

Bay Area Air Quality Management District

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Permit Evaluation and Statement of Basis for Renewal of the

MAJOR FACILITY REVIEW PERMIT

for

**Los Medanos Energy Center, LLC
Facility #B1866**

Facility Address:

750 East Third Street

Pittsburg, CA 94565

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Application Engineer: Xuna Cai

Site Engineer: Xuna Cai

Application: 27872

January 2020

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750 East Third Street, Pittsburg, CA 94565

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Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Title 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, more than 100 tons per year each of nitrogen oxides and carbon monoxide.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In addition, Phase II Acid Rain facilities must meet the requirements of Title IV of the federal Clean Air Act, Acid Rain, and the Acid Rain regulations in Parts 72 through 78 of Volume 40 of the Code of Federal Regulations. These regulations were adopted and incorporated by reference by BAAQMD Regulation 2, Rule 7, Acid Rain. The main provisions of the regulations for natural gas fired acid rain sources, such as the ones at this facility, are the requirement to obtain one SO₂ allowance for each ton of SO₂ that is emitted, stringent monitoring requirements for NO_x, CO₂, and SO₂, and stringent recordkeeping and reporting requirements.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

Each facility in the Bay Area is assigned a facility identifier that consists of a letter and a 4-digit number. This identifier is also considered to be the identifier for the permit. The identifier for this facility is B1866.

This facility received its initial Title V permit on September 6, 2001. The facility received its renewal of the Title V permit on October 3, 2011. This application is for a second permit renewal. Although the current permit expires on October 2, 2016, it will continue in force until the District takes final action on the permit renewal because a complete renewal application was submitted at least six months prior to the expiration of the current Title V permit. This renewal application was received by the District on April 1, 2016.

Pursuant to Regulation 2, Rule 6, section 416, the District has reviewed the terms and conditions of this Major Facility Review permit and determined that they are still valid and correct. This review included an analysis of all applicability determinations for all sources, including those that have been modified or permitted since the last renewal of the Major Facility Review Permit. The review also included an assessment of the sufficiency of all monitoring for determination of

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compliance with applicable requirements. The statement of basis documents and the permit revisions that have occurred since the issuance of the initial Major Facility Review permit are hereby incorporated by reference and are available upon request.

B. Facility Description

The Los Medanos Energy Center is a combined-cycle cogeneration facility capable of producing a nominal electrical output of 520 MW and 75,000 pounds per hour of process steam. The primary steam customer is USS POSCO Industries. The facility was online and selling electricity to the grid in July of 2001.

There has been no significant change in emissions or equipment at the facility since the last renewal of the Title V permit in 2011.

C. Permit Content

The legal and factual basis for the permit follows. The permit sections are described in the order presented in the permit.

I. Standard Conditions

This section contains administrative requirements and conditions that apply to all facilities. If the Title IV (Acid Rain) requirements for fossil-fuel fired electrical generating facilities or the accidental release (40 CFR § 68) programs apply, the section will contain a standard condition pertaining to these programs. Many of these conditions derive from 40 CFR § 70.6, Permit Content, which dictates certain standard conditions that must be placed in the permit. The language that the District has developed for many of these requirements has been adopted into the BAAQMD Manual of Procedures, Volume II, Part 3, Section 4, and therefore must appear in the permit.

The standard conditions also contain references to BAAQMD Regulation 1 and Regulation 2. These are the District's General Provisions and Permitting rules.

The dates of adoption and approval of rules in Standard Condition 1.A have been updated.

The monitoring reports section I.F was updated to reflect the new District address and to allow monitoring data to be submitted via email.

The compliance certification section I.G was updated to reflect the new EPA contact information and to allow monitoring data to be submitted via email.

II. Equipment

This section of the permit lists all permitted or significant sources. Each source is identified by an S and a number (e.g., S24).

Changes to the permit

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There are no changes to this section of the permit.

III. Generally Applicable Requirements

This section of the permit lists requirements that generally apply to all sources at a facility including insignificant sources and portable equipment that may not require a District permit

Changes to the permit

Table III Generally Applicable Requirements was revised to change the effectiveness dates of applicable District Rules and Regulations and to add new applicable requirements to the facility as necessary.

