

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
Goose Haven Energy Center, LLC
Facility #B4416**

Facility Address:

3853 Goose Haven Road

Suisun City CA 94585

Mailing Address:

2425 Cordelia Road

Fairfield CA 94534

March 2018

Application Engineer: Xuna Cai

Site Engineer: Xuna Cai

Application: 27946

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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, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a Phase II Acid Rain facility as defined by BAAQMD Regulation 2-6-217. It is an Acid Rain facility because it burns fossil fuel, serves a generator that is over 25 MW that is used to generate electricity for sale, and was built after November 15, 1990. It is not a “major facility” as defined by BAAQMD Regulation 2-6-212 because it does not have the “potential to emit,” as defined by BAAQMD Regulation 2-6-218, of more than 100 tons per year of a regulated air pollutant.

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 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 B4416.

This facility received its initial Title V permit on March 6, 2003 and renewed the Title V permit on October 2011. This application is for a permit renewal. Although the current permit expired on October 23, 2016, it continues in force until the District takes final action on the permit renewal. The proposed permit shows all changes to the permit in strikeout/underline format.

B. Facility Description

This site, a peaking power plant located in Solano County, was acquired by Goose Haven Energy Center, LLC (an affiliate of Calpine Corporation) from Panda West 3 LLC (Plant #13031). The Authority to Construct was issued on June 18, 2001 under application #2542 for a 49.9-megawatt “peaking” power plant to provide power and T&D (transmission and distribution) support to the electric grid during periods of high electricity demand. This facility consists of one simple-cycle, gas fired combustion turbine, one firewater pump driven by a diesel-fired engine, and one exempt cooling tower.

This site is located at 3853 Goose Haven Road, Suisun City, CA 94585. There have been no new source review permit applications for this site since the Title V permit was renewed on October 24, 2011. Therefore, there has been no significant change in emissions at this facility.

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 Provision and Permitting rules.

Standard conditions will be updated to reflect current regulation adoption dates and new regulations that have been adopted since the previous renewed Title V permit was issued.

Changes to permit:

The dates of adoption have been updated to reflect current regulation adoption dates.

The addresses for the District and EPA have been updated to reflect the current mailing addresses.

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 permit

There are no changes to the permitted equipment.

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

This table will be updated to reflect current regulation adoption dates and new regulations that have been adopted since the previous renewed Title V permit was issued.

Changes to Permit:

Table III has been updated to reflect current regulation adoption dates and new regulations that have been adopted since the previous renewed Title V permit was issued.

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.

Section IV of the permit contains citations to all of the applicable requirements. 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 found 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:

Compliance Assurance Monitoring (CAM) – 40 CFR Part 64

The gas turbine is 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 greater than 25 MW in accordance with 40 CFR Part 72.6.

The potential to emit for the gas turbine is above 100 tons/year for CO (see calculation below). 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.

CO PTE Calculation:

$$(25 \text{ ppmv})(20.95 - 0)/(20.95 - 15) = 88.03 \text{ ppmv, dry @ 0\% O}_2$$
$$(88.03/10^6)(\text{lbmol}/385.3 \text{ dscf})(28 \text{ lb CO/lbmol})(8740 \text{ dscf/MM Btu})$$
$$= \mathbf{0.056 \text{ lb CO/MM Btu}}$$

The CO mass emission rate based upon the maximum firing rate of the gas turbine:

$$(0.056 \text{ lb/MM Btu})(500 \text{ MM Btu/hr})(8760 \text{ hr/yr})(1 \text{ ton}/2000 \text{ lb}) = \mathbf{122.6 \text{ ton CO/yr}}$$

Note; 25 ppmv concentration for uncontrolled CO emissions from GE LM6000 data sheet

The CO emissions from the gas turbine are subject to CAM requirements.

The CO CEM meets the requirement of 40 CFR 64.3(a)(1) to obtain data by directly measuring CO concentrations instead of an indicator of emissions. The monitoring meets 64.3(a)(2) which requires the owner/operator to establish an appropriate range to provide a reasonable assurance of ongoing compliance. The CO CEM is registered with the District and is subject to Volume V of the District Manual of Procedures. The District source test section reviewed the installation of the CO CEM including the range of the monitor. The CO CEM meets the requirements of 64.3(a)(3)(i) by measuring the pollutant directly and not relying on an indicator.

