PROPOSED

Significant Modification to a Covered Source Permit
Review Summary

Application File No.: 0686-02

Permit No.: 0686-01-C

Applicant: Hawaiian Electric Company, Inc. (HECO)

Facility: Honolulu International Airport Dispatch Standby Generators
Rogers Blvd., Honolulu, Hawaii 96819
UTM Coordinates: Zone 4, 612,067 m E, 2,359,750 m N, (NAD-83)

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Application Date: November 3, 2011

Proposed Project:

SICC 4911 (Electrical Services)

HECO is applying to modify its existing Covered Source Permit No. 0686-01-C which consists of four (4) 2.5 MW diesel engine generators at the Honolulu International Airport. This is a joint project between the Department of Transportation Airports Division (DOT Airports) and HECO. DOT Airports will build and own the 10 MW Emergency Power Facility (four 2.5 MW units peak), feeding Honolulu Airport via HECO's system. HECO will operate the four generating units for utility system needs and will dispatch these units at the continuous rating of 8 MW total (i.e., 2 MW per unit). HECO and DOT are negotiating a Dispatchable Standby Generation (DSG) agreement, subject to PUC approval, to govern HECO's operation of the units and DOT's use of HECO's substation and electric lines. This project is critical to bolster the Airport's emergency power needs.

HECO requests authorization of the following modifications for Units 1, 2, 3, and 4:

- Addition of biodiesel as a primary fuel with a maximum sulfur content of 15 ppm. Authorization will allow firing of 100% biodiesel (B100) and blends of biodiesel and Ultra Low Sulfur Diesel (ULSD), and 100% ULSD.
- Stack height increase to 87.5 feet for Units 1, 2, 3, and 4;
- Combined annual fuel limit of 1,562,276 gallons per rolling 12-months;
- NO_x emission rate increase to 54.8 lb/hr from 48.10 lb/hr; and
- Incorporation of applicable notification and testing requirements as required in accordance with 40 CFR Part 60 Subpart IIII.

The proposed increase in stack height is to address the higher NO_x emission rate anticipated when firing biodiesel, the combined annual fuel limit, and the 1-hour NO_2 NAAQS which became effective in April 2010.

HECO requests to increase the NO_x emission rate up to the applicable 40 CFR Part 60 Subpart IIII NO_x emission standard for the following reasons:

- Caterpillar has not certified its Model 3516C-HD on biodiesel;
- Emissions data for biodiesel is not available for the Caterpillar model 3516C-HD; and
- Based on biofuel testing, it is anticipated that NO_x emissions will increase when firing biodiesel.

40 CFR Part 60 Subpart IIII contains tiered emission standards. Non-emergency diesel engines greater than 3,000 hp, with displacement less than 10-liters per cylinder, manufactured between January 1, 2007 and December 31, 2010, must meet the EPA Tier-1 emission standards. Engine manufacturers are required to certify their engines to meet these applicable NSPS Subpart IIII emission standards. Caterpillar has certified its Model 3516C-HD to meet the EPA Tier-2 emission standards on diesel fuel, but has not certified this engine on biodiesel.

Caterpillar has limited biodiesel emissions data for its engines. Currently, Caterpillar does not have B100 emissions data for the engines purchased for this project.

An application fee of $1000.00 was submitted and processed for this significant modification to a covered source permit.

Equipment Description:

1. Four (4) 2.5 MW diesel engine generators each consisting of a Caterpillar Model 3516C-HD TA diesel engine generator with ACERT Technology
   Maximum fuel consumption rate @ 2 MW load = 142 gal/hr
   Maximum fuel consumption rate @ 2.5 MW load = 172 gal/hr

Air Pollution Controls:

1. The diesel engine generators burn no. 2 diesel fuel with a maximum sulfur content of 0.0015% by weight (from 10/1/10) for controlling SO_2 emissions.