The website address for the EPA webpage where the current District SIP regulations are listed has been updated.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements that apply to permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) are listed following the corresponding District rules. SIP rules are District rules that have been approved by EPA for inclusion in the California State Implementation Plan. SIP rules are “federally enforceable” and a “Y” (yes) indication will appear in the “Federally Enforceable” column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the “Federally Enforceable” column will have a “Y” for “yes”. If the SIP rule is not the current District rule, the SIP rule or the necessary portion of the SIP rule is cited separately after the District rule. The SIP portion will be federally enforceable; the non-SIP version will not be federally enforceable, unless EPA has approved it through another program.
- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions. The text of Federal permit conditions, if any, is found in Section VI of the permit.

The text of the requirements is found in the regulations, which are readily available on the District’s or EPA’s websites, or in the permit conditions, which are reproduced in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of monitoring is included in Section C.VII of this permit evaluation/statement of basis.

COMPLEX APPLICABILITY DETERMINATIONS:

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Some notable applicability determinations regarding LMEC's gas turbines and heat recovery steam generators are as follows:

- Accidental Release
Ammonia storage at this facility is subject to 40 CFR 68, Accidental Release, because more than 10,000 pounds of anhydrous (100%) ammonia is stored. The requirement is in Standard Condition I.K.
- 112(j)
The facility is not subject to the case-by-case MACT determination requirement in 112(j) of the Clean Air Act because it is not a major facility for hazardous air pollutants (HAPs). The potential to emit for HAPs can be found in Table 3 of the FDOC. Note that ammonia, propylene, and aluminum are not HAPs pursuant to 112(b) of the Clean Air Act. Therefore, 40 CFR 63, Subpart Yyyy, NESHAP for Stationary Combustion Turbines does not apply to S-1 and S-3.
- Compliance Assurance Monitoring (CAM) – 40 CFR Part 64
The potential to emit for the gas turbines and heat recovery steam generators combined is greater than 100 tons/year each for NO_x and CO. The gas turbines are exempt from CAM requirements for NO_x per 40 CFR Part 64.2(b)(iii) since the facility is subject to the acid rain permit program. The facility is subject to the Acid Rain program because it is a utility unit that serves a generator with a capacity than 25 MW in accordance with 40 CFR Part 72.6. Per 40 CFR 64.2(a), an emission unit is subject to 40 CFR 64, Compliance Assurance Monitoring, if the unit is subject to a federally enforceable requirement for a pollutant, the pollutant is controlled by an abatement device, and the emissions of the pollutant before abatement are more than 100% of the major source thresholds. The CO emissions from each gas turbine/heat recovery steam generator are not subject to CAM requirements. The gas turbines/HRSGs meet the exemption contained in 40 CFR Part 64.2(b)(vi). This exemption applies to sources with a Part 70 operating permit that specifies a continuous compliance determination method as specified in Part 64.1. The CO CEMs meet this definition.

40 CFR Part 60, Subpart Da

Standards of Performance for Electric Utility Steam Generating Units for Which Construction Is Commenced after September 18, 1978

The facility is expected to continue to comply with the requirements of this subpart. 60.42Da(b) contains the opacity standard that applies to the gas turbines and heat recovery steam generators. 60.49Da(a)(3) requires the owner/operator to perform periodic monitoring to demonstrate compliance with this standard. The EPA has recently promulgated changes to Subpart Da in direct final rule action (Federal Register, January 20, 2011) allowing the permitting authority to exempt owners/operators of affected facilities burning only natural gas from the opacity monitoring requirements contained in 60.49Da(a)(3). The District is exempting the facility from the opacity monitoring requirement contained in 60.49Da(a)(3).

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

60.332(a)(1) has a NO_x limit of nominally 75 ppm. The emissions units meet a permit limit of 2.5 ppm @ 15 % O₂ and therefore comply with the Subpart GG NO_x limit.

Section 60.333(a) requires an owner/operator of stationary turbines to demonstrate compliance with either one of the following two conditions:

- Discharge SO₂ at less than or equal to 0.015% by volume at 15% oxygen on a dry basis or
- Combust fuel with sulfur content less than or equal to 0.8% by weight (8000 ppmw).

