Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Final

MAJOR FACILITY REVIEW PERMIT

Issued To:

Cardinal Cogen, Inc.
Facility #A1629

Facility Address:
Campus and Jordan Way
Palo Alto, CA 94305

Mailing Address:
Stanford University
Building 14-105
Stanford, CA 94305-4114

Responsible Official	**Facility Contact**
John Cioffi	Brian Ross
(650) 723-1781	(650) 725-8519

Type of Facility: Cogeneration Facility
Primary SIC: 4931
Product: Cogeneration of electricity and steam

BAAQMD Permit Division Contact:
Dennis Jang

ISSUED BY THE BAY AREA AIR QUALITY MANAGEMENT DISTRICT

Signed by Jean Roggenkamp for _____ August 24, 2005 _____
Jack P. Broadbent, Executive Officer/Air Pollution Control Officer Date

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I. STANDARD CONDITIONS

A. Administrative Requirements

The permit holder shall comply with all applicable requirements in the following regulations:

BAAQMD Regulation 1 - General Provisions and Definitions (as amended by the District Board on 5/2/01);

SIP Regulation 1 - General Provisions and Definitions (as approved by EPA through 6/28/99);

BAAQMD Regulation 2, Rule 1 - Permits, General Requirements (as amended by the District Board on 6/15/05);

SIP Regulation 2, Rule 1 - Permits, General Requirements (as approved by EPA through 1/26/99);

BAAQMD Regulation 2, Rule 2 - Permits, New Source Review (as amended by the District Board on 6/15/055);

SIP Regulation 2, Rule 2 - Permits, New Source Review and Prevention of Significant Deterioration (as approved by EPA through 1/26/99);

BAAQMD Regulation 2, Rule 4 - Permits, Emissions Banking (as amended by the District Board on 5/17/00);

SIP Regulation 2, Rule 4 - Permits, Emissions Banking (as approved by EPA through 1/26/99); and

BAAQMD Regulation 2, Rule 6 - Permits, Major Facility Review (as amended by the District Board on 4/16/03).

B. Conditions to Implement Regulation 2, Rule 6, Major Facility Review

1. This Major Facility Review Permit expires on August 23, 2010. The permit holder shall submit a complete application for renewal of this Major Facility Review Permit no later than February 22, 2010 and no earlier than August 23, 2009. **If a complete application for renewal has not been submitted in accordance with this deadline, the facility may not operate after August 22, 2010.** If the permit renewal has not been issued by August 22, 2010, but a complete application for renewal has been submitted in accordance with the above deadlines, the existing permit will continue in force until the District takes final action on the renewal application. (Regulation 2-6-307, 404.2, 407, & 409.6; MOP Volume II, Part 3, §4.2)

2. The permit holder shall comply with all conditions of this permit. The permit consists of this document and all appendices. Any non-compliance with the terms and conditions of this permit will constitute a violation of the law and will be grounds for enforcement action; permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (Regulation 2-6-307; MOP Volume II, Part 3, §4.11)

3. In the event any enforcement action is brought as a result of a violation of any term or condition of this permit, the fact that it would have been necessary for the permit holder to halt or reduce the permitted activity in order to maintain

I. Standard Conditions

compliance with such term or condition shall not be a defense to such enforcement action. (MOP Volume II, Part 3, §4.11)

4. This permit may be modified, revoked, reopened and reissued, or terminated for cause. (Regulation 2-6-307, 409.8, 415; MOP Volume II, Part 3, §4.11)

5. The filing of a request by the facility for a permit modification, revocation and reissuance, or termination, or the filing of a notification of planned changes or anticipated non-compliance does not stay the applicability of any permit condition. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)

6. This permit does not convey any property rights of any sort, or any exclusive privilege. (Regulation 2-6-409.7; MOP Volume II, Part 3, §4.11)

7. The permit holder shall supply within 30 days any information that the District requests in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. (Regulation 1-441, Regulation 2-6-409.4 & 501; MOP Volume II, Part 3, §4.11)

8. Any records that must be maintained pursuant to this permit that the permittee considers proprietary or trade secret information shall be prominently designated as such. Copies of any such proprietary or trade secret information which are provided to the District shall be maintained by the District in a locked confidential file, provided, however, that requests from the public for the review of any such information shall be handled in accordance with the District's procedures set forth in Section 11 of the District's Administrative Code. (Regulation 2-6-419; MOP Volume II, Part 3, §4.11)

9. Proprietary or trade secret information provided to EPA will be subject to the requirements of 40 CFR Part 2, Subpart B - Public Information, Confidentiality of Business Information. (40 CFR Part 2)

10. The emissions inventory submitted with the application for this Major Facility Review Permit is an estimate of actual emissions or the potential to emit for the time period stated and is included only as one means of determining applicable requirements for emission sources. It does not establish, or constitute a basis for establishing, any new emission limitations. (MOP Volume II, Part 3, §4.11)

11. The responsible official shall certify all documents submitted by the facility pursuant to the major facility review permit. The certification shall state that based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete. The certifications shall be signed by a responsible official for the facility. (MOP Volume II, Part 3, §4.11)

12. The permit holder is responsible for compliance, and certification of compliance, with all conditions of the permit, regardless whether it acts through employees, agents, contractors, or subcontractors. (Regulation 2-6-307)

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C. Requirement to Pay Fees

The permit holder shall pay annual fees in accordance with District Regulation 3, including Schedule P. (Regulation 2-6-402 & 409.13, Regulation 3; MOP Volume II, Part 3, §4.12)

D. Inspection and Entry

Access to Facility: The permit holder shall provide reasonable access to the facility and equipment that is subject to this permit to the APCO and/or to his or her designee. (Regulation 1-440, Regulation 2-6-409.3; MOP Volume II, Part 3, §4.14)

E. Records

1. The permit holder must provide any information, records, and reports requested or specified by the APCO. (Regulation 1-441, Regulation 2-6-409.4)
2. Notwithstanding the specific wording in any requirement, all records for federally enforceable requirements shall be maintained for at least five years from the date of entry. (Regulation 2-6-501, Regulation 3; MOP Volume II, Part 3, §4.7)

F. Monitoring Reports

Reports of all required monitoring must be submitted to the District at least once every six months, except where an applicable requirement specifies more frequent reporting. The reports shall be for the following periods: January 1st through June 30th and July 1st through December 31st, and are due on the last day of the month after the end of the reporting period. All instances of non-compliance shall be clearly identified in these reports. The reports shall be certified by the responsible official as true, accurate, and complete. In addition, all instances of non-compliance with the permit shall be reported in writing to the District's Compliance and Enforcement Division within 10 calendar days of the discovery of the incident. Within 30 calendar days of the discovery of any incident of non-compliance, the facility shall submit a written report including the probable cause of non-compliance and any corrective or preventative actions. The reports shall be sent to the following address:

Director of Compliance and Enforcement
Bay Area Air Quality Management District
939 Ellis Street
San Francisco, CA 94109
Attn: Title V Reports

(Regulation 2-6-502, Regulation 3; MOP Volume II, Part 3, §4.7)

G. Compliance Certification

Compliance certifications shall be submitted annually by the responsible official of this facility to the Bay Area Air Quality Management District and to the Environmental Protection Agency. The certification period will be July 1st to

I. Standard Conditions

June 30th. The certification shall be submitted by July 31st of each year. The certification must list each applicable requirement, the compliance status, whether compliance was continuous or intermittent, the method used to determine compliance, and any other specific information required by the permit. The permit holder may satisfy this requirement through submittal of District-generated compliance certification forms. The certification should be directed to the District's Compliance and Enforcement Division at the address above, and a copy of the certification should be sent to the Environmental Protection Agency at the following address:

Director of the Air Division
USEPA, Region IX
75 Hawthorne Street
San Francisco, CA 94105
Attention: Air-3

(MOP Volume II, Part 3, §4.5 and 4.15)

H. Emergency Provisions

1. The permit holder may seek relief from enforcement action in the event of a breakdown, as defined by Regulation 1-208 of the District's Rules and Regulations, by following the procedures contained in Regulations 1-431 and 1-432. The District will thereafter determine whether breakdown relief will be granted in accordance with Regulation 1-433. (MOP Volume II, Part 3, §4.8)

2. The permit holder may seek relief from enforcement action for a violation of any of the terms and conditions of this permit by applying to the District's Hearing Board for a variance pursuant to Health and Safety Code Section 42350. The Hearing Board will determine after notice and hearing whether variance relief should be granted in accordance with the procedures and standards set forth in Health and Safety Code Section 42350 et seq. (MOP Volume II, Part 3, §4.8)

3. The granting by the District of breakdown relief or the issuance by the Hearing Board of a variance will not provide relief from federal enforcement unless the Major Facility Review Permit has been modified pursuant to Regulation 2, Rule 6. (MOP Volume II, Part 3, §4.8)

I. Severability

In the event that any provision of this permit is invalidated by a court or tribunal of competent jurisdiction, or by the Administrator of the EPA, all remaining portions of the permit shall remain in full force and effect. (Regulation 2-6-409.5; MOP Volume II, Part 3, §4.10)

J. Miscellaneous Conditions

1. The maximum capacity for each source as shown in Table II-A is the

I. Standard Conditions

maximum allowable capacity. Exceedance of the maximum allowable capacity for any source is a violation of Regulation 2, Rule 1, Section 301. (Regulation 2-1-301)

II. EQUIPMENT LIST

Each of the following sources has been issued a permit to operate pursuant to the requirements of BAAQMD Regulation 2-1-302. The capacities in this table are the maximum allowable capacities for each source, pursuant to Standard Condition I.J and Regulation 2-1-301.