2. The diesel engine generators are equipped with Caterpillar's ACERT Technology to meet EPA's Tier 2 emission standards for NO_x, CO, HC, and PM. ACERT Technology reduces emissions at the point of combustion using air and fuel management and electronic controls.

Applicable Requirements:

Hawaii Administrative Rules (HAR)

Title 11, Chapter 59 Ambient Air Quality Standards
Title 11, Chapter 60.1 Air Pollution Control
- Subchapter 1 General Requirements
- Subchapter 2 General Prohibitions
  - HAR 11-60.1-31 Applicability
  - HAR 11-60.1-32 Visible Emissions
  - HAR 11-60.1-38 Sulfur Oxides from Fuel Combustion
- Subchapter 5 Covered Sources
- Subchapter 6 Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
  - HAR 11-60.1-111 Definitions
  - HAR 11-60.1-112 General Fee Provisions for Covered Sources
  - HAR 11-60.1-113 Application Fees for Covered Sources
  - HAR 11-60.1-114 Annual Fees for Covered Sources
- Subchapter 8 Standards of Performance for Stationary Sources
- Subchapter 9 Hazardous Air Pollution Sources

Federal Requirements

40 CFR Part 60 - Standards of Performance for New Stationary Sources (NSPS)

40 CFR Part 60, Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. NSPS Subpart IIII applies to diesel engines manufactured after April 1, 2006.

40 CFR Part 63 - National Emission Standards for Hazardous Air Pollutants for Source Categories (Maximum Achievable Control Technologies (MACT) Standards)

40 CFR Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines. (RICE NESHAP). This MACT standard applies to stationary reciprocating internal combustion engines located at major and area sources of HAPs. New stationary RICE located at an area source must meet the requirements of this part by meeting the requirements of 40 CFR Part 60, Subpart IIII for compression ignition (i.e., diesel) engines. No further requirements apply for such engines under this part.

Non-applicable Requirements:

Hawaii Administrative Rules (HAR)

Title 11, Chapter 60.1 Air Pollution Control
- Subchapter 7 Prevention of Significant Deterioration

Federal Requirements

40 CFR Part 61 - National Emission Standards for Hazardous Air Pollutants (NESHAP)

Prevention of Significant Deterioration (PSD):

This source is not a major stationary source nor are there modifications proposed that by itself constitute a major stationary source that is subject to PSD review. Therefore, PSD is not applicable.

Best Available Control Technology (BACT):

A Best Available Control Technology (BACT) analysis is required for new covered sources and significant modifications to covered sources that have the potential to emit or a net emissions increase above significant levels as defined in HAR §11-60.1. There were no project emission increases above the significant level for this modification. See the table below. Thus, a BACT analysis is not required.

Pollutant	Alternate Operating Scenario Emission Rate (lb/hr)	Alternate Operating Scenario Emission Rate (tpy)	Proposed Modification Emission Rate (lb/hr)	Proposed Modification Emission Rate (tpy)	Project Emissions Increase (tpy)	Significant Level (tpy)	Significant Emissions Increase?
SO_2	1.21	6.26	3.64E-02	0.17	-6.09	40	No
NO_x	48.11	249.04	54.82	249.04	0	40	No
CO	5.86	30.33	5.86	26.61	-3.72	100	No
VOC	1.17	6.06	1.17	5.31	-0.75	40	No
PM/PM_{10}	0.40	2.07	0.40	1.82	-0.25	25/15	No
Total HAPs	6.22E-02	0.32	6.22E-02	0.28	-0.04	NA	NA

Notes:
1. Alternate Operating Scenario Emission Rates are based on the combined annual fuel limit of 1,781,000 gallons (10,355 unit-hours at peak load) specified in CSP No. 0686-01-C, Attachment II, Special Condition No. C.4.a.iii.
2. Proposed Modification Emission Rates are based on the proposed combined annual fuel limit of 1,562,276 gallons (9,083 unit-hours at peak load).