The typical annual average sulfur concentration of the PUC quality natural gas combusted in the turbines is 0.25 grains/100 scf. PG&E natural gas typically has a sulfur concentration of 1 grain/100 scf (See PG&E Gas Rule 21, Section C). The SO₂ content in the natural gas can be compared to Section 60.333(a) as follows:

$$\text{lb S/MMBtu} = 1 \text{ grains}/100 \text{ scf} \times \text{lb}/7000 \text{ grains} \times \text{scf}/1020 \text{ Btu} \times 1 \text{ E}06 \text{ Btu/MMBtu}$$

$$\text{lb S/MMBtu} = 1.4 \text{ E-}03$$

$$\text{lb SO}_2/\text{MMBtu} = 1.4 \text{ E-}03 \text{ lb/MMBtu} \times (64 \text{ lb SO}_2/\text{lb-mol}/32 \text{ lb S/lb-mol})$$

$$\text{lb SO}_2/\text{MMBtu} = 2.8 \text{ E-}03$$

Gas Turbines and Heat Recovery Steam Generators

$$\text{SO}_2 \text{ lb/hour} = 2.8 \text{ E-}03 \text{ lb/MMBtu} \times 467.6 \text{ MMBtu/hour} = 1.31$$

$$\text{SO}_2 \text{ ppm} = (1.31 \text{ lb/hour} \times 1/64 \text{ lb/lb-mol} \times 386.8 \text{ scf/lb-mol}) / (8710 \text{ dscf/MMBtu} \times 467.6 \text{ MMBtu/hour} \times (20.95/(20.95 - 15))) \times 1 \text{ E}06$$

$$\text{SO}_2 \text{ ppm} = 0.6 \text{ ppm @ 15\% O}_2$$

The calculations demonstrate that the gas turbines at the facility meet Section 60.333(a).

40 CFR Part 72, Acid Rain Program

Part 72, Subpart A, establishes general provisions and operating permit program requirements for sources and affected units under the Acid Rain program, pursuant to Title IV of the Clean Air Act. The gas turbines are affected units subject to the program in accordance with 40 CFR Part 72, Subpart A, Section 72.6(a)(3)(i). The facility continues to meet 72.9 Standard Requirements which requires the submission of a complete acid rain permit application, the possession of a valid acid rain permit, meeting the monitoring requirements of part 75, and holding sufficient allowances, and comply with the acid rain SO₂ limit. The facility must hold sufficient SO₂

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allowances by March 1 (February 29 of a leap year) of every year to offset each ton of SO₂ emitted for the previous calendar year. The facility is expected to comply with the excess emissions, recordkeeping and reporting requirements in 72.9(e) and 72.9(f).

Part 72, Subpart C, contains requirements for acid rain permit applications and compliance plans. The facility is expected to continue to meet these requirements.

Part 72, Subpart E, contains the requirements for the acid rain permit which must include all elements of a complete acid rain application.

40 CFR Part 75, Continuous Emission Monitoring

Part 75, Subpart A, contains the applicability criteria, compliance dates, and prohibitions. The emissions units at the facility are subject to Part 72 and are therefore subject to Part 75. The NO_x monitoring is subject to part 75 per 75.2(c). The facility is expected to continue to meet the compliance dates and prohibitions contained in part 75 Subpart A.

Part 75, Subpart B, contains specific monitoring provisions for each pollutant subject to part 75. The emissions units at this facility are required to meet the SO₂, NO_x, CO₂ monitoring requirements contained in 75.10(a)(1), 75.10(a)(2), 75.10(a)(3). Opacity monitoring under 75.10(a)(4) is not required for gas fired units in accordance with 75.14(c). 75.10(b) requires each CEM to meet equipment, installation, and performance specification in part 75 Appendix A and quality assurance/quality control in Appendix B. 75.10(c) requires heat input rate monitoring to meet requirements contained in part 75 Appendix F. The facility is expected to continue to comply with the requirements contained in 75.10(b) and (c).

