of at least one gas turbine engine (S-1129-47, -48, -49), and rotate the unit tested so that all three units are tested over three years, 2) annual RAA testing for the two gas turbine engines for which the annual RATA testing is not performed, 3) if any of the gas turbine engines fail the RAA testing, they must have a RATA test within 60 days, and 4) for every quarter that RATA or RAA testing is not performed, a CGA is to be performed for each gas turbine engine. [District Rule 1080] Federally Enforceable Through Title V Permit
33. APCO or an authorized representative shall be allowed to inspect, as determined to be necessary, the required monitoring devices to ensure that such devices are functioning properly. [District Rule 1080] Federally Enforceable Through Title V Permit
34. The CEMS data shall be reduced to hourly averages as specified in 40 CFR 60.13(h), or by other methods deemed equivalent by mutual agreement with the District, the ARB, and the EPA. [District Rule 1080 and 40 CFR 60.334(b)(3)] Federally Enforceable Through Title V Permit
35. Upon written notice from the District, the owner or operator shall provide a summary of the data obtained from the CEMS. This summary shall be in the form and the manner prescribed by the District. [District Rule 1080] Federally Enforceable Through Title V Permit
36. The facility shall install and maintain equipment, facilities, and systems compatible with the District's CEMS data polling software system and shall make CEMS data available to the District's automated polling system on a daily basis. Upon notice by the District that the facility's CEMS is not providing polling data, the facility may continue to operate without providing automated data for a maximum of 30 days per calendar year provided the CEMS data is sent to the District by a District-approved alternative method. [District Rule 1080] Federally Enforceable Through Title V Permit
37. The permittee shall maintain the following records: the date, time and duration of any malfunction of the continuous monitoring equipment; dates of performance testing; dates of evaluations, calibrations, checks, and adjustments of the continuous monitoring equipment; date and time period which a continuous monitoring system or monitoring device was inoperative. [District Rules 1080 and 2201 and 40 CFR 60.8(d)] Federally Enforceable Through Title V Permit
38. The owner or operator shall submit a written report of CEM operations for each calendar quarter to the District. The report is due on the 30th day following the end of the calendar quarter and shall include the following: Time intervals, data and magnitude of excess NO_x emissions, nature and the cause of excess (if known), corrective actions taken and preventive measures adopted; Averaging period used for data reporting corresponding to the averaging period specified in the emission test period used to determine compliance with an emission standard; Applicable time and date of each period during which the CEM was inoperative, except for zero and span checks, and the nature of system repairs and adjustments; A negative declaration when no excess emissions occurred. [District Rule 1080 and 40 CFR 60.334(j)(5)] Federally Enforceable Through Title V Permit
39. Monitor downtime for NO_x shall be any unit operating hour in which sufficient data are not obtained to validate the hour for either NO_x concentration or diluent O₂ (or both). [40 CFR 60.334(j)(1)(iii)(B)] Federally Enforceable Through Title V Permit
40. If the gas turbine system is not fired on PUC-regulated or FERC-regulated natural gas, then a fuel sample shall be collected during the source test to determine sulfur content of the fuel combusted in the turbine. The fuel sample shall be analyzed for the total sulfur content using ASTM D1072; D3246; D4084; D4468; D6228; or D6667; or double GC for H₂S and mercaptans. The applicable ranges of some ASTM methods are not adequate to measure the levels of sulfur in some fuel gases. Dilution of samples before analysis (with verification of dilution ratio) may be used after getting a prior approval from the District. [40 CFR 60.335(b)(10)] Federally Enforceable Through Title V Permit

DRAFT
CONDITIONS CONTINUE ON NEXT PAGE

41. Should the applicant decide to conduct performance evaluation of CEMS with the initial performance test, a minimum of 9 reference method runs, with a minimum time per run of 21 minutes, at a single load level, between 90 and 100 percent of peak (or the highest physically achievable) load shall be performed. The test data obtained during these run can be used to demonstrate compliance with the applicable NOx emission limit and to provide reference method data for the RATA of the CEMS. The requirement to test at three additional load levels is waived under this option. [40 CFR 60.335(b)(6)] Federally Enforceable Through Title V Permit
42. A totalizing mass or volumetric fuel flow computer shall be utilized and maintained to calculate the amount of natural gas combusted based on measured flow meter parameters (fuel pressure and temperature) and gas composition. [District Rule 4703] Federally Enforceable Through Title V Permit
43. Except during black start, start-up shall not exceed 2.0 hours per event. [District Rule 4703] Federally Enforceable Through Title V Permit
44. Shutdown shall not exceed 2.0 hours per event. [District Rule 4703] Federally Enforceable Through Title V Permit
45. The emission control systems shall be in operation and emissions shall be minimized insofar as technologically feasible during startup (black start) and shutdown. [District Rule 4703] Federally Enforceable Through Title V Permit
46. Start-up is defined as the period of time during which a unit is brought from a shutdown status to its operating temperature and pressure, including the time required by the unit's emission control system to reach full operation. [District Rule 4703] Federally Enforceable Through Title V Permit
47. Shutdown is defined as the period of time during which a unit is taken from an operational to a non-operational status by allowing it to cool down from its operating temperature to ambient temperature as the fuel supply to the unit is completely turned off. [District Rule 4703] Federally Enforceable Through Title V Permit
48. Reduced load period is defined as the time during which a gas turbine is operated at less than rated capacity in order to change the position of the exhaust gas diverter gate. Each reduced load period shall not exceed one hour. [District Rule 4703] Federally Enforceable Through Title V Permit
49. A black start event is defined as the startup of a unit while the cogen plant is electrically separated from the utility grid. A black start shall not exceed 4.0 hours per event. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
50. The owner or operator shall submit to the District information correlating the NOx control system operating parameters to the associated measured NOx output. The information must be sufficient to allow the District to determine compliance with the NOx emission limits of this permit when the CEMS is not operating properly. [District Rule 4703] Federally Enforceable Through Title V Permit
51. The owner or operator shall maintain a stationary gas turbine system operating log that includes, on a daily basis, the actual local startup and stop time, length and reason for reduced load periods, total hours of operation, the type and quantity of fuel used, duration of each start-up (or black start) and each shutdown time period. [District Rule 4703] Federally Enforceable Through Title V Permit
52. The owner or operator shall maintain all records of required monitoring data and support information for a period of five years from the date of data entry and shall make such records available to the District upon request. [District Rules 2201 and 4703] Federally Enforceable Through Title V Permit
53. NOx emissions shall not exceed 150 ppmvd @ 15% O2 (1-hour average), excluding startup (black start), shutdown and reduced load periods. [40 CFR 60.332(a)(1) & 60.332(a)(2)] Federally Enforceable Through Title V Permit
54. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: SJVUAPCD Rule 4703, 6.2.2; 40 CFR 60.332(a) and (b); 60.333(a) and (b); 60.334 (a), (b), and (c)(1); 60.335(a), (b), (c), and (e). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit
55. Compliance with permit conditions in the Title V permit shall be deemed compliance with the following subsumed requirements: Kern County Rule 407; 40 CFR 60.332(c), (d); 60.334(b), and (c)(2); 60.335(d). A permit shield is granted from these requirements. [District Rule 2520, 13.2] Federally Enforceable Through Title V Permit

DRAFT