The CO CEM meets the requirement of Section 64.3(b)(1) to obtain representative data because the CO CEM is registered with the District and is subject to Volume V of the District Manual of

Procedures. The District source test section has reviewed the installation of the CO CEM to ensure that the CO concentration data is representative.

The CO CEM meets 64.3(b)(2) since the District source test section approved the initial installation of the monitor and because the facility follows the District's verification procedures in the District Manual of Procedures. The facility meets the quality assurance requirements in 64.3(b)(3) by meeting Title V of the District Manual of Procedures and by having the District source test section review the CO CEM data on a monthly basis.

The CO CEM meets 64(b)(4) by measuring the CO concentration at the exhaust stack at least once every fifteen minutes (excluding normal calibration periods) as required by Condition No. 20057 part 23. The CO concentration measurements are averaged over any rolling 3-hour period (part 21). This frequency agrees with the 64(b)(4)(ii) requirement that the owner/operator collect four or more values equally spaced over each hour. The CO monitoring frequency of measuring once every fifteen minutes is adequate to characterize any variability due to the oxidation catalyst. The facility uses a computerized data acquisition system to record the CO concentration data.

The CO CEM measures the CO concentration at the exhaust stack directly and meets the requirement of 64.3(c). The CO CEM monitoring accounts for process and control device operational variability and documents the actual CO emissions relative to the permit limit.

64.3(d)(1) requires the owner/operator to use a CEM required by the Act, state or local law to satisfy the requirements of part 64. 64.3(d)(2)(vi) states that a CEM that satisfies monitoring requirements and specifications established by the permitting authority shall be deemed to satisfy the general design criteria specified in 64.3(a) and (b).

64.3(d)(3)(i) requires the owner/operator to design the monitoring system subject to 64.3(d) to report exceedances consistent with any period in an underlying requirement. The data acquisition and handling for the CO CEM allows the owner/operator to meet 64.3(d)(3)(i). The owner/operator is required to report any exceedance of Permit Condition No. 20057 to the Compliance and Enforcement Division within 96 hours of the violation of the condition.

64.4(a) requires the owner/operator to submit to the permitting authority monitoring that satisfies the design requirements of 64.3. The CO CEMs meet 64.4(a)(1) through (4) since the unit directly measures CO concentration, is registered with the District, and is subject to Volume V of the District Manual of Procedures. The District source test section reviewed the installation of the CO CEM to ensure that the CO concentration data is representative. The review included CO monitor ranges. The monitors meet the performance criteria in 64.3(b) since this monitor meets 64.3(d)(2)(VI), which allows the permitting authority to establish monitoring requirements and specifications.

64.4(b) requires the owner/operator to submit a justification for the proposed elements of the monitoring. If the owner/operator relies on a presumptively acceptable monitoring no further justification for the appropriateness of the monitoring should be necessary other than an explanation of the applicability of such monitoring to the unit in question. The use of a CEM is considered presumptively acceptable in accordance with 64.4(b)(2).

64.4(c)(1) requires the owner/operator to collect process and control device data during compliance or performance testing when the facility is justifying or establishing the use of an

indicator of emission subject to part 64. 64.4(c)(2) requires the owner/operator must document that there are no changes to the emissions unit and control device that could result in a significant change in control system performance or the selected ranges or designated conditions for the indicators to be monitored since the performance or compliance tests were conducted. The CO CEM measures emissions directly and meets the requirements contained in 64.4(c)(1) and (2). Any changes to the emissions unit or control device and the associated impact on CO emissions are quantified on a continuous basis.

64.5(a) requires the owner/operator to submit information required under 64.4 with the initial Title V permit application (submitted on July 12, 2002). The facility has not submitted a document specifically addressing the information under 64.4, but the CO CEM monitoring information meeting 64.4 was submitted to the District source test section. The installation and operation of the CO CEM has been approved by the District source test section. The use of a CEM is considered presumptively acceptable in accordance with 64.4(b)(2).

64.6(c) requires the permitting authority to establish permit terms and conditions that specify the required monitoring in accordance with 70.6(a)(3)(i) of this chapter. According to 64.6(c)(1) at a minimum, the permit shall specify: the approved monitoring approach, indicators to be monitored, means or device used to measure the indicators, the performance requirements established by 64.3(b) or (d) as applicable.