75.10(d) contains primary equipment hourly operating requirements that require the CEM to monitor emissions when the emissions unit combusts fuel except as specified in 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to §75.21 and appendix B of this part, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to §75.20. This section also contains requirements for calculating hourly averages from four 15-minute periods and validity of data and data substitution. Emission concentrations for a given hour are not considered valid unless it is based on four valid measurements. The data substitution requirements are contained in Subpart D. The facility is expected to continue to comply with the requirements contained in 75.10(d). 75.10(f) specifies minimum measurement capability requirement for CEMs and 75.10(g) contains the minimum recordkeeping and reporting requirements. The facility is expected to continue to meet 75.10(f) and (g).

75.11 contains specific provisions for SO₂ monitoring. 75.11(d)(2) allows the use of Appendix D to monitor SO₂ emissions from gas fired units. The facility monitors sulfur content of the natural gas to meet Part 75 SO₂ monitoring requirements.

75.12 contains specific provisions for NO_x emission rates. The facility uses a NO_x CEM and an O₂ monitor to meet this requirement.

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75.13 contains CO₂ monitoring requirements. The facility monitors CO₂ in accordance with this section using the procedures in part 75 Appendix G.

75.14 contains opacity monitoring requirements. The facility is exempt from opacity monitoring under part 75 per 75.14(c).

Part 75 Subpart C contains operation and maintenance requirements including certification and recertification of the CEMs, quality assurance/quality control requirements, reference test methods, and out-of-control periods and adjustment for system bias. The facility is expected to continue to meet these requirements.

Part 75, Subpart D (75.30 through 75.36) contains Missing Data Substitution Procedures for SO₂, NO_x, flowrate, CO₂, and heat input procedures. The facility is expected to continue to meet these requirements.

Part 75, Subpart F contains the recordkeeping requirements including the contents of a part 75 monitoring plan. This subpart requires the facility to record the operating time, heat input rate, and load for each emissions unit. Additionally, the facility must record emissions data for SO₂, NO_x, CO₂, and O₂ along with quality assurance/quality control information.

Part 75, Subpart G contains the reporting requirements for affected facilities subject to part 75. The facility is expected to continue to meet these requirements.

40 CFR Part 64, Compliance Assurance Monitoring for Boiler

The pre-abatement potential to emit for the auxiliary boiler is less than 100 tons/year each for NO_x and CO. The auxiliary boiler is exempt from CAM requirements. The NO_x pre-abatement potential to emit was estimated at 100 ppm NO_x which is equal to 0.104 lb/MMBtu @0% O₂. NO_x potential to emit equals 480,000 MMBtu/year x 0.104 lb/MMBtu x ton/2000 lb = 25 tons/year. The CO potential to emit was estimated at 50 ppm CO @3% O₂ (permit limit) which is equal to 0.0271 lb/MMBtu. CO potential to emit equals 480,000 MMBtu/year x 0.0271 lb/MMBtu x ton/2000 lb = 6.5 tons/year.

Changes to permit:

The adoption dates for District regulations and the federal register notice date for federal regulations were updated in all tables in Section IV.

Table IV-A is for the gas turbines and heat recovery steam generators since the sources are identical with the similar applicable requirements and exhaust through a common stack. The following changes to the applicable requirements to the gas turbines and heat recovery steam generators were made in Table IV-A:

Action	Title/Description
Added BAAQMD 6-1-114.1	Limited exemption to Total Suspended Particulate Emission Limit for Fuel

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Action	Title/Description
	Combustion.
Added SIP Versions of Regulation 9, Rule 3	Inorganic Gaseous Pollutants-Nitrogen Oxides from Heat Transfer Operations
Added 40 CFR, Part 60, Subpart A, 60.18	General Control Device Requirements

BAAQMD 6-1-114.1 is a newly adopted provision when the District Regulation 6-1 was amended in 2018.

SIP Regulation 9-3, and Subpart A 60.18 were missing from the permit and have been added.

The following changes to the applicable requirements to the gas turbines and heat recovery steam generators were also made in Table IV-A:

Action	Title/Description
Deleted 40 CFR Part 98	Mandatory Greenhouse Gas Reporting
Deleted Title 17, Subchapter 10, Article 2, “Mandatory Greenhouse Gas Reporting Requirements”	Mandatory Greenhouse Gas Emissions Reporting

The GHG mandatory reporting requirements in 40 CFR Part 98 and in the ARB Mandatory Reporting Rule were removed from Table IV-A. EPA has stated in pages 56287 and 56288 of the federal register notice of October 30, 2009 that promulgated requirements for GHG reporting do not meet the definition of an applicable requirement in 40 CFR 70.2 and 71.2.

