

## PROPOSED

### COVERED SOURCE PERMIT RENEWAL NO. 0110-01-C Application No. 0110-04

**Facility:** US Navy  
Pacific Missile Range Facility (PMRF), Barking Sands  
Located at: Barking Sands, Kauai  
UTM: 419045 m East, 2436085 m North

**Responsible Official:** Captain Taylor W. Skadron  
Chief of Staff  
Navy Region Hawaii  
808-473-2201

**POC:** Darren Chun  
Environmental Engineer  
808-473-4137, Extension 227

**Mailing Address:** Pacific Missile Range Facility, Barking Sands  
Navy Region Hawaii Regional Environmental Department  
517 Russell Ave., Suite 110  
Pearl Harbor, HI 96860-4884

**SICC** 9711(national security)

#### **Background**

The application is for the renewal of covered source permit (CSP) No. 0110-01-C. The permit covers five (5) diesel engine generators (DEG) operated by the U.S. Navy located at the Pacific Missile Range Facility (PMRF) on the island of Kauai.

The DEG are used to supply power for range operations. Three DEG are rated at 320 kW, and the remaining two at 600 kW each. The five units are normally cycled, so that two or three units are in service at any time. However, when electrical demand is high, three or more of these DEG may be operated simultaneously. During worst case emergency conditions, all five DEG can be operated simultaneously.

The DEG use diesel fuel no.2. The maximum fuel consumption rates are 23.2 gallons per hour (gal/hr) for the 320 kW DEG and 43.5 gal/hr for the 600 kW DEG. Fuel is supplied to the DEG via a dedicated storage tank. Non-resetting fuel meters are used on each of the five (5) DEG for monitoring and permanent recording of the fuel usage.

This permit review is based on application no. 0110-04 dated 7/20/2007. There are no proposed changes to the equipment or operations since the last amendment. The issuance of this permit will supersede CSP No. 0110-01-C issued on August 6, 2003. A listing of the permitted equipment is as follows:

## PROPOSED

Unit/Stack No.	Equipment Description
1,2,3	320 kW Caterpillar DEGs (model no. 3412, serial nos. 81Z04661, 81Z04666, and 81Z04660, respectively, max. 23.2 gal/hr fuel oil no. 2)
7,8	600 kW Caterpillar DEGs (model no. 3508B, serial nos. 2HW00119 and 2HW00120, max. 43.5 gal/hr fuel oil no. 2)

### Air Pollution Controls

The five DEGs do not have any air pollution control devices. Long term (annual) emissions are controlled by rolling 12-month fuel use limits.

### Operational Limitations

The existing CSP limits DEG fuel consumption to 208,000 gallons of fuel (based on a rolling 12-month basis) at a maximum fuel consumption rate of 23.2 gal/hr for the 320 kW DEG and 217,800 gallons of fuel (based on a 12-month basis) at 43.5 gal/hr for the 600 kW DEG. These fuel limitations are proposed to meet the annual NO<sub>x</sub> ambient air quality standards. Fuel consumption will be recorded annually for each DEG as required to calculate the annual emissions.

### Applicable Requirements

#### Hawaii Administrative Rules (HAR)

Chapter 11-59 Ambient Air Quality Standards

Chapter 11-60.1 Air Pollution Control

Subchapter 1 General Requirements

Subchapter 2 General Prohibitions

11-60.1-31 Applicability

11-60.1-32 Visible Emissions

11-60.1-38 Sulfur Oxides from Fuel Combustion

Subchapter 5 Covered Sources

Subchapter 6 Fees for Covered Sources, Noncovered sources, and Agricultural Burning

11-60.1-111 Definitions

11-60.1-112 General Fee Provisions for Covered Sources

11-60.1-113 Application Fees for Covered Sources

11-60.1-114 Annual Fees for Covered Sources

11-60.1-116 Application Fee Credit for Covered Sources

Subchapter 10, Field Citations

### **NONAPPLICABLE REQUIREMENTS:**

#### NEW SOURCE PERFORMANCE STANDARDS:

*40 CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines* is not an applicable standard because the DEG were manufactured prior to April 1, 2006 and have not been modified or reconstructed after July 11, 2005.

## PROPOSED

### NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS):

40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines is not an applicable standard because the facility is not a major source of hazardous air pollutants (HAPs)

### MAXIMUM ACHIEVABLE CONTROL STANDARDS (MACT):

MACT does not apply because the facility is not a major source or an area source of hazardous air pollutants subject to standards under 40 CFR Part 63.