Condition No. 20057 specifies that the CO emissions are monitored with continuous monitors in Part 23(c). Part 23(c) specifies that the owner/operator shall comply with all applicable testing requirements for continuous emission monitors as specified in Volume V of the District's Manual of Procedures. The condition part 23(c) meets the requirements of 64.6(c)(1).

64.6(c)(2) specifies the means by which the owner/operator will define an exceedance or excursion for the purposes of reporting exceedances or excursions under 64.7 and 64.8. The permit shall specify the level at which an exceedance or excursion will be deemed to occur, including the appropriate averaging period. Condition 20057 part 18.3, has permit limits for CO in ppm corrected to 15% oxygen averaged over any rolling 3-hour period, lb/MMBtu, and pound per hour. Compliance with these limits is demonstrated with the CO CEM, monitoring (part 23).

64.6(c) (3) requires the owner/operator to conduct monitoring and other obligations as required in 64.7 and 64.9. The facility is required to monitor CO concentrations from the affected emission units by Condition No. 20057, part 23. The facility has measured CO emissions using a District approved CEM from the affected emissions unit since the start of commercial operation (July 2001). The facility continues to submit monthly CEM summary reports to the District's source test section. The facility continues to operate the CO CEM in accordance with District requirements and meets District recordkeeping and reporting requirements.

64.6(c)(4) discusses minimum data availability for a given averaging period or for averaging periods for a specific reporting period. Volume V of the District's Manual of Procedures requires the facility to notify the District if the CO CEM is down for over 24 hours and to report any malfunctions on a monthly basis. Downtime in excess of 15 consecutive days may be deemed a failure to monitor unless if adequate proof of expeditious repair is not furnished to the APCO.

64.7(a) requires the owner/operator to conduct monitoring required by part 64 upon issuance of the part 70 or 71 operating permit or by such later date specified in the permit pursuant to

64.6(d). According to 64.6(d) the part 70 permit shall include an enforceable schedule with appropriate milestones for completing such installation, testing, of final verification. The District permit condition 20057, which is part of the part 70 permit, required initial monitoring for CO with a CEM during the commissioning period. Prior to completing the commissioning period, the monitor was required to be certified in accordance with Volume V of the District Manual of Procedures. The facility has operated the CO CEM in accordance with the Manual of Procedures since that time.

64.7(b) requires the owner/operator to maintain the monitoring equipment at all times. Volume V of the District's Manual of Procedures requires that all monitoring systems shall be maintained in a good state of repair. At the discretion of the APCO, either complete performance specification tests or field accuracy tests may be required after repairs have been made.

64.7(c) requires the owner/operator to conduct monitoring at all times that the emissions unit is operating excluding monitoring malfunctions, associated repairs, and required quality assurance or control activities. Volume V of the District's Manual of Procedures requires the facility to notify the District if the CO CEM is down for over 24 hours and to report any malfunctions on a monthly basis. Downtime in excess of 15 consecutive days may be deemed a failure to monitor unless if adequate proof of expeditious repair is not furnished to the APCO.

64.7(d) requires the owner/operator to restore operation of the specific emissions unit including the control device to its normal manner of operation as expeditiously as practicable to minimize emissions. Condition No. 20057 requires the owner/operator to follow the District breakdown reporting procedures, which require immediate notification of a breakdown condition to the District in accordance with District Regulation 1, Section 431. The facility is required to promptly report deviations from Title V permit requirements and identify the appropriate corrective action.

64.7(e) requires the owner/operator to notify the permitting authority and if necessary submit a proposed modification to the monitoring program if a failure to achieve compliance with an emission limitation or standard is identified while providing valid data for an indicator. The facility measures CO concentration from the affected emissions units directly and it is unlikely that the owner/operator would need to document a need for improved monitoring.

64.8 allow the Administrator or permitting authority to require a facility subject to part 64 to develop and implement a Quality Improvement Plan. The facility continues to comply with Volume V of the District's Manual of Procedures for CEMs and this document contains sufficient quality assurance and quality control requirements.