Table II-A

S-#	Description	Make or Type	Model	Capacity
S-1	Multi-fuel Watertube Boiler, No.1 (natural gas, fuel oil)	Bigelow Sterling	FHC 30	99 MM BTU/hr
S-2	Natural Gas Water tube boiler No.2 (natural gas, fuel oil)	Bigelow Sterling	FHC 30	99 MM BTU/hr
S-3	Multi-fuel Watertube Boiler No.3 (natural gas, fuel oil)	Bigelow Sterling	FHC 30	99 MM BTU/hr
S-4	Multi-Fuel Watertube Boiler, Central Energy Facility (natural gas, fuel oil)	Bigelow Sterling	FHC 30	99 MM BTU/hr
S-6	Gas Turbine (natural gas)	General Electric	MS-6001	555 MM BTU/hr
S-8	Duct Burners (natural gas)	Coen	Low NOX	124 MM BTU/hr
S-9	Turbine Starter Diesel Engine	Detroit Diesel	7123-7300	725 bhp 852 CID
S-10	Standby Generator Diesel Engine	Caterpillar	PWMKT13	1764 bhp 2646 CID
S-11	Standby Generator Diesel Engine	Caterpillar	PWMKT03	349 bhp 524 CID

III. GENERAL APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP Rules and Regulations and other federal requirements cited below. These requirements apply in a general manner to the facility and/or to sources exempt from the requirement to obtain a District Permit to Operate. The District has determined that these requirements would not be violated under normal, routine operations, and that no additional periodic monitoring or reporting to demonstrate compliance is warranted. In cases where a requirement, in addition to being generally applicable, is also specifically applicable to one or more sources, the requirement and the source are also included in Section IV, Source-Specific Applicable Requirements of this permit. This section also contains provisions that may apply to temporary sources.

The dates in parentheses in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s): The date(s) of adoption or most recent amendment of the regulation by the District Board of Directors
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP: The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full language of SIP requirements is on EPA Region 9's website. The address is: http://yosemite.epa.gov/r9/r9sips.nsf/Agency?ReadForm&count=500&state=California&cat=Bay+Area+Air+Quality+Management+District-Agency-Wide+Provisions

NOTE: There are differences between the current BAAQMD rules and the version of the rules in the SIP. All sources must comply with both versions of the rules until US EPA has reviewed and approved (or disapproved) the District's revision of the regulations.

Table III
Generally Applicable Requirements

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 1	General Provisions and Definitions (5/2/01)	N
SIP Regulation 1	General Provisions and Definitions (6/28/99)	Y
BAAQMD Regulation 2, Rule 1	General Requirements (6/15/05)	N
BAAQMD 2-1-429	Federal Emissions Statement (6/7/95)	Y
SIP Regulation 2, Rule 1	General Requirements (1/26/99)	Y
BAAQMD Regulation 4	Air Pollution Episode Plan (3/20/91)	Y
BAAQMD Regulation 2, Rule 5	New Source Review of Toxic Air Contaminants (6/15/05)	N
SIP Regulation 4	Air Pollution Episode Plan (8/06/90)	Y

III. Generally Applicable Requirements

Table III
Generally Applicable Requirements

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)
BAAQMD Regulation 5	Open Burning (3/6/02)	N
SIP Regulation 5	Open Burning (9/4/98)	Y
BAAQMD Regulation 6	Particulate Matter and Visible Emissions (12/19/90)	Y
BAAQMD Regulation 7	Odorous Substances (3/17/82)	N
BAAQMD Regulation 8, Rule 1	Organic Compounds - General Provisions (6/15/94)	Y
BAAQMD Regulation 8, Rule 2	Organic Compounds – Miscellaneous Operations (6/15/94)	Y
BAAQMD Regulation 8, Rule 3	Organic Compounds - Architectural Coatings (11/21/01)	N
BAAQMD Regulation 8, Rule 40	Organic Compounds - Aeration of Contaminated Soil and Removal of Underground Storage Tanks (6/15/05)	Y
BAAQMD Regulation 8, Rule 47	Organic Compounds - Air Stripping and Soil Vapor Extraction Operations (6/15/05)	Y
BAAQMD Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (12/20/95)	N
SIP Regulation 8, Rule 49	Organic Compounds - Aerosol Paint Products (7/17/02)	Y
BAAQMD Regulation 8, Rule 51	Organic Compounds - Adhesive and Sealant Products (7/17/02)	N
SIP Regulation 9, Rule 1	Inorganic Gaseous Pollutants - Sulfur Dioxide (6/8/99)	Y
BAAQMD Regulation 11, Rule 2	Hazardous Pollutants - Asbestos Demolition, Renovation and Manufacturing (12/4/91)	Y
BAAQMD Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (7/11/90)	N
SIP Regulation 12, Rule 4	Miscellaneous Standards of Performance - Sandblasting (9/2/81)	Y
California Health and Safety Code Section 41750 et seq.	Portable Equipment	N
California Health and Safety Code Section 44300 et seq.	Air Toxics “Hot Spots” Information and Assessment Act of 1987	N
California Health and Safety Code Title 17, Section 93115	Airborne Toxic Control Measure for Stationary Compression Ignition Engines	N
40 CFR Part 61, Subpart M	National Emission Standards for Hazardous Air Pollutants – National Emission Standard for Asbestos (6/19/95)	Y
EPA Regulation 40 CFR 82	Protection of Stratospheric Ozone (2/21/95)	
Subpart F, 40 CFR 82.156	Leak Repair	Y
Subpart F, 40 CFR 82.161	Certification of Technicians	Y
Subpart F, 40 CFR 82.166	Records of Refrigerant	Y

IV. SOURCE-SPECIFIC APPLICABLE REQUIREMENTS

The permit holder shall comply with all applicable requirements, including those specified in the BAAQMD and SIP Rules and Regulations and other federal requirements cited below. The requirements cited in the following tables apply in a specific manner to the indicated source(s).

The dates in parentheses in the Title column identify the versions of the regulations being cited and are, as applicable:

1. BAAQMD regulation(s): The date(s) of adoption or most recent amendment of the regulation by the District Board of Directors
2. Any federal requirement, including a version of a District regulation that has been approved into the SIP: The most recent date of EPA approval of any portion of the rule, encompassing all actions on the rule through that date

The full text of each permit condition cited is included in Section VI, Permit Conditions, of this permit. The full language of SIP requirements is on EPA Region 9's website. The address is http://yosemite.epa.gov/r9/r9sips.nsf/Agency?ReadForm&count=500&state=California&cat=Bay+Area+Air+Quality+Management+District-Agency-Wide+Provisions All other text may be found in the regulations themselves.

Table IV-A
S-1, S-2, S-3, S-4, Boilers

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-301	Ringelmann Number 1 Limitation	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-310.3	Heat Transfer Operations	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-302	General Emission Limitations	Y	
9-1-304	Fuel Burning (Liquid and Solid Fuels)	Y	

IV. Source-Specific Applicable Requirements

Table IV-A
S-1, S-2, S-3, S-4, Boilers

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 9, Rule 7	**Inorganic Gaseous Pollutants – Nitrogen Oxides and Carbon Monoxide from Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters**		
9-7-301	Emission Limits-Gaseous Fuel	Y	
9-7-301.1	NOx limit	Y	
9-7-301.2	CO limit	Y	
9-7-302	Emission Limits-Non-Gaseous Fuel	Y	
9-7-302.1	NOx limit	Y	
9-7-302.2	CO limit	Y	
9-7-303	Emission Limits-Gaseous Fuels-and Non-Gaseous Fuel	Y	
9-7-305	Natural Gas Curtailment-Non-Gaseous Fuel	Y	
9-7-305.1	NOx limit	Y	
9-7-305.2	CO limit	Y	
9-7-306	Equipment Testing Non-Gaseous Fuel	Y	
9-7-306.1	NOx limit	Y	
9-7-306.2	CO limit	Y	
9-7-306.3	Time limit	Y	
9-7-501	Combinations of Different Fuels	Y	
9-7-503	Records	Y	
9-7-503.2	Records of natural gas curtailment	Y	
9-7-503.3	Records of equipment testing	Y	
9-7-503.4	Source test records	Y	
BAAQMD Condition #2878			
part 1a	Operation during turbine and duct burner downtime (basis: Offsets)	Y	
part 1b	Operation during duct burner downtime due to maintenance or repair (basis: Offsets)	Y	
part 1c	Operation during duct burner downtime due to natural gas curtailment (basis: Offsets)	Y	
part 1d	Operation during power curtailment order (basis: Offsets)	Y	
part 1e	Operation as peaking units (basis: BACT, Offsets)	Y	

IV. Source-Specific Applicable Requirements

Table IV-A
S-1, S-2, S-3, S-4, Boilers

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
part 1f	Operation as fuel delivery test units (basis: BACT, Offsets)	Y	
part 1g	Routine operability tests (basis: cumulative increase)	Y	
part 1h	Operability tests after maintenance (basis: cumulative increase)	Y	
part 7	Natural gas throughput limit: boilers/duct burner combined (basis: Offsets)	Y	
part 8	Low NOx burners (basis: BACT, Offsets)	Y	
part 9	BACT throughput level (basis: BACT, Offsets)	Y	
part 10	Source tests (basis: BACT, Offsets)	Y	
part 11	Fuel meter (basis: BACT, Offsets)	Y	
part 12	Records (basis: BACT, Offsets, cumulative increase)	Y	
part 17	Records (basis: cumulative increase)	Y	
PSD Permit			
III	Facilities Operation	Y	
IV	Malfunction	Y	
V	Right to Entry	Y	
VI	Transfer of Ownership	Y	
VII	Severability	Y	
VIII	Other Applicable Regulations	Y	
XI, C, 2	NOx Limitation	Y	
XI, F	Limitations of Boiler Operation	Y	
XI, G. 5	Fuel Usage	Y	