CCR Title 17, Subchapter 10, Article 2 will be deleted because the District does not have enforcement authority for this regulation.

S-5, Auxiliary Boiler

The following changes to the applicable requirements to the auxiliary boiler were made in Table IV-B:

Action	Title/Description
Added BAAQMD 6-1-114.1	Limited exemption to Total Suspended Particulate Emission Limit for Fuel Combustion.
Added SIP Version Regulation 9, Rule 3	Inorganic Gaseous Pollutants-Nitrogen Oxides from Heat Transfer Operations

BAAQMD 6-1-114.1 is a newly adopted provision when the District Regulation 6-1 was amended in 2018.

SIP Regulation 9-3 was missing from the permit and has been added.

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S-6, Fire Pump Diesel Engine

The following changes were made to Table IV-C for the fire pump diesel engine:

Action	Title/Description
Added SIP Version of Regulation 9, Rule 1	Inorganic Gaseous Pollutants-Sulfur Dioxide
Deleted 9-8-330.2	100 hours for reliability and maintenance
Added 9-8-502.1	Recordkeeping, Emergency Standby Engines
Removed all future effective dates for 40 CFR Part 63 Subpart ZZZZ	The future effective dates were “5/3/13”.

The SIP version of Regulation 9, Rule 1 was missing from the permit. Regulation 9, Rule 8, Section 502.1 was missing from the permit.

Regulation 9, Rule 8, Section 330.2 is no longer applicable as the more stringent limit in Section 330.3 became effective in 2012.

S-7, Emergency Generator

The following change was made to Table IV-D for the natural gas standby engine:

Action	Title/Description
Removed all future effective dates for 40 CFR Part 63 Subpart ZZZZ	The future effective dates were “10/10/13”.
Changed the Permit Condition Number from 21597 to 23112	Permit conditions for natural gas standby engine.

Permit Condition 23112 is the standard permit condition for natural gas standby engine permitted with 50 hours of reliability-resting. The requirements in Permit Condition 21597 and 23112 are essentially the same.

S-8, Cooling Tower

The following change was made to Table IV-E for the cooling tower:

Action	Title/Description
Added BAAQMD 6-1-310.2	Total Suspended Particulate concentration limits based on exhaust flow rate.
Added Part 52 of Permit Condition Number 16676	Total Dissolved Solid limit and Sampling requirement

BAAQMD 6-1-310.2 is a new requirement added when the rule was amended in 2018. It will be effective on and after 7/1/2020.

Part 52 of Permit Condition Number 16676 is identical to California Energy Commission’s AQ-52 in the Conditions of Certification for the facility. The TDS limit is used as a basis to estimate

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particulate emissions to demonstrate compliance with the requirement in BAAQMD 6-1-310.2 as source testing is not physically possible at the cooling tower.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10.

The Renewal Application does not change this section of the permit.

VI. Permit Conditions

Changes to permit:

In Permit Condition #16676, Part 21a and 21 f, “nor” was corrected to “or” which is more consistent with the wording in other power plants’ permit conditions.

Permit Condition 21597 was replaced with Permit Condition 23112, which is the standard permit condition for natural gas standby engine permitted with 50 hours of reliability-resting. The requirements in Permit Condition 21597 and 23112 are essentially the same.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements for each source. The summary includes a citation for each monitoring requirement, frequency of monitoring, and type of monitoring. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

Additional Monitoring Determinations

The tables below contain only the limits for which there is no monitoring or potentially inadequate monitoring in the applicable requirements. The District has examined the monitoring for other limits and has determined that monitoring is adequate to provide a reasonable assurance of compliance. Calculations for potential to emit will be provided in the discussion when no monitoring is proposed due to the size of a source.

Monitoring decisions are typically the result of a balancing of several different factors including: 1) the likelihood of a violation given the characteristics of normal operation, 2) degree of variability in the operation and in the control device, if there is one, 3) the potential severity of impact of an undetected violation, 4) the technical feasibility and probative value of indicator monitoring, 5) the economic feasibility of indicator monitoring, and 6) whether there is some other factor, such as a different regulatory restriction applicable to the same operation, that also provides some assurance of compliance with the limit in question.