64.9 describe the recordkeeping and reporting requirements required to meet part 64. The facility submits monthly CEM summaries to the District source test section. The facility is required to submit semiannual compliance certifications in accordance with the Title V permit. The facility is required to promptly report deviations from Title V permit requirements and identify the appropriate corrective action.

64.10 states that compliance with part 64 does not excuse the owner/operator from complying with other applicable requirements, prevent the permitting authority from imposing additional monitoring requirements, and/or restrict the Administrator or permitting authority from taking enforcement action. The facility is subject to this requirement and no additional permit conditions are required.

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 turbine is an affected unit 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 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 unit at the facility is subject to Part 72 and is 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 turbine at this facility is required to meet the SO₂, NO_x, and 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 contain 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 contain specific provisions for NO_x emission rates. The facility uses a NO_x CEM and an O₂ monitor to meet this requirement.

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

75.14 contain 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 CEM, 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, flow rate, 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.

Changes to Permit:

Table IV-Facility will be removed. Because the Air District does not have enforcement authority of the federal Greenhouse Gas reporting requirements of 40 CFR Part 98 and the state Greenhouse Gas reporting requirements in 17 CCR section 95100, et seq. and the state or federal law does not explicitly mandate the Air District to include the requirements, the District-issued Title V permits should not include these reporting requirements.

Table IV-A for S-1 combustion turbine will be updated to reflect new regulation adoption dates.

Table IV-B for S-2 diesel fire pump will be updated by adding the following rules and standards.

- The reference to BAAQMD Regulation 6, Rule 1, Section 302 will be corrected to 303 and subsection 303.1 will be added because S-2 is an engine used solely as a standby source of motive power.
- The reference to SIP Regulation 6, Section 302 will be corrected to 303 and subsection 303.1 will be added because S-2 is an engine used solely as a standby source of motive power.
- The complete name of the rule for BAAQMD Regulation 9 Rule 8 will be added.
- The reference to BAAQMD Regulation 9 Rule 8 Section 330.2 will be removed because it is not applicable after January 1, 2012.
- The future effective date of BAAQMD Regulation Rule 8 Section 330.3 will be removed because the date, January 1, 2012, is no longer a future date.

- Applicable requirements in 40 CFR 63 Subpart A: National Emission Standards for Hazardous Air Pollutants for Source Categories and 40 CFR 63 Subpart ZZZZ: national Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines will be added.
- The reference to CCR, Title 17, Section 93115.3(n) will be added because S-2 qualifies for this exemption for in-use fire pump engine. S-2 was installed around 2003. Because it was installed before 2005, it is considered as “in-use” fire pump as defined in this ATCM.
- The reference to Section 93115.5 in the CCR, Title 17 will be changed to 93115.5(b).
- The reference to all subsections of 93115.6(b) in the CCR, Title 17 and Section 933115.10(c) will be removed because they are applicable requirements for emergency standby engines that are not in-use fire pump engine.
- The reference to Sections 93115.10(e)(1) and 93115.10(g) in the CCR, Title 17 will be corrected to 93115.10(d) and 93115.10(f), respectively.
- The reference to CCR, Title 17, Section 933115.11, 933115.11(a), and 933115.12 will be removed because they are not applicable requirements for in-use fire pump engine.
- BAAQMD Condition 22850 will be corrected to 22851 which is the standard permit condition for in-use fire pump engine.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 which provides that a major facility review permit shall contain the following information and provisions:

“409.10 A schedule of compliance containing the following elements:

- 10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;
- 10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and
- 10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.”

Since the District has not determined that the facility is out of compliance with an applicable requirement, the schedule of compliance for this permit contains only sections 2-6-409.10.1 and 2-6-409.10.2.

VI. Permit Conditions

During the Title V permit development, the District has reviewed the existing permit conditions, deleted the obsolete conditions, and, as appropriate, revised the conditions for clarity and enforceability. Each permit condition is identified with a unique numerical identifier, up to five digits.

When necessary to meet Title V requirements, additional monitoring, recordkeeping, or reporting has been added to the permit.

All changes to existing permit conditions are clearly shown in “strike-out/underline” format in the proposed permit. When the permit is issued, all ‘strike-out’ language will be deleted and all “underline” language will be retained, subject to consideration of comments received.