IV. Source-Specific Applicable Requirements

Table IV-B
S-6, Gas Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	**General Provisions and Definitions (5/2/01)**		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	N	
1-522.1	Plans and Specifications	Y	
1-522.2	Installation Scheduling	Y	
1-522.3	Performance Testing	Y	
1-522.4	Periods of Inoperation Greater Than 24 Hours	Y	
1-522.5	Calibration	Y	
1-522.6	Accuracy	Y	
1-522.7	Excesses	N	
1-522.8	Monthly Reports	Y	
1-522.9	Records	Y	
1-522.10	Monitors Required by Sections 1-521 or 2-1-403	Y	
1-602	Area and Continuous Emission Monitoring Requirements	N	
SIP Regulation 1	**PROVISIONS NO LONGER IN CURRENT RULE General Provisions and Definitions (6/28/99)**		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y[1]	
1-522.7	Emission limit exceedance reporting requirements	Y[1]	
BAAQMD Regulation 2, Rule 1	**Regulation 2, Rule 1 – Permits, General Requirements (8/1/01)**		
2-1-501	Monitors	Y	
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-301	Ringelmann Number 1 Limitation	N	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-310.3	Heat Transfer Operations	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants – Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	Y	

IV. Source-Specific Applicable Requirements

Table IV-B
S-6, Gas Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
9-1-302	General Emission Limitations	Y	
BAAQMD Regulation 9 Rule 9	**Inorganic Gaseous Pollutants-Nitrogen Oxides from Stationary Gas Turbines (9/21/94)**		
9-9-113	Exemption – Inspection/Maintenance	Y	
9-9-114	Exemption – Start-Up/Shutdown	Y	
9-9-301	Emission Limits, General	Y	
9-9-301.2	Turbines over 10 MW without SCR	Y	
9-9-401	Certification, Efficiency	Y	
9-9-501	Monitoring and recordkeeping requirements	Y	
BAAQMD Manual of Procedures, Volume V	**Continuous Emission Monitoring Policy and Procedures (1/20/82)**	Y	
40 CFR 60	**Standards of Performance for New Stationary Sources (12/23/71)**	**Y**	
Subpart A	General Provisions	Y	
60.4(a)	Reports to EPA	Y	
60.4(b)	Reports to EPA and District	Y	
60.7(a)	Written notification	Y	
60.7(b)	Records	Y	
60.8	Performance Tests	Y	
60.9	Availability of Information	Y	
60.11(a)	Compliance with standards and maintenance requirements	Y	
60.11(d)	Minimizing emissions	Y	
60.12	Circumvention	Y	
60.13	Monitoring Requirements	Y	
60.19	General notification and reporting requirements	Y	
Subpart GG	**Standards of Performance for Stationary Gas Turbines**	**Y**	
60.332(a)(1)	Nitrogen oxides limit	Y	
60.332(b)	NOx limit in 60.332(a)(1)	Y	
60.333(b)	Performance Standard for sulfur dioxide	Y	
60.334(b)	CEM requirements	Y	

IV. Source-Specific Applicable Requirements

Table IV-B
S-6, Gas Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
60.334(c)	CEM monitoring option	Y	
60.334(h)(2)	Exemption from fuel nitrogen monitoring	Y	
60.334(h)(3)(i)	Current, valid purchase contract, tariff sheet, or transportation contract	Y	
60.334(h)(3)(ii)	Representative fuel sampling data	Y	
60.334(j)(1)	Reports of excess NOx emissions	Y	
60.334(j)(5)	Deadline for excess emission reports	Y	
60.335	Test methods and procedures	Y	
60.335(a)	Performance tests as required by 40 CFR 60.8	Y	
60.335(b)	Performance tests for NOx	Y	
60.335(b)(1)	ISO correction	Y	
60.335(b)(2)	Testing at various loads	Y	
60.335(b)(3)	Optional measurement after duct burner	Y	
60.335(c)(1)	Optional method to adjust NOx emission level	Y	
40 CFR 60 Appendix B	**Performance Specifications**	Y	
Performance Specification 2	Specifications and test procedures for SO2 and NOx continuous emission monitoring systems in stationary sources	Y	
Performance Specification 3	Specifications and test procedures for O2 and CO2 continuous emission monitoring systems	Y	
40 CFR 60 Appendix F	**Quality Assurance Procedures**		
BAAQMD Condition #2878			
part 2a	Fuel Limitation (basis: BACT)	Y	
part 2b	Operation during power curtailment (basis: BACT)	Y	
part 3a	Combined NOx Limit (basis: BACT)	Y	
part 3b	Turbine NOx Limit (basis: 9-9-301.2, 9-9-401)	N	
part 3c	Start-up, Shutdown condition (basis: BACT)	Y	
part 4a	CEM requirement (basis: BACT)	Y	

IV. Source-Specific Applicable Requirements

Table IV-B
S-6, Gas Turbine

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
part 4b	CEM requirement (basis: 9-9-501)	N	
part 5	CO Limit (basis: BACT, 40 CFR 52.24)	Y	
part 6	Fuel to Air ratio requirement (Basis: BACT)	Y	
part 13	Source tests (basis: (basis: 9-9-301.2, 9-9-401))	N	
part 14	CO monitor (basis: BACT)	Y	
part 15	Petition for banking credits (basis: Banking)	Y	
part 16	Records (basis: BACT)	Y	
part 17	Records (basis: 9-9-501, Cumulative Increase)	N	
PSD Permit			
III	Facilities Operation	Y	
V	Right to Entry	Y	
VI	Transfer of Ownership	Y	
VII	Severability	Y	
VIII	Other Applicable Regulations	Y	
XI, C, 1	Emission Limits for NOx	Y	
XI, E	Continuous Monitoring	Y	
XI, G, 2	Fuel Usage: Natural Gas	Y	
XI, G, 4	Fuel Usage Monitoring	Y	
XI, H	New Source Performance Standards	Y	

[1]This section has been removed from BAAQMD Regulations because it has been superseded. Nevertheless, the source must comply with this regulation until US EPA has reviewed and approved (or disapproved) the District's revision of the regulation.

IV. Source-Specific Applicable Requirements

Table IV-C
S-8, Duct Burners

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 1	**General Provisions and Definitions (11/3/93)**		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y	
1-522.1	Plans and Specifications	Y	
1-522.2	Installation Scheduling	Y	
1-522.3	Performance Testing	Y	
1-522.4	Periods of Non-operation Greater Than 24 Hours	Y	
1-522.5	Calibration	Y	
1-522.6	Accuracy	Y	
1-522.7	Excesses	Y	
1-522.8	Monthly Reports	Y	
1-522.9	Records	Y	
1-602	Area and Continuous Emission Monitoring Requirements	N	
SIP Regulation 1	**General Provisions and Definitions (8/28/99)**		
1-522	Continuous Emission Monitoring and Recordkeeping Procedures	Y[1]	
1-522.7	Emission limit exceedance reporting requirements	Y[1]	
BAAQMD Regulation 2, Rule 1	**Regulation 2, Rule 1 - Permits, General Requirements (8/1/01)**		
2-1-501	Monitors	Y	
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-301	Ringelmann Number 1 Limitation	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-310.3	Heat Transfer Operations	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-302	General Emission Limitations	Y	

IV. Source-Specific Applicable Requirements

Table IV-C
S-8, Duct Burners

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Manual of Procedures, Volume V	**Continuous Emission Monitoring Policy and Procedures (1/20/82)**	Y	
40 CFR 60	**Standards of Performance for New Stationary Sources**	Y	
Subpart A	General Provisions	Y	
60.4(a)	Reports to EPA	Y	
60.4(b)	Reports to EPA and District	Y	
60.7(a)(1)	Date of construction or reconstruction	Y	
60.7(a)(4)	Physical or operational changes	Y	
60.7(b)	Startup, shutdown, malfunction records	Y	
60.7(f)	Performance test records	Y	
60.8	Performance Tests	Y	
60.9	Availability of Information	Y	
60.11(a)	Compliance with standards and maintenance requirements	Y	
60.11(d)	Minimizing emissions	Y	
60.12	Circumvention	Y	
60.19	General notification and reporting requirements	Y	
Subpart Db	**Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (12/16/87)**		
60.44b(a)	NOx Limit	Y	
60.44b(h)	NOx Limit applies at all times	Y	
60.44b(i)	24-hour rolling average	Y	
60.46b(a)	NOx Limit applies at all times	Y	
60.46b(c)	Performance testing	Y	
60.46b(f)	Performance testing-for duct burners	Y	
Appendix A, Method 20	Determination of nitrogen oxides, sulfur dioxide, and diluent emissions from gas turbines	Y	
BAAQMD Condition #2878			
part 2a	Fuel Limitation (basis: BACT)	Y	
part 3a	Combined NOx Limit (basis: BACT)	Y	
part 3c	Start-up, Shutdown condition (basis: BACT)	Y	

IV. Source-Specific Applicable Requirements

Table IV-C
S-8, Duct Burners

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
part 4	CEM requirement (basis: BACT)	Y	
part 5	CO Limit (basis: BACT, 40 CFR 52.24)	Y	
part 7	Natural gas throughput limit: boilers/duct burner combined (basis: Offsets)	Y	
part 14	CO monitor (basis: BACT)	Y	
part 16	Records (basis: BACT)	Y	
part 17	Records (basis: Cumulative Increase)	Y	
PSD Permit			
III	Facilities Operation	Y	
V	Right to Entry	Y	
VI	Transfer of Ownership	Y	
VII	Severability	Y	
VIII	Other Applicable Regulations	Y	
XI, B, 2	Air Pollution Control Equipment, Low-NOx Burners	Y	
XI, C, 1	Emission Limits for NOx	Y	
XI, E	Continuous Monitoring	Y	
XI, G, 3	Fuel Usage	Y	
XI, G, 4	Fuel Usage Monitoring	Y	
XI, H	New Source Performance Standards	Y	

[1] This section has been removed from BAAQMD Regulations because it has been superseded. Nevertheless, the source must comply with this regulation until US EPA has reviewed and approved (or disapproved) the District's revision of the regulation.