### PREVENTION OF SIGNIFICANT DETERIORATION (PSD):

PSD requirements do not apply to the facility because the equipment (diesel engine generator) is not one of the twenty-six source categories with a 100 ton per year major source threshold for criteria pollutants, and annual emissions do not exceed the 250 ton per year criteria pollutant threshold for all other source categories. In addition, HAP emissions are less than 25 tpy total and 10 tpy per individual HAP.

### ANNUAL EMISSIONS REPORTING:

Facility emissions are compared to emission reporting thresholds in the following table:

**Annual Emissions Reporting Thresholds (TPY)**

Pollutant	(3)-320 kW DEG	(2)-600 kW DEG	Total	In-House Reporting	CERR Reporting Levels <sup>1</sup>	
					Type A	Type B
CO	13.89	12.96	26.85	≥ 250	≥ 2,500	≥ 100
NO <sub>x</sub>	64.46	48.79	113.25	≥ 25	≥ 2,500	≥ 100
PM <sub>10</sub>	4.53	0.87	5.40	≥ 25	≥ 250	≥ 100
SO <sub>x</sub>	4.24	7.70	11.94	≥ 25	≥ 2,500	≥ 100
VOC	5.12	1.37	6.49	≥ 25	≥ 250	≥ 100

<sup>1</sup> Type A requires annual reporting. Type B requires triennial reporting

Potential NO<sub>x</sub> emissions exceed 25 tons per year, so the facility is subject to in-house emissions reporting. In addition, the facility is potentially a CERR type B facility due to potential NO<sub>x</sub> emissions of greater than 100 tons per year.

### SYNTHETIC MINOR APPLICABILITY:

Emissions from the facility will exceed major stationary source levels if operated continuously. Therefore the facility is a synthetic minor source.

### COMPLIANCE ASSURANCE MONITORING (CAM) APPLICABILITY:

Compliance Assurance Monitoring (CAM) does not apply since the diesel engine generators are not subject to a Federal standard and there is no add-on control device used to achieve compliance.

### **BACT Requirements**

A best available control technology (BACT) analysis is not required since there is no change in equipment or operations requested for this renewal.

## PROPOSED

### Insignificant Activities/Exemptions

Insignificant activities are unchanged for the permit renewal. A listing of the Insignificant activities based on size, emission level, or production rate, are as follows:

Source Description	Quantity	Capacity	Reference
Emergency Generators	10	30-300 kW	11-60.1-82(f)(5)
UST <sup>1</sup> – MOGAS	4	5,000 gallon	11-60.1-82(f)(1)
UST <sup>1</sup> – Diesel	3	1,000-30,000 gallon	11-60.1-82(f)(1)
UST <sup>1</sup> – Jet A	9	50,000 gallon	11-60.1-82(f)(7)
AST <sup>2</sup> – Jet A	1	1,100 gallon	11-60.1-82(f)(1)
AST <sup>2</sup> – Diesel	14	100-5,000 gallon	11-60.1-82(f)(1)
Paint Spray Booth	1		11-60.1-82(f)(6) <sup>3</sup>
HCN Neutralization System	1		11-60.1-82(f)(7) <sup>3</sup>
Hot Water Heater/Boiler	5	125,000-324,000 BTU/hr	11-60.1-82(f)(3)
Abrasive Blast Booth	1		11-60.1-82(f)(7) <sup>3</sup>

<sup>1</sup> Underground storage tank

<sup>2</sup> Above ground storage tank

<sup>3</sup> Emissions calculated to be less than 2 tpy

### Alternate Operating Scenarios

The permittee requested an alternate operating scenario to temporarily replace any DEG with a similar or lower capacity DEG when the existing DEG needs to be replaced immediately. The replacement shall not take place until a written notification is submitted to and approved by the Department.

### Project Emissions

There is no change in potential emissions from the previous permit amendment. The emission rates used to calculate potential air emissions for the DEGs remain unchanged from the previous permit review. The following US EPA AP-42 Emission Factors were used:

AP-42 Section 3.3, 10/96 for the 320 kW DEG; and

AP-42 Section 3.4, 10/96 for the 600 kW DEG

The fuel limitations for the three (3) 320 kW DEG and two (2) 600 kW DEG were proposed to remain at a combined 208,000 gallons per year and 217,800 gallons per year, respectively. The potential emission rates listed in **TABLE 2** are from the DOH's calculations as shown in **Enclosure 1** and is in agreement with the calculations shown in the permit renewal application. The US Navy PMRF is a major covered source based on potential NO<sub>x</sub> emissions greater than 100 tons per year.