The existing permit conditions are derived from previously issued District Authorities to Construct (A/C) or Permits to Operate (P/O). Permit conditions may also be imposed or revised as part of the annual review of the facility by the District pursuant to California Health and Safety Code (H&SC) § 42301(e), through a variance pursuant to H&SC § 42350 et seq., an order of abatement pursuant to H&SC § 42450 et seq., or as an administrative revision initiated by District staff. After issuance of the Title V permit, permit conditions will be revised using the procedures in Regulation 2, Rule 6, Major Facility Review.

Conditions that are obsolete or that have no regulatory basis have been deleted from the permit.

Conditions have also been deleted due to the following:

- The event has already occurred (i.e. initial or start-up source tests).

The regulatory basis is listed following each condition. The regulatory basis may be a rule or regulation. The District is also using the following terms for regulatory basis:

- BACT: This term is used for a condition imposed by the Air Pollution Control Officer (APCO) to ensure compliance with the Best Available Control Technology in Regulation 2-2-301.
- Cumulative Increase: This term is used for a condition imposed by the APCO, which limits a source's operation to the operation described in the permit application pursuant to BAAQMD Regulation 2-1-403.
- Offsets: This term is used for a condition imposed by the APCO to ensure compliance with the use of offsets for the permitting of a source or with the banking of emissions from a source pursuant to Regulation 2, Rules 2 and 4.
- PSD: This term is used for a condition imposed by the APCO to ensure compliance with a Prevention of Significant Deterioration permit issued pursuant to Regulation 2, Rule 2.
- Regulation 2, Rule 5: This term is used for a condition imposed by the APCO to ensure compliance with limits based on Regulation 2, Rule 5 New Source Review of Toxic Air Contaminants.

Changes to permit:

All changes to existing permit conditions are clearly shown in "strike-out/underline" format in the proposed permit. When the permit is issued, all 'strike-out' language will be deleted and all "underline" language will be retained, subject to consideration of comments received.

- The definition of "Annual" will be added as requested by the applicant. This change provides a clear definition of annual as within a calendar year.
- The definition of "Clock Hour" will be changed to "Hour" because the existing permit conditions refers to Hour but not Clock Hour and this is consistent with other power plants' permit conditions in the Air District.
- Upon the facility's request, the first sentence in part 23 of Permit Condition 20057 has been changed for clarification and to be consistent with similar conditions for other Calpine power plants, such as Wolfskill Energy Center (B4511) and Gilroy Energy Center (B4512). The actual requirements remain the same.
- BAAQMD Permit Condition 22850 will be changed to 22851. The diesel fire pump was permitted in 2003 and was subject to Permit Condition 22850. Since CARB's ATCM for Stationary Compression Ignition Engines became effective in 2005, the diesel fire pump is subject to Permit Condition 22851 which is the standard permit condition for direct-drive diesel fire pump engines based on the requirements in the ATCM.

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.

The District has reviewed all monitoring and has determined the existing 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.

These factors are the same as those historically applied by the District in developing monitoring for applicable requirements. It follows that, although Title V calls for a re-examination of all monitoring, there is a presumption that these factors have been appropriately balanced and incorporated in the District's prior rule development and/or permit issuance. It is possible that, where a rule or permit requirement has historically had no monitoring associated with it, no monitoring may still be appropriate in the Title V permit if, for instance, there is little likelihood of a violation. Compliance behavior and associated costs of compliance are determined in part by the frequency and nature of associated monitoring requirements. As a result, the District will generally revise the nature or frequency of monitoring only when it can support a conclusion that existing monitoring is inadequate.

PM Discussion:

BAAQMD Regulation 6, Rule 1 "Particulate Matter General Requirements"

Visible Emissions

BAAQMD Regulation 6-1-301 limits visible emissions to no darker than 1.0 on the Ringelmann Chart (except for periods or aggregate periods less than 3 minutes in any hour). Visible emissions are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-1 burns 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 assure compliance with this limit for this source.

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-2 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.

S-3 Cooling Tower is not expected to emit visible particulate emissions. Therefore, monitoring is not required to ensure compliance with Regulation 6-1-301 for this source

Particulate Weight Limitation Discussion:

BAAQMD Regulation 6-1-310 limits filterable particulate (FP) emissions from any source to 0.15 grains per dry standard cubic foot (gr/dscf) of exhaust volume. Section 310.3 limits filterable particulate emissions from "heat transfer operations" to 0.15 gr/dscf @ 6% O₂. These are the "grain loading" standards.