IV. Source-Specific Applicable Requirements

Table IV-D
S-9 TURBINE STARTER DIESEL ENGINE

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-303	Ringelmann Number 2 Limitation	Y	
6-303.1	IC Engine less than 1500 cubic inch displacement	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-310.3	Heat Transfer Operations	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-304	Fuel Burning (Liquid and Solid Fuels)	Y	
BAAQMD Condition #21844			
part 1	BAAQMD Regulation 9, Rule 1 and Regulation 6 Applicability (basis: BAAQMD Regulation 9, Rule 1, Regulation 6)	Y	
part 2	Limit on Annual Hours of Operation (Basis: cumulative increase)	Y	
part 3	Hours of operation totalizing counter (Basis: cumulative increase)	Y	
part 4	Recordkeeping (Basis: cumulative increase)	Y	

IV. Source-Specific Applicable Requirements

Table IV-E
S-10 AND S-11 STANDBY GENERATOR DIESEL ENGINES

Applicable Requirement	Regulation Title or Description of Requirement	Federally Enforceable (Y/N)	Future Effective Date
BAAQMD Regulation 6	**Particulate Matter and Visible Emissions (12/19/90)**		
6-303	Ringelmann Number 2 Limitation	Y	
6-303.1	Standby Engine	Y	
6-305	Visible Particles	Y	
6-310	Particulate Weight Limitation	Y	
6-310.3	Heat Transfer Operations	Y	
6-401	Appearance of Emissions	Y	
BAAQMD Regulation 9, Rule 1	**Inorganic Gaseous Pollutants - Sulfur Dioxide (3/15/95)**		
9-1-301	Limitations on Ground Level Concentrations	Y	
9-1-304	Fuel Burning (Liquid and Solid Fuels)	Y	
BAAQMD Condition #19698			
part 1	BAAQMD Regulation 9, Rule 1 and Regulation 6 Applicability (basis: BAAQMD Regulation 9, Rule 1, Regulation 6)	Y	
part 2	Limit on Annual Hours of Operation (Basis: Regulation 9-8-330.2)	Y	
part 3	Unlimited Emergency Use (Basis: BAAQMD Regulation 9-8-330.1)	Y	
part 4	Hours of operation totalizing counter (Basis: Regulation 9-8-530)	Y	
part 5	Recordkeeping (Basis: Regulation 9-8-530)	Y	

V. SCHEDULE OF COMPLIANCE

The permit holder shall continue to comply with all applicable requirements cited in this permit. The permit holder shall also comply with applicable requirements that become effective during the term of this permit on a timely basis.

VI. PERMIT CONDITIONS

Any condition that is preceded by an asterisk is not federally enforceable.

Condition #2878
For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

1. The owner/operator shall operate the existing four boilers (Sources #1 through #4) only during periods when:

a. the Gas Turbine (S-6) and Duct Burners (S-8) are not operating due to maintenance or repairs; (basis: Offsets)

b. the Gas Turbine is operating but the Duct Burners are not operating due to maintenance or repair and the Stanford University steam demand exceeds the capacity of the gas turbine/unfired heat recovery steam generator (HRSG) system. Under this condition the boilers shall be fired at a combined rate not to exceed 124.3 MM Btu/hr; (basis: Offsets)

c. the Gas Turbine is operating but the Duct Burners are not operating due to a natural gas curtailment and the Stanford University steam demand exceeds the capacity of the gas turbine/unfired heat recovery steam generator (HRSG) system. Under this condition the boilers shall be fired at a combined rate not to exceed 146 MMbtu/hr; (basis: Offsets)

d. the Gas Turbine and the Duct Burners are operable but the Gas Turbine is limited in power output due to a power curtailment order and the Stanford University steam demand exceeds the capacity of the gas turbine/HRSG/duct burner system operating at the power level permitted by the curtailment order. Under this condition the boilers shall be fired at a combined rate not to exceed 292 MMbtu/hr for a maximum of 1000 hr/yr; (basis: Offsets)

The owner/operator shall operate the existing four boilers (Sources #1 through #4) only during periods when:

VI. Permit Conditions

Condition #2878
For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

e. the Gas Turbine and the Duct Burners are operating and the Stanford University steam demand exceeds the capacity of the gas turbine/unfired heat recovery steam generator (HRSG) and duct burners. Under this condition, either Source 1, Source 2, Source 3, or Source 4 may be used as the peaking unit. Only one of the above sources may be used as a peaking unit at any one time. Source 1, Source 2, Source 3, and Source 4 shall be fired only on natural gas, when used as a peaking unit. The combined fuel usage of Source 1, Source 2, Source 3, and Source 4, when used as a peaking unit or as a fuel delivery test unit, shall not exceed 1,980,000 therms during any consecutive twelve-month period for all four sources. The NOx concentration in the exhaust of Source 1, Source 2, Source 3, and Source 4 shall not exceed 25 ppmvd at 3% oxygen averaged over any three hour period. The carbon monoxide (CO) concentration in the exhaust of Source 1, Source 2, Source 3, and Source 4 shall not exceed 200 ppmvd at 3% oxygen averaged over any consecutive three hour period; (basis: BACT, Offsets)

f. the Gas Turbine and the Duct Burners are operating and the fuel delivery system of Source 1, Source 2, Source 3, or Source 4 is being tested. Source 1, Source 2, Source 3, and Source 4 shall be fired only on natural gas during fuel delivery system tests. The combined fuel usage of Source 1, Source 2, Source 3, and Source 4, when used as peaking units or as fuel delivery test units, shall not exceed 1,980,000 therms during any consecutive twelve-month period for all four sources. The combined fuel delivery system tests of Source 1, Source 2, Source 3, and Source 4 shall not exceed 1 hour during any calendar month for all four sources. The NOx concentration in the exhaust of Source 1, Source 2, Source 3, and Source 4 shall not exceed 25 ppmvd at 3% oxygen averaged over any consecutive three hour period. The CO concentration in the exhaust of Source 1, Source 2, Source 3, and Source 4 shall not exceed 200 ppmvd at 3% oxygen averaged over any consecutive three hour period. (basis: BACT, Offsets)

g. the Gas Turbine and the Duct Burners are operating, but the Duct Burners are being fired at a rate of 99 million BTU/hour (80% load) or less for the purpose of performing operability testing of the CEF boilers. Under this part, the CEF boilers may be fired at a maximum rate of 30 million BTU/hour for up to 2 hours for each operability test. Each CEF boiler may be tested for operability up to one time per 30 day period with natural gas and two times per any consecutive 12 month period with No. 2 fuel oil. Operability testing of the CEF boilers shall be scheduled such that only one unit is being tested at any one time; (basis: Cumulative Increase)

h. The Gas- Turbine and the Duct Burners are operating, but CEF boiler firing is necessary for the purpose of testing newly repaired or replaced CEF boiler system components to adjust, tune, and verify performance of maintenance activities. Under this part, maintenance testing of the CEF boilers can only be performed with

VI. Permit Conditions

For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

natural gas unless the testing is needed for maintenance of fuel oil delivery systems, in which case No. 2 fuel oil can be used. Maintenance testing of the CEF boilers shall be scheduled such that only one unit is being tested at any one time. (basis: Cumulative Increase)

2. a. The Gas Turbine (S-6) and Duct Burners (S-8) shall be fired on natural gas only. (basis: BACT)
   b. Gas Turbine shall not operate at less than 80% baseload for more than 1,000 hours during any consecutive 12-month period. (basis: BACT)

3. a. The NOx concentration in the combined Gas Turbine/Duct Burner exhaust shall not exceed 42 ppmvd at 15% oxygen averaged over any three hour period. (basis: BACT)
   b. The NOx concentration in the Gas Turbine shall not exceed 14.6 ppmvd at 15% oxygen averaged over any consecutive three hour period, or 16.9 ppmvd at 15% oxygen averaged over any 24-hour period while firing at less than 80% baseload. (Note: 14.6 ppm and 16.9 ppm are 13 ppm and 15 ppm respectively, corrected for energy efficiency.) (basis: 9-9-301.2, 9-9-401, Banking)
   c. The limits of parts 3a and 3b shall not apply during periods of start-up not to exceed 3 hours each and not more than a total of 6 hours per day (i.e. any consecutive 24-hour period). It shall also not apply during shutdown periods not to exceed 1-hour each. (basis: BACT)

4. a. Cardinal Cogen shall install, calibrate and operate District-approved continuous monitors for NOx and oxygen or carbon dioxide at the gas turbine/duct burner stack. (basis: BACT, 2-1-403)

   b. Cardinal Cogen shall maintain and operate a District-approved continuous monitor for NOx and oxygen or carbon dioxide between the gas turbine and duct burner stack. (basis: 9-9-501, 2-1-403)

5. The combined gas turbine/duct burner exhaust carbon monoxide emissions shall not exceed 150 tons per year. (modified in Application No. 14748) (basis: BACT, 40 CFR 52.24)

VI. Permit Conditions

Condition #2878
For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

6. The following two-stage turndown procedure shall be followed for the Gas Turbine:
   a. Load shall be initially reduced by closing the variable inlet guide vanes (VIGV's) to reduce air flow through the Gas Turbine accompanied by a reduction in fuel flow to maintain an essentially constant fuel-to-air ratio. (basis: Offsets)
   b. When the VIGV's are closed, further load reduction may then be achieved by directly reducing fuel flow. (basis: BACT)

7. The total combined auxiliary natural gas fuel usage at the Duct Burners and existing boilers (operating in the mode stated in part 1b shall not exceed 520 MM cubic feet per year. (basis: Offsets)

8. The NOx emissions from Source 1, Source 2, Source 3, and Source 4 shall be controlled by flue gas recirculation and low-NOx burners. (basis: BACT, Offsets)