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SO₂ Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1, S-3 Gas Turbines, S-2, S-4 HRSGs, S-5 Auxiliary Boiler, S-6 Diesel Fire Pump, S-7 Natural Gas Fired Emergency Generator	BAAQMD 9-1-301	Ground level concentrations of SO ₂ shall not exceed: 0.5 ppm for 3 consecutive minutes AND 0.25 ppm averaged over 60 consecutive minutes AND 0.05 ppm averaged over 24 hours	None
S-1, S-3 Gas Turbines, S-2, S-4 HRSGs, S-5 Auxiliary Boiler, S-7 Natural Gas Fired Emergency Generator	BAAQMD 9-1-302	300 ppm (dry)	None

SO₂ Discussion:

BAAQMD Regulation 9-1-301

Area monitoring to demonstrate compliance with the ground level SO₂ concentration requirements of Regulation 9-1-301 is at the discretion of the APCO (per BAAQMD Regulation 9-1-501). This facility does not have equipment that emits large amounts of SO₂ and therefore is not required to have ground level monitoring by the APCO.

All facility combustion sources are subject to the SO₂ emission limitations in District Regulation 9, Rule 1 (ground-level concentration and emission point concentration). In EPA's June 24, 1999 agreement with CAPCOA and ARB, "Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", EPA has agreed that natural-gas-fired combustion sources do not need additional monitoring to verify compliance with Regulation 9, Rule 1, since violations of the regulation are unlikely. Therefore, no monitoring is necessary for this requirement.

PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1, S-3 Gas Turbines, S-2, S-4, HRSGs, S-5 Auxiliary Boiler, S-8 Cooling Tower	BAAQMD Regulation 6-1-301	Ringelmann 1.0	None
S-1, S-3 Gas Turbines, S-2, S-4, HRSGs, S-5 Auxiliary Boiler, S-8 Cooling Tower	SIP Regulation 6-301	Ringelmann 1.0	None

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PM Sources

S# & Description	Emission Limit Citation	Federally Enforceable Emission Limit	Monitoring
S-1, S-3 Gas Turbines, S-2, S-4, HRSGs	NSPS 40 CFR 60.42Da(b)	≤20% Opacity (six-minute average); except for one 6-minute period per hour of not more than 27% opacity	None
S-6 Fire Pump Diesel Engine, S-7 Natural Gas Fired Emergency Generator	BAAQMD Regulation 6-1-303.1	< Ringelmann No. 2, except for no more than 3 minutes in any hour	None
S-6 Fire Pump Diesel Engine, S-7 Natural Gas Fired Emergency Generator	SIP Regulation 6-303.1	< Ringelmann No. 2, except for no more than 3 minutes in any hour	None
S-2, S-4, HRSGs, S-5 Auxiliary Boiler	BAAQMD Regulation 6-1-304 Tube Cleaning	< Ringelmann 2.0, except for 3 min/hour	None
S-2, S-4, HRSGs, S-5 Auxiliary Boiler	SIP Regulation 6-304 Tube Cleaning	< Ringelmann 2.0, except for 3 min/hour	None
S-1, S-3 Gas Turbines, S-2, S-4, HRSGs, S-5 Auxiliary Boiler, S-6 Fire Pump Diesel Engine, S-7 Natural Gas Fired Emergency Generator, S-8 Cooling Tower	BAAQMD Regulation 6-1-310	0.15 gr/dscf	None
S-1, S-3 Gas Turbines, S-2, S-4, HRSGs, S-5 Auxiliary Boiler, S-6 Fire Pump Diesel Engine, S-7 Natural Gas Fired Emergency Generator, S-8 Cooling Tower	SIP Regulation 6-310	0.15 gr/dscf	None
S-2, S-4, HRSGs, S-5 Auxiliary Boiler	BAAQMD Regulation 6-1-310.3	0.15 gr/dscf @ 6%O ₂	None
S-2, S-4, HRSGs, S-5 Auxiliary Boiler	SIP Regulation 6-310.3	0.15 gr/dscf @ 6%O ₂	None
S-8 Cooling Tower	BAAQMD Regulation 6-1-310.2	0.0100 gr/dscf	None
S-1, S-3 Gas Turbines, S-2, S-4 HRSGs	NSPS 40 CFR 60.42Da(a)(1)	0.03 lb/MMBtu	None