Exceedances of the grain loading standards are normally not associated with combustion of gaseous fuels, such as natural gas. Source S-1 burn natural gas exclusively, therefore, per the 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", no monitoring is required to assure compliance with this limit for this source.

The grain loading from the S-3 Cooling Tower is expected to be much less than 0.15 grains per dscf. Therefore, monitoring is not required to ensure compliance with this limit for this source.

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-2 Fire Pump Diesel Engine is subject to such monitoring.

Cooling Tower Source S-3:

In addition to the limitation of Section 6-1-310, a person shall not discharge into the atmosphere from any general operation particulate matter from any emission point, at a rate in excess of that specified in Table1 of Regulation 6-1-311 for the process weight rate indicated.

The allowable rate of emissions for cooling tower with 4160 gals/min cooling capacity based on process weight rate should be above 40 lbs/hr. The following calculation shows that the emission at this cooling tower is 4.74 lb/hr. Therefore, monitoring is not required.

Gallon of water = 8.34 lbs

Cooling tower capacity = 4,160 gals/min

Particulate Emission Factors for wet cooling towers = 0.019 lb/10³ gal (AP-42 chapter 13.4 Wet Cooling Towers Table 13.4-1).

Process Weight Rate = (4160 gals/min) (8.34 lbs/gal)
= (34694.4 lbs/min) (60 min/hr)
= 2081664 lbs/hr

Emissions = (4,160 gal/min) * (0.019 lb/10³ gal)
= (0.07904 lb/min) (60 min/hr)
= 4.74 lb/hr

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.

The standby emergency reciprocating diesel engine uses low-sulfur fuels. Also, this engine is used infrequently and therefore, it is not a large source of SO₂ emissions. The S-2 Fire Pump Diesel Engine will utilize "California" diesel fuel. Therefore, monitoring is not required.

Changes to permit:

Table VII-A will be changed as follows:

- The phrase "every 8,000 hrs or every 3 years, whichever comes first" will be moved from Column titled "Monitoring Type" to the Column titled "Monitoring Frequency" as it specifies the monitoring frequency not monitoring type.
- The description of monitoring type for NH₃ in BAAQMD condition #20057, Part 18.2 will be corrected to be consistent with the content of this part of the condition.
- The monitoring frequency for heat input limit in BAAQMD condition #20057, Part 22 will be corrected to be consistent with the content of this part of the condition.
- The description of monitoring type for NH₃ injection rate in BAAQMD condition #20057, Parts 24k and 18.2 will be corrected to be consistent with the content of this part of the condition.

Table VII-B will be changed as follows:

- The Citation of Limit for Opacity will be corrected to SIP Regulation 6-303 and BAAQMD Regulation 6-1-303.
- The Citation of Limit for hours of operation will be corrected to BAAQMD 9-8-330.3 and BAAQMD Condition 22851.
- The Limit for hours of operation will be corrected to "Reliability-related activities not to exceed 34 hours in any consecutive 12-month period" to be consistent with the permit condition.

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.

Changes to permit:

Table VII-B will be changed as follows:

- Add the title "40 CFR 60" to NSPS Subpart GG.

IX. TITLE IV ACID RAIN PERMIT

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 Goose Haven Energy Center is allowed to burn 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 Goose Haven Energy Center is contained in section IX of the Title V permit. The Acid Rain Permit Application is attached to the permit in Section XIII.

Changes to permit:

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

X. Permit Shield:

The District rules allow two types of permit shields. The permit shield types are defined as follows: (1) A provision in a major facility review permit explaining that specific federally enforceable regulations and standards do not apply to a source or group of sources, or (2) A provision in a major facility review permit explaining that specific federally enforceable applicable requirements for monitoring, recordkeeping and/or reporting are subsumed because other applicable requirements for monitoring, recordkeeping, and reporting in the permit will assure compliance with all emission limits.

The second type of permit shield is allowed by EPA's White Paper 2 for Improved Implementation of the Part 70 Operating Permits Program. The District uses the second type of permit shield for all streamlining of monitoring, recordkeeping, and reporting requirements in Title V permits. The District's program does not allow other types of streamlining in Title V permits.