**PROPOSED**

**US NAVY PMRF - POTENTIAL EMISSIONS (TPY)**

<b>Pollutant Type</b>	<b>Three 320 kW DEG Emissions</b>	<b>Two 600 kW DEG Emissions</b>	<b>Total Potential Emissions</b>
<b>Criteria Pollutants</b>			
NO <sub>x</sub>	64.46	48.79	113.25
SO <sub>2</sub>	4.24	7.70	11.94
PM	4.53	1.06	5.59
PM <sub>10</sub>	4.53	0.87	5.4
CO	13.89	12.96	26.85
VOC	5.12	1.37	6.49
<b>Hazardous Air Pollutants</b>			
Acetaldehyde	1.12e-02	3.84e-04	1.16e-02
Acrolein	1.35e-03	1.20e-04	1.47e-03
Benzene	1.36e-02	1.18e-02	2.54e-02
Formaldehyde	1.72e-02	1.20e-03	1.84e-02
Naphthalene	1.24e-03	1.98e-03	3.22e-03
Propylene	3.77e-02	4.25e-02	8.02e-02
Toluene	5.98e-03	4.28e-03	1.03e-02
Xylene	4.17e-03	2.94e-03	7.11e-03
PAH	2.46e-03	3.23e-03	5.69e-03
		<b>Total HAPs</b>	0.16

**Ambient Air Quality Assessment (AAQA):**

There is no change in potential air emissions from the previous ambient air quality analysis (AAQA) conducted by the US Navy for application no. 0110-02. Therefore, a new AAQA was not required for this permit review. Please refer to the previous permit review for details. The predicted ambient air quality impacts are shown in the following table:

# PROPOSED

## PREDICTED AMBIENT AIR QUALITY IMPACTS

AIR POLLUTANT	AVG TIME	IMPACT ( $\mu\text{g}/\text{m}^3$ )	BACKGROUND <sup>1</sup> ( $\mu\text{g}/\text{m}^3$ )	TOTAL IMPACT ( $\mu\text{g}/\text{m}^3$ )	AIR STANDARD ( $\mu\text{g}/\text{m}^3$ )	PERCENT STANDARD
SO <sub>2</sub>	3-Hour	561	n/a	561	1300	43%
	24-Hour	141	n/a	141	365	39%
	Annual <sup>4</sup>	13	n/a	13	80	16%
NO <sub>2</sub>	Annual <sup>4,5</sup>	65	n/a	65	70	93%
CO	1-Hour	1364	n/a	1364	10000	14%
	8-Hour	683	n/a	683	5000	14%
PM <sub>10</sub>	24-Hour	64	n/a	64	150	43%
	Annual <sup>4</sup>	7	n/a	7	50	14%
Pb <sup>3</sup>	Cal. Quarter	--	n/a	0	1.5	0%
H <sub>2</sub> S <sup>3</sup>	1-Hour	--	n/a	0	35	0%

### Note:

1. Background concentrations were only required for sources that significantly increase air pollutant emissions, pursuant to HAR 11-60.1-83(a)(12).
2. Pb and H<sub>2</sub>S emissions are not expected at this facility.
3. The Annual concentrations are based on fuel limitations of 208,000 gal/yr for the combined usage of the 320 kW DEGs and 217,800 gal/yr for the combined usage of the 600 kW DEGs.
4. NO<sub>2</sub> concentrations were calculated using the ozone limiting method (OLM) with a background ozone concentration of 34.6  $\mu\text{g}/\text{m}^3$ .

### Significant Permit Conditions:

1. The combined maximum fuel consumption of the three (3) 320 kW DEGs, unit nos. 1, 2 and 3, shall not exceed 208,000 gallons in any rolling twelve (12) month period.
2. The combined maximum fuel consumption of the two (2) 600 kW DEGs, unit nos. 7 and 8, shall not exceed 217,800 gallons in any rolling twelve (12) month period.

### Other Issues:

None

### Conclusion and Recommendation:

The applicant has demonstrated compliance with State/Federal requirements and used conservative assumptions. Conservatism has been used in the following ways:

- a. Hourly limitations were assumed at 100% capacity; and
- b. Worst-case scenarios assumed all five (5) DEGs operated simultaneously.

## **PROPOSED**

Therefore, the issuance of a renewal CSP 0110-01-C with the operational limitations stated above is recommended.

Kevin Kihara  
April 21, 2008