9. The current BACT level for the Boilers, S1-S4, is based on limited operation of 1,980,000 therms during any consecutive 12 month period. Should the applicant wish to increase the annual fuel usage in the future, any BACT cost- effectiveness determination must be based on the entire operational load, not just an incremental increase from the current limit of 1,980,000 therms during any consecutive 12 month period. (basis: BACT, Offsets)

10. To determine compliance with Conditions 1e and 1f, within 60 days of start-up of Source 1, Source 2, Source 3, or Source 4 as a peaking unit, and annually thereafter, the owner/operator of these sources shall conduct a source test to determine the NOx, CO, and oxygen concentrations. All test results shall be provided to the District within 30 days after testing has occurred. All source test methods shall be subject to the prior approval of the Source Test Section of the District's Technical Division. (basis: BACT, Offsets, 2-1-403)

11. The owner/operator of Source 1, Source 2, Source 3, and Source 4 shall operate and maintain a separate non-resettable totalizing fuel meter that measures the usage of natural gas at Source 1, Source 2, Source 3, and Source 4. (basis: BACT, Offsets, 2-1-403)

12. The owner/operator of Source 1, Source 2, Source 3, and Source 4 shall maintain a file containing all measurements, records, and other data that are required to be collected pursuant to the provisions of this permit. This file shall include:

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Condition #2878
For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

a. The results of all source tests conducted on Source 1, Source 2, Source 3, and Source 4. (basis: BACT, Offsets)
b. The monthly therms of fuel used at Source 1, Source 2, Source 3, and Source 4, when operated as a peaking unit or a fuel delivery test unit. (basis: BACT, Offsets, Cumulative Increase)

13. To determine compliance with part 3b, within 60 days of start-up of the dry low-NOx combustor system of S-6, and annually thereafter, the owner/operator of S-6 shall conduct an annual source test of the dry low-NOx combustor system of S-6 to determine the NOx and oxygen concentrations of the S-6 exhaust. All test results shall be provided to the District within 30 days after testing has occurred. All source test methods shall be subject to the prior approval of the Source Test Section of the District's Technical Division. (basis: Banking, 2-1-403)

14. Cardinal Cogen shall install, calibrate and operate a District-approved continuous monitor for carbon monoxide at the gas turbine/duct burner exhaust. (basis: BACT, 2-1-403)

15. The owner/operator of S-6 may submit for District review continuous emission monitor records and other source test data to demonstrate the ability to consistently maintain a lower NOx emission limit than specified in part 3b. If this lower NOx emission is accepted as a permit condition in place of part 3b, then the District will consider adjusting the actual emission reduction credits attributed to this source. (basis: Banking)

16. The owner/operator of Source 6 and Source 8 shall maintain a file containing all measurements, records, and other data that are required to be collected pursuant to the provisions of this permit. This file shall include:

    The monthly total number of hours that Source 6 is operated at less than 80% baseload. (Basis: BACT)

17. All measurements, records, and other data required to be maintained by the applicant shall be retained for at least five years following the date on which such data are recorded and shall be made available to District staff upon request. (basis: 9-9-501, Cumulative Increase, 2-6-501)

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Condition #2878
For Sources S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

18. Within 1 month of issuance of the Title V Permit renewal, the permit holder shall analyze a sample of distillate oil in the fuel oil tank for sulfur content to ensure compliance with Regulation 9-1-304. The sample shall be analyzed using District Method 10, Determination of Sulfur in Fuel Oils. The results of the analysis shall be sent to the Director of Enforcement and compliance at the District. All subsequent shipments of fuel oil to the facility shall have a vendor certification of the sulfur content of the fuel. [Basis: 2-6-409.2]

Condition #14501
For S6, GAS TURBINE, S8, DUCT BURNER

1. All natural gas burned at sources S6, Gas Turbine, and S8, Duct Burner shall be PUC quality gas. (basis: 2-1-403)

PSD CONDITIONS
S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

Following are the PSD conditions imposed by EPA before construction in 1983, amended on January 30, 1985, and on January 25, 1996.

I. (deleted BAAQMD Title V application #25830)

II. (deleted BAAQMD Title V application #25830)

III. Facilities Operation
All equipment, facilities, and systems installed or used to achieve compliance with the terms and conditions of this Approval to Construct/Modify shall at all times be maintained in good working order and be operated as efficiently as possible so as to minimize air pollutant emissions. (PSD)

IV. (deleted BAAQMD Title V application #25830)

V. Right to Entry

The Regional Administrator, the head of the State Air Pollution Control Agency, the head of the responsible local air pollution control agency, and/or their authorized representatives, upon the presentation of credentials, shall be permitted:

VI. Permit Conditions

PSD CONDITIONS
S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

A. to enter upon the premises where the source is located or in which any records are required to be kept under the terms and conditions of this Approval to Construct/Modify; and
B. at reasonable times to have access to and copy any records required to be kept under the terms and conditions of this Approval to Construct/Modify; and
C. to inspect any equipment, operation, or method required in this Approval to Construct/Modify; and
D. to sample emissions from the source. (PSD)

VI. Transfer of Ownership

In the event of any changes in control or ownership of facilities to be constructed or modified, this Approval to Construct/Modify shall be binding on all subsequent owners and operators. The applicant shall notify the succeeding owner and operator of the existence of this Approval to Construct/Modify and its conditions by letter, a copy of which shall be forwarded to the State and local Air Pollution Control Agency. (PSD)

VII. Severability

The provisions of this Approval to Construct/Modify are severable, and, if any provision of this Approval to Construct/Modify is held invalid, the remainder of this Approval to Construct/Modify shall not be affected thereby. (PSD)

VIII. Other Applicable Regulations

The owner and operator of the proposed project shall construct and operate the proposed stationary source in compliance with all other applicable provisions of 40 CFR Parts 52, 60 and 61 and all other applicable Federal, State and local air quality regulations. (PSD)

IX. Special Conditions

A. (deleted BAAQMD Title V application #25830)

B. Air Pollution Control Equipment

1. (deleted BAAQMD Title V application #25830)

2. All duct burners shall be Low-NOx burners as described in the application. (PSD)

PSD CONDITIONS

VI. Permit Conditions

S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

C. Emission Limitations for NOx

1. On and after the date of start-up (as defined in 40 CFR 60.2(o)), Cardinal Cogen shall not discharge or cause to be discharged to the atmosphere NOx from the cogeneration facility exhaust stack in excess of any of the following limits (PSD) (Amended 1/25/96):

Source	Fuel	Maximum Concentration
Gas Turbine and Duct Burners	Natural Gas	42 ppm @ 15% O2 (24-hr rolling average)

2. When the CEF boilers are operated pursuant to Special Conditions IX.F.1.d., e., f. or g., Cardinal Cogen shall not discharge or cause to be discharged to the atmosphere NOx from, each CEF boiler exhaust stack in excess of 25 ppm @ 3% O_2 (3-hour rolling average). (Added 1/25/96)

D. Performance Tests

1. (deleted BAAQMD Title V application #25830)

2. (deleted BAAQMD Title V application #25830)

3. For performance test purposes, sampling ports, platforms, and access shall be provided by Cardinal Cogen on the turbine and heat recovery steam generator exhaust stacks in accordance with 40 CFR 60.8(e). (PSD)

E. Continuous Monitoring

1. By the date of startup of the cogeneration facility, Cardinal Cogen shall have installed and thereafter shall maintain and operate the following continuous monitoring systems in the exhaust stack of the HRSG:
   a. A continuous monitoring system to measure stack gas NOx concentrations. The system shall meet EPA monitoring specification (40 CFR 60.13 and 40 CFR 60, Appendix B, Performance Specification 2). (PSD)
   b. Excess emissions measured by the continuous monitoring system shall be considered violations of the applicable NOx emission limit set forth in Special Condition IX.C.1. above. (PSD) (Amended 1/15/96)

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S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

VI. Permit Conditions

2. The applicable emissions limit set forth in Condition IX.C.1. (i.e., 42 ppm corrected to 15% O_2) shall not apply during periods of startup not to exceed 3 hours each and not more than a total of 6 hours per day (i.e., any consecutive 24-hour period). It also shall not apply during shutdown periods not to exceed 1 hour each.

3. (deleted BAAQMD Title V application #25830)

F. Source Shutdown

1. The existing four boilers in the Stanford University Central Energy Facility (boilers S1 through S4) shall only be operated during periods when:
   a. the gas turbine (S-6) and duct burners (S-8) are not operating due to maintenance or repairs; (PSD) (1/30/85 amendment)
   b. the gas turbine is operating but the duct burners are not operating due to maintenance or repair or because of gas curtailment and the Stanford University steam demand exceeds the capacity of the gas turbine/unfired heat recovery steam generator (HRSG) system; (PSD) (1/30/85 amendment)
   c. the gas turbine and the duct burners are operable but the gas turbine is limited in power output due to power curtailment, and the Stanford University steam demand exceeds the capacity of the gas turbine/HRSG/duct burner system operating at the power level permitted by the power curtailment order; (PSD) (1/30/85 amendment)
   d. the Stanford University steam demand exceeds the capacity of the gas turbine/duct burner; (PSD) (Added 1/25/96)
   e. the fuel delivery system of any of the CEF boilers is being tested; (PSD) (Added 1/25/96)
   f. the duct burners are being fired at a rate of 99 million btu/hour (80%) or less for the purpose of performing operability testing of the CEF boilers; or (PSD) (Added 1/25/96)
   g. CEF boiler firing is necessary for the purpose of testing newly repaired or replaced CEF boiler system components to adjust, tune and verify performance of maintenance activities. (PSD) (Added 1/25/96)