This facility has the first type of permit shield.

No changes to permit

XI. Revision History

This section contains the details of issuance and revisions for each permit. Title-V permit renewal Application 27946 will be added to this Section.

XII. Glossary

This section contains terms that may be unfamiliar to the general public or EPA.

No changes to permit

D. Alternate Operating Scenarios:

No alternate operating scenarios have been requested for this facility.

E. Compliance Status

The responsible official for Goose Haven Energy Center, LLC. submitted a signed Certification Statement form dated February 1, 2018. 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 29, 2016. This application served as the basis for the District's development of the proposed Title V permit. There are no significant differences between this renewal application and the proposed renewal permit.

APPENDIX A

GLOSSARY

ACT

Federal Clean Air Act

APCO

Air Pollution Control Officer

ARB

Air Resources Board

ATCM

Airborne Toxic Control Measure

BAAQMD

Bay Area Air Quality Management District

BACT

Best Available Control Technology

Basis

The underlying authority which allows the District to impose requirements.

CAA

The federal Clean Air Act

CAAQS

California Ambient Air Quality Standards

CAPCOA

California Air Pollution Control Officers Association

CEM

Continuous Emission Monitor

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 pursuant to BAAQMD Rule 2-1-403, Permit Conditions (as amended by the District Board on 7/17/91) and SIP Rule 2-1-403, Permit Conditions (as approved by EPA on 6/23/95). Cumulative increase is used to determine whether threshold-based requirements are triggered.

District

The Bay Area Air Quality Management District

dscf

Dry Standard Cubic Feet

EPA

The federal Environmental Protection Agency.

Excluded

Not subject to any District regulations.

FDOC

Final Determination of Compliance (FDOC), prepared pursuant to District Regulation 2, Rule 3, Power Plants.

Federally Enforceable, FE

All limitations and conditions which are enforceable by the Administrator of the EPA 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 (MACT), and Part 72 (Permits Regulation, Acid Rain), 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.

HRSR

Heat Recovery Steam Generator

Major Facility

A facility with potential emissions of: (1) at least 100 tons per year of regulated air pollutants, (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 Federal Clean Air 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 Parts 61 and 63.

NMHC

Non-methane Hydrocarbons (Same as NMOC)

NMOC

Non-methane Organic Compounds (Same as NMHC)

NO_x

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 Federal Clean Air Act, and implemented by 40 CFR Part 60 and District Regulation 10.

NSR

New Source Review. A federal program for pre-construction review and permitting of new and modified sources of pollutants for which criteria have been established in accordance with Section 108 of the Federal Clean Air Act. Mandated by Title I of the Federal Clean Air Act and implemented by 40 CFR Parts 51 and 52 and 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 for the emissions from a new or modified source. Applies to emissions of POC, NO_x, 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

Particulate Matter

PM₁₀

Particulate matter with aerodynamic equivalent diameter of less than or equal to 10 microns

PM_{2.5}

Particulate matter with aerodynamic equivalent diameter of less than or equal to 2.5 microns

PSD

Prevention of Significant Deterioration. A federal program for permitting new and modified sources of those 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.

PUC

Public Utilities Commission (California)

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

THC

Total Hydrocarbons (NMHC + Methane)

Title V

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

TOC

Total Organic Compounds (NMOC + Methane, Same as THC)

TPH

Total Petroleum Hydrocarbons

TRMP

Toxic Risk Management Plan

TSP

Total Suspended Particulate

VOC

Volatile Organic Compounds

Units of Measure:

bhp	=	brake-horsepower
btu	=	British Thermal Unit
cfm	=	cubic feet per minute
g	=	grams
gal	=	gallon
gpm	=	gallons per minute
hp	=	horsepower
hr	=	hour
lb	=	pound
in	=	inches
max	=	maximum
m ²	=	square meter
min	=	minute
mm	=	million
MMbtu	=	million btu
MMcf	=	million cubic feet
ppmv	=	parts per million, by volume
ppmw	=	parts per million, by weight
psia	=	pounds per square inch, absolute

Permit Evaluation and Statement of Basis: Site #B4416, Goose Haven Energy Center, LLC,
3853 Goose Haven Road, Suisun City, CA 94585

psig = pounds per square inch, gauge
scfm = standard cubic feet per minute
yr = year