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PM Discussion:

BAAQMD Regulation 6, Rule 1 “Particulate Matter and Visible Emissions”

Visible Emissions, 6-1-301, 6-1-303.1, 6-1-304, NSPS Subpart Da

BAAQMD Regulation 6, Rule 1 and NSPS Subpart Da (40 CFR Part 60.42Da(b)) requirements limit visible emissions from these sources. Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S-1, S-3 Gas Turbines and S-2, S-4 HRSGs burn natural gas exclusively; therefore, per the EPA's June 24, 1999 agreement with CAPCOA and ARB titled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to ensure compliance with these limits for these sources. S-7 the natural gas fired emergency standby generator is also exclusively fired on natural gas and no monitoring is required for the BAAQMD Regulation 6, Rule 1 visible emission limits.

S-8 Cooling Tower is not expected to emit visible particulate emissions. Therefore, no monitoring is required to ensure compliance with Regulation 6-1-301 for this source.

S-2, S-4, and S-5 are subject to BAAQMD Regulation 6-1-304 Tube Cleaning that requires during tube cleaning, and except for three minutes in any one hour, a person shall not emit from any heat transfer operation using fuel at a rate of not less than 148 GJ (140 million BTU) per hour, a visible emission as dark or darker than No. 2 on the Ringelmann Chart. Tube cleaning of sources does not normally create any visible emissions and no monitoring is required during these periods since all of these sources are fired on natural gas.

EPA's June 24, 1999 agreement with CAPCOA and ARB entitled "Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP" states that no monitoring will be required for opacity for diesel standby and emergency reciprocating engines if California diesel or other low-sulfur fuels are used. The reason is that the use of low-sulfur fuels reduces particulates. Also, these engines are used infrequently and therefore, are not large sources of particulate emissions. Because the S-6 Fire Pump Diesel Engine will utilize “California” diesel fuel, no monitoring is required to ensure compliance with the visible emissions limitation of Regulation 6-1-303.1.

Particulate Weight Limitation

BAAQMD Regulation 6-1-310 (6-310 SIP) limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. This is a “grain loading” standard.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Sources S-1, S-3 Gas Turbines and S-2, S-4 HRSGs burn natural gas exclusively as does S-7 Emergency Standby Generator, therefore, per the EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally

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Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", no monitoring is required to ensure compliance with this limit for these sources.

EPA's July 2001 agreement with CAPCOA and ARB entitled "CAPCOA/CARB/EPA Region IX Recommended Periodic Monitoring for Generally Applicable Grain Loading Standards in the SIP: Combustion Sources: Summary of Periodic Monitoring Recommendations for Generally Applicable Requirements in SIP", proposes the following monitoring for the grain loading standard for non-utility distillate-oil-fueled emergency piston-type IC Engines: Maintain records of all engine usage (such as time or fuel meter readings) and maintenance. S-6 Fire Pump Diesel Engine is subject to such monitoring.

S-8 Cooling Tower is subject to the 0.15 gr/dscf standard and will be subject to the grain loading standard (0.0100 grain/dscf for exhaust gas rate greater than 2,472,027 dscf/min) in Table 6-1-310.2 in BAAQMD Regulation 6-1 in 2020. BAAQMD Regulation 6-1-504 requires periodical source testing to demonstrate compliance with the grain loading standards. However, BAAQMD Regulation 6-1-602.1 specifies that "(s)ource tests are not required if sources cannot be modified to comply with source test requirements and testing is not physically possible (e.g., for sources without a defined stack)." Cooling tower is a source without a defined stack, so source tests are not required. The estimated particulate emissions from S-8 are much less than the applicable standards as shown in the calculation below. Therefore, no monitoring is required to ensure compliance with this limit for this source. However, part 52 of Permit Condition Number 16676 is added to the applicable requirements for S-8 to specify the TDS limit that is used as a basis for the calculation.