2. Under scenario F.1.d., any of the four CEF boilers may be used as the peaking unit, but only one boiler may be used as the peaking unit at any one time. Under either scenario F.1.d. or F.1.e., the CEF boilers shall be fired only on natural gas and the combined fuel usage of the CEF boilers shall not exceed 1,980,000 therms during any consecutive 12 month period for all four sources. Under scenario F.1.f., the CEF boiler may be tested for operability up to one time per 30 day

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S1-S4, Boilers, S6, Turbine, & S8, Duct Burner

VI. Permit Conditions

period with natural gas and two times per any consecutive 12 months period with No. 2 fuel oil. Under scenario F.1.g., maintenance testing of the CEF boilers can only be performed with natural gas unless the testing is needed for maintenance of the fuel oil delivery systems, in which case No. 2 fuel oil can be used. Operability testing and maintenance testing of the CEF boilers under scenarios F.1.f. and F.1.g. shall be scheduled such that only one unit is being tested at any one time. (PSD) (Added 1/25/96)

G. Fuel Use

1. (deleted BAAQMD Title V application #25830)

2. Cardinal Cogen shall not burn natural gas in the turbine in excess of 3,850 million cubic feet in any calendar year. (PSD)

3. Cardinal Cogen shall not burn natural gas in the duct burners in excess of 520 million cubic feet in any calendar year. (PSD)

4. Cardinal Cogen shall, maintain, and operate instrumentation to monitor the flow rates of natural gas to the turbine and to the duct burners. Cardinal Cogen shall record fuel consumption. Fuel consumption records shall be maintained on hand for five years for inspection by EPA, California Air Resources Board, and the Bay Area AQMD. (PSD)

5. Cardinal Cogen shall install, operate and maintain a separate non-resettable totalizing fuel meter that measures the usage of natural gas at the CEF boilers.

   Cardinal Cogen shall record the monthly therms of fuel used at the CEF boilers when operated as a peaking unit or a fuel delivery test unit. Such records shall be retained by Cardinal Cogen for at least five years following the date on which such data are recorded and shall be made available to the EPA upon request. (PSD) (Added 1/25/96)

H. New Source Performance Standards

The cogeneration facility shall comply with all portions of 40 CFR 60, Subpart GG, Standards of Performance for Stationary Gas Turbines. (PSD)

VI. Permit Conditions

Condition #19698
For Sources S-10 & S-11 Standby Generator Diesel Engines

1, The S-10 and S-11 engines are subject to the requirements of Regulation 9, Rule 1 ("Sulfur Dioxide"), and the requirements of Regulation 6 ("Particulate Matter and Visible Emissions"). (basis: Regulation 9, Rule 1; Regulation 6)

2. The owner/operator of S-10 and S-11 engines shall operate those engines for no more than 100 hours EACH in any consecutive 12-month period for the purpose of reliability-related activities as defined in Regulation 9-8-232. (basis: Regulation 9-8-330.2)

3. The owner/operator of S-10 and S-11 engines may operate those engines for an unlimited amount of time for the purpose of emergency use as defined in Regulation 9-8-231. (basis: Regulation 9-8-330.1)

4. The owner/operator of the S-10 and S-11 engines shall not operate the engines unless the liquid fuel burned contains no more than 0.5% sulfur by weight. (Basis: Regulation 9-1-304)

5. To demonstrate compliance with part 4, the owner/operator of the S-10 and S-11 engines shall obtain a certification of the fuel sulfur content from the supplier for each fuel delivery. (Basis: Regulation 9-1-304)

6. The owner/operator shall equip each of the S-10 and S-11 diesel engines with a non-resettable totalizing counter that records hours of operation or fuel usage for each engine. (basis: Regulation 9-8-530)

7. The owner/operator shall maintain the following monthly records in a District-approved log for at least 5 years and shall make those records available to the District upon request:

   a. hours of operation for reliability-related activities for S-10 and S-11 on an individual basis and a description of the activity
   b. hours of operation under emergency conditions for S-10 and S-11 on an individual basis and a description of the nature of the emergency condition
   c. fuel usage at S-10 and S-11 on an individual basis

   (basis: Regulation 9-8-530)

VI. Permit Conditions

Condition #21844
For Source S-9 Turbine Starter Diesel Engine

1. The S-9 engine is subject to the requirements of Regulation 9, Rule 1 ("Sulfur Dioxide"), and the requirements of Regulation 6 ("Particulate Matter and Visible Emissions"). (basis: Regulation 9, Rule 1; Regulation 6)

2. The owner/operator of S-9 engine shall operate the engine for no more than 200 hours in any consecutive 12-month period. (basis: cumulative increase)

3. The owner/operator shall equip S-9 diesel engine with a non-resettable totalizing counter that records hours of operation for each engine. (basis: Cumulative increase)

4. The owner/operator of the S-9 engine shall not operate the engines unless the liquid fuel burned contains less than 0.5% sulfur by weight. (Basis: Regulation 9-1-304)

5. To demonstrate compliance with part 4, the owner/operator of the S-9 engine shall obtain a certification of the fuel sulfur content from the supplier for each fuel delivery. (Basis: Regulation 9-1-304)

6. The owner/operator shall maintain monthly records of the hours of operation of the S-9 engine in a District-approved log for at least 5 years and shall make those records available to the District upon request. (basis: cumulative increase)

VII. APPLICABLE LIMITS & COMPLIANCE MONITORING REQUIREMENTS

This section has been included only to summarize the applicable emission limits contained in Section IV, Source-Specific Applicable Requirements, of this permit. The following tables show the relationship between each emission limit and the associated compliance monitoring provisions, if any. The monitoring frequency column indicates whether periodic (P) or continuous (C) monitoring is required. For periodic monitoring, the frequency of the monitoring has also been shown, using the following codes: annual (A), quarterly (Q), monthly (M), weekly (W), daily (D), or on an event basis (E). No monitoring (N) has been required if the current applicable rule or regulation does not require monitoring, and the operation is unlikely to deviate from the applicable emission limit based upon the nature of the operation.

This section is only a summary of the limits and monitoring requirements. In the case of a conflict with any requirement in Sections I-VI, the preceding sections take precedence over Section VII.

Table VII-A
S-1, S-2, S-3, S-4, Boilers

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Oxides of Nitrogen	BAAQMD 9-7-301.1	Y		30 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-302.1	Y		40 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-303	Y		Weighted average of 9-7-301.1 and 9-7-302.1	BAAQMD 9-7-501	C	Non-resettable fuel meters
	BAAQMD 9-7-305.1	Y		150 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-306.1	Y		150 ppmv @ 3% O_2, dry		N	
	BAAQMD Permit Condition 2878 part 1f	Y		25 ppmv @ 3% O_2, dry, averaged over 3 hours		N	

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-A
S-1, S-2, S-3, S-4, Boilers

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Oxides of Nitrogen	PSD permit part IX, C, 2	Y		25 ppm @ 3% O_2, 3-hr rolling average		N	
Carbon Monoxide	BAAQMD 9-7-301.2	Y		400 ppmv @ 3% O_2, dry		N	
Carbon Monoxide	BAAQMD 9-7-302.2	Y		400 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-303	Y		400 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-305.2	Y		400 ppmv @ 3% O_2, dry		N	
	BAAQMD 9-7-306.2	Y		400 ppmv @ 3% O_2, dry		N	
	BAAQMD Permit Condition 2878 part 1f	Y		200 ppmv @ 3% O_2, dry, averaged over 3 hours		N	
Hours of operation	BAAQMD Permit Condition Number 2878 part 1d	Y		maximum of 1000 hrs/year @ 292 MM BTU/hr for all 4 boilers total when the Gas Turbine and Duct Burners are operable but the Gas Turbine is limited in power output due to a power curtailment order	None	P/E	Records
	BAAQMD Permit Condition Number 2878 part 1f	Y		1 hr/mo for all 4 boilers total when operating as fuel delivery test units	None	P/E	Records

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-A
S-1, S-2, S-3, S-4, Boilers

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Hours of operation	BAAQMD Permit Condition Number 2878 part 1g	Y		Normal operability tests: up to 2 hrs/test, one boiler at a time, each boiler once per rolling 30 day period with natural gas, each boiler twice in rolling 12 months for No. 2 Fuel oil	None	P/E	Records
	BAAQMD Permit Condition Number 2878 part 1h	Y		Operability tests after maintenance: one boiler at a time	None	P/E	Records
SO_2	BAAQMD 9-1-301	N		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
SO_2	BAAQMD 9-1-302	Y		300 ppm (dry)		N	
Fuel Sulfur Content	BAAQMD 9-1-304	Y		Sulfur content of fuel <0.5% by weight	BAAQMD Permit Condition Number 2878 part 18	P/E	fuel analysis or certification
Fuel usage	BAAQMD Permit Condition Number 2878 part 1b	Y		up to 124.3 MM BTU/hr for all 4 boilers total when Duct Burners are not operating due to maintenance or repair	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-A
S-1, S-2, S-3, S-4, Boilers

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
	BAAQMD Permit Condition Number 2878 part 1c	Y		up to 146 MM BTU/hr for all 4 boilers total when Duct Burners are not operating due to natural gas curtailment	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records
Fuel usage	BAAQMD Permit Condition Number 2878 part 1d	Y		up to 292 MM BTU/hr for all 4 boilers total for up to 1000 hrs/year when the Gas Turbine and Duct Burners are operable but the Gas Turbine is limited in power output due to a power curtailment order	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records
	BAAQMD Permit Condition Number 2878 part 1e & 1f	Y		1,980,000 therms per rolling 12 months for all 4 boilers total when operating as a peaking unit or fuel delivery test unit	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records
	BAAQMD Permit Condition Number 2878 part 1g	Y		Operability tests: up to 30 MM BTU/hr for 2 hrs	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records
	BAAQMD Permit Condition Number 2878 part 1h	Y		Operability tests: after maintenance, 1 boiler at a time	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-A
S-1, S-2, S-3, S-4, Boilers

