

GUAM EPA
TITLE V FEDERAL OPERATING PERMIT
STATEMENT OF BASIS

Guam Power Authority
Manengon Diesel Engine Power Generating Facility

Permit No. FO-005

Facility ID:	FO-005
Facility Name:	Guam Power Authority - Manengon
Mailing Address:	P.O. Box 2977 Hagatna, Guam 96932
Responsible Official:	John M. Benavente
Title:	General Manager
Phone Number:	(671) 649-6818
Contact Name:	Frank Blaz
Title:	Manager of Generation
Phone Number:	(671) 415-1512
Person Responsible for Recordkeeping:	Sylvia Tumaneng
Title:	Engineer Supervisor
Phone Number:	(671) 647-9217

I. Purpose

Guam Power Authority operates in the Manengon Diesel Engine Power Generating Facility to generate electricity for the Island of Guam under the SIC 4911.

The purpose of this engineering evaluation is to identify all applicable requirements, determine if the facility will comply with those applicable requirements, and provide the legal and factual basis for proposed permit conditions.

II. Facility Location

Manengon Diesel Engine Power Generating Facility is located at Manengon Hills in Yona, Guam.

III. Description of Facility Operations

The facility generates power by diesel engines. The operation of this facility is to help alleviate load shedding on the island during outages of other power generating facilities. Activities that have the potential to cause significant emissions of air pollutants are the two 5.3 megawatt (MW) diesel engine generators and three 50,000 gallon diesel fuel oil storage tanks. Other insignificant emission sources include a 3,000 gallon diesel fuel oil storage tank, a 75 kilowatt (kW) black start diesel generator, and a 66 gallon black start diesel generator service tank.

IV. Equipment Listing and Permitting History

IV.A. Significant Emission Units

A listing of all permitted equipment at the facility is presented in the table below. This table also includes the Guam EPA (GEPA) permit number for those emission units with existing permits. The conditions from these permits have been incorporated into the Title V permit, which supercedes the existing GEPA permits.

Emission Unit Number	Unit Description	Associated Control Equipment	Guam EPA Permit Number
DEG-1	Nominal 5.3 MW medium speed diesel engine generator	N/A	GPA-685
DEG-2	Nominal 5.3 MW medium speed diesel engine generator	N/A	GPA-685
FOST-1	50,000 gallon diesel fuel oil storage tank	N/A	N/A
FOST-2	50,000 gallon diesel fuel oil storage tank	N/A	N/A
FOST-3	50,000 gallon diesel fuel oil storage tank	N/A	N/A

IV.B. Insignificant Emission Units

The following list of insignificant activities provided by the applicant in the permit application for this facility has been approved by GEPA. This equipment is not exempt from facility-wide requirements.

Unit Number	Description of Activities or Emission Units
FSDT-1	3,000 gallon diesel fuel storage day tank
N/A	75 kW black start diesel generator
N/A	66 gallon black start diesel generator service tank

V. Potential to Emit

The annual potential to emit for each significant emission unit is presented below.

Emission Unit Number	Potential to Emit (tons/year)						
	NO _x	VOC	SO ₂	PM ₁₀	CO	Lead	HAP
DEG-1 and DEG-2	170.03	8.05	54.21	5.13	76.03	--	0.14
FOST-1	--	1.4 x 10 ⁻²	--	--	--	--	--
FOST-2	--	1.4 x 10 ⁻²	--	--	--	--	--
FOST-3	--	1.4 x 10 ⁻²	--	--	--	--	--
TOTAL	170.03	8.09	54.21	5.13	76.03	--	0.14

VI. Guam Requirements

The following table lists the applicable requirements from the Guam Air Pollution Control Standards and Regulations (GAPCSR) and from the approved Guam State Implementation Plan (SIP). For rules where an applicability determination was required, a discussion is included below.