Basis:

- Design drift rate = 0.0005% of the circulating water flow rate.
- Water recirculation rate = 110,600 gallons/min
- Exhaust Fan Rating = 1,416,845 acfm/fan
- Number of Fans = 8
- Total Dissolved Solid Limit = 3765 mg/L according Part 52 of Permit Condition Number 16676.

Cooling tower exhaust gas flow rate = (1,416,845 acfm/fan)(8 Fans)

$$= 11,334,760 \text{ acfm} = 11,334,760 \text{ dscf/min}^*$$

*Note: Because source testing is not physically possible at the exhaust of the cooling tower to obtain accurate pressure, temperature, and moisture content data, exhaust flow rate in acfm is assumed to be equal or greater than dscfm for the purpose of estimating PM emissions here.

$$\begin{aligned} \text{PM Rate} &= (110,600 \text{ gal/min}) (0.0005\%) (3765 \text{ mg/L}) (3.79 \text{ L/gal}) (\text{grain}/64.8 \text{ mg}) \\ &= 122 \text{ grain/min.} \end{aligned}$$

$$\text{PM Concentration} = (122 \text{ grain/min}) (\text{min}/11,334,760 \text{ dscf}) = 0.00001 \text{ grain/dscf.}$$

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Particulate Mass per Unit Fuel Fired

BAAQMD Condition No. 16676 Part 21h limits the PM₁₀ (all PM is expected to be PM₁₀) to 9 lb/hour and this corresponds to 0.0040 lb/MMBtu. The BACT permit limit is an order of magnitude lower than the NSPS Standard in 40 CFR 60.42Da(a)(1) and no ongoing monitoring is required to demonstrate compliance with this limit. The gas turbines and HRSGs are required to be source tested on an annual basis for PM₁₀.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements.

If a rule or permit condition requires ongoing testing, the requirement will also appear in Section IV of the permit.

IX. Acid Rain

Section IX of the Title V permit sets forth the regulatory requirements related to addressing acid rain as required under Title IV of the federal Clean Air Act and related regulations. Acid rain is principally associated with power plants that burn coal, and the Los Medanos Energy Center can combust only low-sulfur natural gas. The facility is nevertheless subject to certain acid-rain related requirements as specified in Section IX of the Title V permit.

The facility is subject to the Acid Rain Permit requirements of 40 CFR Part 72 because it is a utility unit as defined by 40 CFR 72.5. The facility is a Phase II Acid Rain Facility pursuant to Regulation 2, Rule 6, Section 217. The principal requirement that applies to this facility is that it must hold SO₂ allowances for each emission unit in an amount not less than the total annual SO₂ emissions from the unit for the previous calendar year pursuant to 40 CFR 72.9(c)(i).

The Acid Rain permit for the Los Medanos Energy Center is contained in section IX of the Title V permit. The Acid Rain Permit Application dated April 1, 2016 is attached to the permit in Section XIII.

Changes to permit:

The format of this section was updated to the current standard language for acid rain permit in the District.

X. Permit Shield

The permit has no permit shields.

XI. Revision History

The current Title V renewal application 27872 has been added to this section.

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XII. Glossary

No changes were made to this section.

XIII Title IV Permit Application

The Acid Rain permit application for the facility is part of the Title V permit and is included here.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

E. Compliance Status

The responsible official for Los Medanos Energy Center, LLC. submitted a signed Certification Statement form dated September 6, 2019. On this form, the responsible official certified that the following four statements are true:

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form that are in compliance will continue to comply with the applicable requirements;

Based on information and belief formed after reasonable inquiry, the sources identified in the Applicable Requirements and Compliance Summary form will comply with future-effective applicable requirements, on a timely basis;

Based on information and belief formed after reasonable inquiry, information on application forms, all accompanying reports, and other required certifications is true, accurate, and complete;

All fees required by Regulation 3, including Schedule P have been paid.

F. Differences Between the Application and the Proposed Permit

The renewal Title V permit application was submitted on April 1, 2016. This application served as the basis for the District's development of the proposed Title V permit. The proposed changes for reducing sulfur sampling frequency, combining cold start limits, removing the step-down source testing frequency language for toxic emissions, and clarifying the reporting requirements have not been incorporated in the proposed renewal permit because these requests require further analysis and will be processed under Application 27871.