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
	BAAQMD Permit Condition Number 2878 part 7	Y		520 MM cf combined fuel usage for duct burners and boilers (when operating per condition #2878, part 1b) per year	BAAQMD Permit Condition Number 2878 part 11	C	Non-resettable fuel meters, records
	PSD permit part IX, F, 2	Y		1,980,000 therms per rolling 12 months for all 4 boilers total	PSD permit part IX, G, 5	C	Non-resettable fuel meters, records
Opacity	BAAQMD 6-301	Y		> Ringelmann No. 1 for no more than 3 minutes in any one hour		N	
FP	BAAQMD 6-310.3	Y		0.15 grain/dscf @ 6% O_2		N	

[1] Ground Level Concentration

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-B
S-6, Gas Turbine

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NO_X	BAAQMD 9-9-301.2	Y		Natural Gas ≤ 16.9 ppmv @ 15% O_2, dry (limit includes 9-9-401 efficiency adjustment)	BAAQMD 9-9-501; BAAQMD Permit Condition 2878 part 4b	C	CEM
	BAAQMD Permit Condition 2878, part 3a	Y		≤ 42 ppmv @ 15% O_2 dry, averaged over 3 hours in combined Gas Turbine/Duct Burner exhaust	BAAQMD Permit Condition 2878 part 4	C	CEM
	BAAQMD Permit Condition 2878, part 3b	N		≤ 14.6 ppmv @ 15% O_2, dry, averaged over 3 hours in Gas Turbine exhaust	BAAQMD Permit Condition 2878 part 4b	C	CEM
	BAAQMD Permit Condition 2878, part 3b	N		≤ 16.9 ppmv @ 15% O_2 dry, averaged over 24 hours in Gas Turbine exhaust @ less than 80% baseload	BAAQMD Permit Condition 2878 part 4b	C	CEM
	NSPS Subpart GG 60.332(a)(1)	Y		≤108 ppmv @ 15% O_2 dry	NSPS Subpart GG, 60.334(c)	C	CEM
NO_X	PSD permit part IX, C	Y		42 ppm @ 15% O_2 combined limits (turbine/duct burner) averaged over 24 hours when burning natural gas	PSD permit part IX, E	C	CEM

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-B
S-6, Gas Turbine

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Carbon Monoxide	BAAQMD Permit Condition Number 2878 part 5	Y		$\leq$ 150 tons per year from turbine and duct burner combined	BAAQMD Permit Condition Number 2878 part 14	C	CEM
Hours of operation	BAAQMD Permit Condition Number 2878, part 2b	Y		$\leq$ 1000 hrs/rolling 12 months of operation @ < 80% baseload	BAAQMD Condition #2878, part 16	P/E	records
SO_2	BAAQMD 9-1-301	N		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
SO_2	BAAQMD 9-1-302	Y		300 ppm (dry)		N	
Fuel Sulfur Content	NSPS 40 CFR 60.33(b)	Y		Fuel sulfur content of 0.8 percent by weight	40 CFR 60.334(h)(1)	N	
Opacity	BAAQMD 6-301	Y		> Ringelmann No. 1 for no more than 3 minutes in any one hour		N	
FP	BAAQMD 6-310	Y		0.15 grain/dscf		N	
Fuel usage	PSD permit part IX, G,2	Y		3,850 million cf natural gas in any calendar year	PSD permit part IX, G, 4	C	Fuel meter, records

[1] Ground Level Concentration

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-C
S-8, Duct Burner

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
NOx	40 CFR 60.44b(a)	Y		0.2 lb NO2/ MM BTU burned	(Exempt from monitoring per 40 CFR 60.48b(h))	N	
	BAAQMD Permit Condition Number 2878 part 3a	Y		$\leq$ 42 ppmv @ 15% O_2 dry, averaged over 3 hours in combined Gas Turbine/Duct Burner exhaust	BAAQMD Permit Condition 2878 part 4	C	CEM
	PSD permit part IX, C,1	Y		42 ppm @ 15% O2 averaged over 24 hours when burning natural gas	PSD permit part IX, E	C	CEM
Carbon Monoxide	BAAQMD Permit Condition Number 2878 part 5	Y		< or equal to 150 tons per year from turbine and duct burner combined	BAAQMD Permit Condition Number 2878 part 13	C	CEM
Fuel usage	BAAQMD Permit Condition Number 2878 part 7	Y		520 MM cf combined fuel usage for duct burners and boilers (when operating per condition #2878, part 1b) per year	PSD permit part IX, G, 4	C	Fuel meter, records
	PSD permit part IX, G, 3	Y		520 MM cf natural gas in any calendar year	PSD permit part IX, G, 4	C	Fuel meter, records
Opacity	BAAQMD 6-301	Y		> Ringelmann No. 1 for no more than 3 min in any hour		N	
FP	BAAQMD 6-310.3	Y		0.15 grain/dscf		N	

VII. Applicable Emission Limits & Compliance Monitoring Requirements

Table VII-C
S-8, Duct Burner

Type of limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
SO_2	BAAQMD 9-1-301	N		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
	BAAQMD 9-1-302	Y		300 ppm (dry)		N	

[1] Ground Level Concentration

Table VII - D
Applicable Limits and Compliance Monitoring Requirements
S-9, TURBINE STARTER ENGINE

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Opacity	BAAQMD 6-303.1	Y		> Ringelmann No. 2 for no more than 3 minutes in any hour		N	
FP	BAAQMD 6-310	Y		0.15 grain/dscf		N	
	BAAQMD 6-310.3	Y		0.15 grain/dscf @ 6% O2		N	
SO_2	BAAQMD 9-1-301	Y		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
	BAAQMD 9-1-304	Y		Fuel sulfur content limit of 0.5% by weight	BAAQMD condition #21844 part 5	P	Fuel certification
Hours of Operation	BAAQMD condition #21844 part 2			200 hours per year	BAAQMD condition #21844 part 3	C	Totalizing Counter

VII. Applicable Emission Limits & Compliance Monitoring Requirements

[1] Ground Level Concentration

Table VII - E
Applicable Limits and Compliance Monitoring Requirements
S-10 AND S-11 STANDBY GENERATOR DIESEL ENGINES

Type of Limit	Citation of Limit	FE Y/N	Future Effective Date	Limit	Monitoring Requirement Citation	Monitoring Frequency (P/C/N)	Monitoring Type
Opacity	BAAQMD 6-303.1	Y		> Ringelmann No. 2 for no more than 3 minutes in any hour		N	
FP	BAAQMD 6-310	Y		0.15 grain/dscf		N	
	BAAQMD 6-310.3	Y		0.15 grain/dscf @ 6% O2		N	
SO_2	BAAQMD 9-1-301	Y		GLC[1] of 0.5 ppm for 3 min or 0.25 ppm for 60 min or 0.05 ppm for 24 hours		N	
Fuel Sulfur Content	BAAQMD 9-1-304	Y		Fuel sulfur content limit of 0.5% by weight	BAAQMD condition #19698, part 5	P	Fuel certification
Hours of Operation	BAAQMD condition #19698 part 2			100 hours per year discretionary operation	BAAQMD condition #19698 part 6	C	Totalizing counter

[1] Ground Level Concentration

VIII. TEST METHODS

The test methods associated with the emission limit of a District regulation are generally found in Section 600 of the regulation. The following table indicates only the test methods associated with the emission limits referenced in Section VII Applicable Emission Limits & Compliance Monitoring Requirements, of this permit.

Table VIII
Test Methods

Applicable Requirement	Description of Requirement	Acceptable Test Methods
BAAQMD 6-301	Ringelmann No. 1 Limitation	Manual of Procedures, Volume I, Evaluation of Visible Emissions
BAAQMD 6-310	Particulate Weight Limitation	Manual of Procedures, Volume IV, ST-15, Particulates Sampling; or USEPA Method 5, Determination of Particulate Matter Emissions from Stationary Sources
BAAQMD 6-310.3	Particulate Weight Limitation	Manual of Procedures, Volume IV, ST-15, Particulates Sampling; or USEPA Method 5, Determination of Particulate Matter Emissions from Stationary Sources
BAAQMD 7-301	General Limit on Odorous Substances	Manual of Procedures, Volume IV, ST-12, Collection of Odorous Samples/BAAQMD Regulation 7-404
BAAQMD 8-5-117	Exemption, Low Vapor Pressure	Manual of Procedures, Volume III, Method 28, Determination of Vapor Pressure of Organic Liquids from Storage Tanks
BAAQMD 9-1-302	General Emission Limitation	Manual of Procedures, Volume IV, ST-19A, Sulfur Dioxide, Continuous Sampling, or ST-19B, Total Sulfur Oxides Integrated Sample
BAAQMD 9-1-304	Fuel Burning (Liquid and Solid Fuels)	Manual of Procedures, Volume III, Method 10, Determination of Sulfur in Fuel Oils.
BAAQMD 9-7-301.1	Performance Standard, NOx, Gaseous Fuel	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-301.2	Performance Standard, CO, Gaseous Fuel	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-302.1	Performance Standard, NOx, Non-Gaseous Fuel	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-302.2	Performance Standard, CO, Non-Gaseous Fuel	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling

VIII. Test Methods

Table VIII
Test Methods

Applicable Requirement	Description of Requirement	Acceptable Test Methods
BAAQMD 9-7-303	Emission Limits - Gaseous and Non-Gaseous Fuel, NOx and CO (9/16/92)	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and Manual of Procedures, Volume IV, ST-6, and Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-305.1	Natural Gas Curtailment Performance Standard, NOx	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-305.2	Natural Gas Curtailment Performance Standard, CO	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-306.1	Equipment Testing - Non-Gaseous Fuel NOx Performance Standard	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-306.2	Equipment Testing - Non-Gaseous Fuel CO Performance Standard	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-7-403	Initial Compliance Demonstration (9/16/92)	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-9-301.2	Emission Limits- Turbines over 10 mw w/o SCR (9/21/94)	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-9-304	Emission Limits, Interim RACT (9/21/94)	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
BAAQMD 9-9-401	Certification, Efficiency	ASTM D240-87 or ASTM D-2382-88 for liquid hydrocarbon fuel or ASTM 1826-88 or ASTM 1945-81 in conjunction w/ASTM D3588-89 for gaseous fuels
SIP 12-4-301	Ringelmann 1 Limitations	Manual of Procedures, Volume I, Part 1, Evaluation of Visible Emissions