Section 1103.2	Guam Ambient Air Quality Standards
Section 1103.3	Visible Emissions
Section 1103.4	Fugitive Dust
Section 1103.10	Sulfur Oxides from Fuel Combustion
Section 1103.11	Open Burning
Section 1103.12	Control of Odors in Ambient Air
Section 1103.13	Asbestos
Section 1104	Permit Program Regulations
SIP, Section 7.5	Particulate Emissions from Fuel Combustion

VI.A. Particulate Matter (PM) Limits for Fuel Burning Equipment

Section 7.5 of the GEPA SIP requires that for fuel burning equipment between 1 MMBtu/hr and 1,000 MMBtu/hr in size, the allowable particulate emissions shall be calculated using the following equation:

$$Y = 1.02 X^{-0.231}$$

Where:

Y = Allowable particulate emission rate (lb/MMBtu)

X = Operating rate (MMBtu/hr)

Assuming an engine efficiency of 40%, and using a conversion factor of 3.41 MMBtu/hr per MW, this limit would be required for engines between 0.12 MW and 117 MW. Therefore, the two diesel engine generators (Units DEG-1 and DEG-2) are subject to this limit. The allowable PM emission rate for each unit must be determined by the permittee depending on the operating load for each unit.

VII. Federal Requirements

The following table lists the applicable requirements from United States Environmental Protection Agency (USEPA) regulations. For rules where an applicability determination was required, a discussion is included below.

40 CFR Part 61, Subpart M	Asbestos
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VII.A. New Source Performance Standards (NSPS)

VII.A.1 Tanks

The applicability of the New Source Performance Standard for Volatile Organic Liquid Storage Vessels (40 CFR Part 60, Subpart Kb) was reviewed, and it was determined that this regulation does not apply to the tanks at this facility. NSPS Subpart Kb generally applies to liquid storage tanks with a capacity greater than or equal to 75 cubic meters (m^3) (19,815 gallons) that store volatile organic liquids, and for which construction, reconstruction, or modification was started after July 23, 1984. Three tanks at this facility (Units FOST-1, FOST-2, and FOST-3) meet the size requirement and the applicant did not provide construction dates for these tanks. However, 40 CFR 110b(b) states that tanks are exempt from the NSPS if they satisfy either of the following criteria:

1. They have a capacity greater than or equal to $151 m^3$ and store a liquid with a maximum true vapor pressure less than 3.5 kilopascals (kPa); or
2. They have a capacity greater than or equal to $75 m^3$ but less than $151 m^3$ and store a liquid with a maximum true vapor pressure less than 15.0 kPa.

The facility stores only diesel fuel, which is listed in USEPA AP-42 Table 7.1-2 as having a true vapor pressure of 0.0031 pounds per square inch (psi) at 40 degrees Fahrenheit (deg F) and 0.022 psi at 100 deg F. Converting units, this translates to a true vapor pressure range from 0.021 kPa to 0.15 kPa. These values are well below the thresholds in the criteria listed above, so Units FOST-1, FOST-2, and FOST-3 are not subject to NSPS Subpart Kb.

VII.B. Compliance Assurance Monitoring (CAM)

Compliance Assurance Monitoring (CAM) is intended to provide a reasonable assurance of compliance with applicable requirements for large emission units that rely on pollution control device equipment to achieve compliance. The CAM regulations can be found in 40 CFR Part 64. CAM applicability is determined on a pollutant-specific basis. According to these regulations, an emission unit that meets all of the following criteria is subject to CAM:

1. The unit is located at major source required to obtain Part 70 or 71 permit;
2. The unit is subject to an emission limitation for the applicable pollutant;
3. The unit uses a control device (as defined by 40 CFR 64.1) to achieve compliance;
4. The potential precontrolled emissions of an applicable pollutant from the unit are equal to or greater than the major source threshold for that pollutant; and
5. The unit is not otherwise exempted by the CAM regulations.