VIII. Test Methods

Table VIII
Test Methods

Applicable Requirement	Description of Requirement	Acceptable Test Methods
NSPS Subpart GG, 40 CFR 60.332(a)	Standard for nitrogen oxides	EPA Method 20, Determination of nitrogen oxides, sulfur dioxide, and diluent emissions from gas turbines
NSPS Subpart GG, 40 CFR 60.333	Standard for sulfur dioxide	ASTM D2880-71 for liquid fuels, and ASTM D1072-80, D3031-81, D4084-82, or D3246-81 for gaseous fuels
NSPS Subpart Db, 40 CFR 60.44b(a)	NOx Limit	EPA Method 20, Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions from Gas Turbines
Permit Condition 2878 part 1f	NOx Limit	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Permit Condition 2878 part 1f	CO Limit	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Permit Condition 2878 part 3a	NOx Limit	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Permit Condition 2878 part 3b	NOx Limits	Manual of Procedures, Volume IV, ST-13A, Oxides of Nitrogen, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
Permit Condition 2878 part 5	CO limit	Manual of Procedures, Volume IV, ST-6, Carbon Monoxide, Continuous Sampling and ST-14, Oxygen, Continuous Sampling
PSD permit part IX, C	NOx Limits	EPA Method 20, Determination of nitrogen oxides, sulfur dioxide, and diluent emissions from gas turbines

IX. PERMIT SHIELD

A. Non-applicable Requirements

Pursuant to District Regulations 2-6-233 and 2-6-409.12, the federally enforceable regulations and/or standards cited in the following table[s] do not apply to the source or group of sources identified at the top of the table[s]. Enforcement actions and litigation may not be initiated against the source or group of sources covered by this shield based on the regulatory and/or statutory provisions cited, as long as the reasons listed below remain valid for the source or group of sources covered by this shield.

Table IX-A-1
S-1, S-2, S-3, S-4, Boilers

Citation	Title or Description
NSPS Subpart D	Standards of Performance for Fossil-Fuel-Fired Steam Generators for Which Construction Is Commenced After August 17, 1971 (Boiler capacities below 250 MM BTU/hr)
NSPS Subpart Da	Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced After September 18, 1978 (Boilers not built for the purposes of generating electricity)
NSPS Subpart Db	Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units (Boiler capacities below 100 MM BTU)
NSPS Subpart Dc	Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units (Boilers built before 6/9/1989 and not modified or reconstructed since 6/9/1989)
40 CFR 63, subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters (Facility is not a major source of HAP emissions)
40 CFR Part 64	Compliance Assurance Monitoring (Sources do not utilize abatement devices)
40 CFR Part 72	Acid Rain Permit Program (Qualifying power production facility)
BAAQMD 1-520	Opacity, NOx, and CO_2 or O_2 Monitoring for steam generators over 250 MM BTU/hr (Boiler capacities below 250 MM BTU/hr)
BAAQMD 6-302	Opacity Limitation (District has not required monitoring)
BAAQMD 9-1-501	Area Monitoring Requirements (District has not required monitoring)
BAAQMD 9-1-502	Emission Monitoring Requirements (District has not required monitoring)

IX. Permit Shield

Table IX-A-2
S-6, Gas Turbine

Citation	Title or Description
40 CFR 63, subpart YYYY	National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines (Facility is not a major source of HAP emissions)
40 CFR Part 64	Compliance Assurance Monitoring (Source does not utilize an abatement device)
40 CFR Part 72	Acid Rain Permit Program (Qualifying power production facility)
BAAQMD 1-520.1	Opacity Monitoring for steam generators over 250 MM BTU/hr (Requirement does not apply to turbines)
BAAQMD 6-302	Opacity Limitation (District has not required monitoring)
BAAQMD 9-1-501	Area Monitoring Requirements (District has not required monitoring)
BAAQMD 9-1-502	Emission Monitoring Requirements (District has not required monitoring)

Table IX-A-3
S-8, Duct Burner

Citation	Title or Description
40 CFR Part 64	Compliance Assurance Monitoring (Source does not utilize an abatement device)
40 CFR Part 72	Acid Rain Permit Program (Qualifying power production facility)
BAAQMD 1-520.1	Opacity, NOx, and CO_2 or O_2 Monitoring for steam generators over 250 MM BTU/hr (Boiler capacities below 250 MM BTU/hr)
BAAQMD 6-302	Opacity Limitation (District has not required monitoring)
BAAQMD 9-1-501	Area Monitoring Requirements (District has not required monitoring)
BAAQMD 9-1-502	Emission Monitoring Requirements (Duct burner does not burn liquid or solid fuels)

IX. Permit Shield

Table IX-A-4
S-9, Turbine Starter Engine, S-10, S-11 Standby Generator Diesel Engines

Citation	Title or Description
40 CFR 63, subpart ZZZZ	National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (Facility is not a major source of HAP emissions)

B. Subsumed requirements

None

X. Revision History

Initial Issuance (Application 17468):	May 11, 1998
Renewal: (Application 6648)	August 24, 2005

XI. GLOSSARY

ACT
Federal Clean Air Act

BAAQMD
Bay Area Air Quality Management District

BACT
Best Available Control Technology

CAA
The federal Clean Air Act

CAAQS
California Ambient Air Quality Standards

CEQA
California Environmental Quality Act

CFR
The Code of Federal Regulations. 40 CFR contains the implementing regulations for federal environmental statutes such as the Clean Air Act. Parts 50-99 of 40 CFR contain the requirements for air pollution programs.

CO
Carbon Monoxide

Cumulative Increase
The sum of permitted emissions from each new or modified source since a specified date. Used to determine whether threshold-based requirements are triggered.

District
The Bay Area Air Quality Management District

EPA
The federal Environmental Protection Agency.

Excluded
Not subject to any District Regulations.

Federally Enforceable, FE
All limitations and conditions which are enforceable by the Administrator of the EPA

XI. Glossary

including those requirements developed pursuant to 40 CFR Part 51, subpart I (NSR), Part 52.21 (PSD), Part 60 (NSPS), Part 61 (NESHAPS), Part 63 (HAP), and Part 72 (Permits Regulation, Acid Rain), and also including limitations and conditions contained in operating permits issued under an EPA-approved program that has been incorporated into the SIP.

FP
Filterable Particulate as measured by BAAQMD Method ST-15, Particulate.

HAP
Hazardous Air Pollutant. Any pollutant listed pursuant to Section 112(b) of the Act. Also refers to the program mandated by Title I, Section 112, of the Act and implemented by 40 CFR Part 63.

Major Facility
A facility with potential emissions of: (1) at least 100 tons per year of any regulated air pollutant, (2) at least 10 tons per year of any single hazardous air pollutant, and/or (3) at least 25 tons per year of any combination of hazardous air pollutants, or such lesser quantity of hazardous air pollutants as determined by the EPA administrator.

MFR
Major Facility Review. The District's term for the federal operating permit program mandated by Title V of the Act and implemented by District Regulation 2, Rule 6.

MOP
The District's Manual of Procedures.

NAAQS
National Ambient Air Quality Standards

NESHAPS
National Emission Standards for Hazardous Air Pollutants. See in 40 CFR Part 61.

NMHC
Non-methane Hydrocarbons

NOx
Oxides of nitrogen.

NSPS
Standards of Performance for New Stationary Sources. Federal standards for emissions from new stationary sources. Mandated by Title I, Section 111 of the Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR
New Source Review. A federal program for preconstruction review and permitting of new and modified sources of air pollutants for which the District is classified "non-attainment". Mandated by Title I of the Clean Air Act and implemented by 40 CFR Parts 51 and 52 as well

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as District Regulation 2, Rule 2. (Note: There are additional NSR requirements mandated by the California Clean Air Act.)

Offset Requirement
A New Source Review requirement to provide federally enforceable emission offsets at a specified ratio for the emissions from a new or modified source and any pre-existing cumulative increase minus any onsite contemporaneous emission reduction credits. Applies to emissions of POC, NOx, PM10, and SO2.

Phase II Acid Rain Facility
A facility that generates electricity for sale through fossil-fuel combustion and is not exempted by 40 CFR 72 from Titles IV and V of the Clean Air Act.

POC
Precursor Organic Compounds

PM
Total Particulate Matter

PM10
Particulate matter with aerodynamic equivalent diameter of less than 10 microns

PSD
Prevention of Significant Deterioration. A federal program for permitting new and modified sources of air pollutants for which the District is classified "attainment" of the National Air Ambient Quality Standards. Mandated by Title I of the Act and implemented by both 40 CFR Part 52 and District Regulation 2, Rule 2.

SIP
State Implementation Plan. State and District programs and regulations approved by EPA and developed in order to attain the National Air Ambient Quality Standards. Mandated by Title I of the Act.

SO2
Sulfur dioxide

Title V
Title V of the federal Clean Air Act. Requires a federally enforceable operating permit program for major and certain other facilities.

VOC
Volatile Organic Compounds

Units of Measure:

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bhp	=	brake-horsepower
BTU	=	British Thermal Unit
g	=	grams
gal	=	gallon
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m^2	=	square meter
min	=	minute
mm	=	million
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute
psig	=	pounds per square inch, gauge
scfm	=	standard cubic feet per minute
yr	=	year