Regarding the first requirement, the CAM rule (in 40 CFR 64.1) states that “*Part 70 or 71 permit* shall have the same meaning as provided under [40 CFR 70 or 71] provided that it shall also refer to a permit issued, renewed, amended, revised, or modified under any federal permit program promulgated under Title V [of the Clean Air] Act[.]”

After receiving a special exemption from USEPA, GEPA has adopted an “alternate operating permit program” according to the requirements of 40 CFR 69.13. As a result, so it was not immediately clear whether this program satisfied the definition in the CAM rule. USEPA Region 9 was consulted on this matter, and made a determination that GEPA’s alternate operating permit program was promulgated under Title V of the Clean Air Act, so facilities located on Guam are potentially subject to CAM.

The diesel engines (Units DEG-1 and DEG-2) are the only significant sources of emissions at this facility. Emissions from these units are not controlled.

Conclusion: None of the emission units at the facility are subject to CAM.

VIII. Periodic Monitoring

Requirement	Requirement Condition #	Existing Monitoring/ Recordkeeping	Monitoring/ Recordkeeping Added to Permit	Monitoring/ Recordkeeping Condition #
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Requirement	Requirement Condition #	Existing Monitoring/ Recordkeeping	Monitoring/ Recordkeeping Added to Permit	Monitoring/ Recordkeeping Condition #
PM emission limit for diesel engine generators	II.B.1.a	Annual source test	Weekly opacity monitoring	II.D.4 and II.D.8
Opacity limits for diesel engine generators	II.B.1.b	None	Weekly opacity monitoring	II.D.8
PM limits for diesel engine generators	II.B.1.c	Annual source test	N/A	I.D.4
SO ₂ limits for diesel engine generators	II.B.1.c	Annual source test	N/A	II.D.4
NO _x limits for diesel engine generators	II.B.1.c	Annual source test	N/A	II.D.4
CO limits for diesel engine generators	II.B.1.c	Annual source test	N/A	II.D.4
UHC limits for diesel engine generators	II.B.1.c	Annual source test	N/A	II.D.4
Preventative maintenance	II.C.1	None	Maintenance recordkeeping	II.E.3
Adequate control measures preventing air quality exceedences	II.C.2	None	N/A	N/A
Limitation on amount of diesel fuel burned by diesel engine generators	II.C.3	None	Fuel use recordkeeping	II.E.2
Install non-resetting fuel meter	II.C.4	None	Fuel use recordkeeping	II.E.2

Requirement	Requirement Condition #	Existing Monitoring/ Recordkeeping	Monitoring/ Recordkeeping Added to Permit	Monitoring/ Recordkeeping Condition #
Fuel sulfur content limit for diesel engine generators	II.C.5	Fuel sulfur content analysis	N/A	II.D.7
Fuel injection timing retard for diesel engine generator NO _x control	II.C.6	Annual source test	N/a	II.D.4
Fugitive dust restrictions	II.C.7 and II.C.8	None	Weekly opacity monitoring	II.D.8

IX. Streamlining Applicable Requirements

Consistent with USEPA policy, overlapping or redundant requirements may be streamlined when these are incorporated in a Title V permit. In this process, the most stringent of the overlapping requirements is determined and included in the Title V permit (while the source of authority for this condition lists all related requirements, including those that have been streamlined). Streamlining allows the permit conditions to be listed in a clear and concise manner while ensuring compliance with all applicable requirements. The following section contains a description of streamlining that has been performed in this permit.

Condition II.C.5 - Fuel Oil Sulfur Content Limitation for Diesel Engine Generators

The existing GEPA permit for DEG-1 and DEG-2 states that the maximum sulfur content by weight of the No. 2 fuel oil used in these units shall not exceed 0.6% sulfur. GAPCSR Section 1103.10 states that no person shall burn fossil fuel containing in excess of 2.0% sulfur by weight. Since the GEPA permit is more stringent, the 0.6% sulfur limit was included in the permit.