Consolidated Emissions Reporting Rule (CERR):

40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on the emissions of criteria air pollutants from Type B point sources (as defined in 40 CFR Part 51, Subpart A), that emit at the CER triggering levels as show in the table below.

Pollutant	Type B CER Triggering Levels [1] (tpy)	Pollutant	In-house Total Facility Triggering Levels [2] (tpy)	Total Facility Emissions [2] (tpy)
NO_x	≥ 100	NO_x	≥ 25	249.04
SO_x	≥ 100	SO_X	≥ 25	0.17
CO	≥ 1000	CO	≥ 250	26.61
$PM_{10}/PM_{2.5}$	≥ 100/100	PM/PM_{10}	≥ 25/25	$PM/PM_{10}/PM_{2.5}$ = 1.82
VOC	≥ 100	VOC	≥ 25	5.31
		HAPS	≥ 5	0.28

[1] Based on actual emissions
[2] Based on potential emissions

This facility emits at the CER triggering level for NO_x. Therefore, CER requirements are applicable.

The Clean Air Branch also requests annual emissions reporting for all covered sources and from those facilities that have facility-wide emissions of a single air pollutant exceeding in-house triggering levels. Annual emissions reporting is required for this facility for in-house recordkeeping purposes because it is a covered source and facility-wide emissions of NO_x exceed 25 tons per year.

Compliance Assurance Monitoring (CAM):

40 CFR Part 64

Applicability of the CAM Rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

- Be located at a major source per Title V of the Clean Air Act Amendments of 1990;
- Be subject to federally enforceable applicable requirements;
- Have pre-control device potential emissions that exceed applicable major source thresholds;
- Be fitted with an “active” air pollution control device; and
- Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant.

CAM is not applicable since this facility does not have equipment with an “active” air pollution control device.

Synthetic Minor Source:

This facility is not a synthetic minor source, it is a major source.

Insignificant Activities:

1. Three (3) diesel storage tanks < 40,000 gallons
2. Plant maintenance and upkeep activities

Alternate Operating Scenarios:

The following alternate operating scenarios are proposed:

1. The first alternate operating scenario is the use of a replacement unit in the event of a failure or major overhaul of an installed unit. In the event that the projected down-time of the installed unit increases the likelihood of an interruption in electrical service, the installed unit would be replaced with an equivalent unit. Emissions from the replacement unit shall be equal or less than the original unit’s emissions.

2. The second alternate operating scenario is the ability to burn an alternate fuel. Should cheaper fuel become available or the supply of diesel no. 2 or biodiesel become limited, HECO proposes an alternative scenario that would allow the burning of an alternate fuel

provided that all conditions of the Covered Source permit are complied with.

Project Emissions:

The current CSP contains an Alternate Operating Scenario provision (Attachment II, Special Condition No. C.4.a.iii) to increase the stack height by five feet to a total height of 82.5 feet and to increase the total combined fuel consumption of diesel no. 2 for the four diesel engine generators to 1,781,000 gallons per any rolling twelve month period. Authorization of this Alternate Operating Scenario was requested in the initial CSP application submitted to the Department of Health on May 8, 2008. Since the facility has not yet been constructed, the potential to emit (PTE) emissions for the Alternate Operating Scenario included in the initial 2008 CSP application are used as actual emissions and compared with the project emissions. Based on the proposed modifications, the net project emissions do not result in a significant emissions increase. The table below provides a comparison of the project emissions to the Alternate Operating Scenario emissions.

Pollutant	Alternate Operating Scenario Emission Rate (lb/hr)	Alternate Operating Scenario Emission Rate (tpy)	Proposed Modification Emission Rate (lb/hr)	Proposed Modification Emission Rate (tpy)	Project Emissions Increase (tpy)	Significant Level (tpy)	Significant Emissions Increase?
SO_2	1.21	6.26	3.64E-02	0.17	-6.09	40	No
NO_x	48.11	249.04	54.82	249.04	0	40	No
CO	5.86	30.33	5.86	26.61	-3.72	100	No
VOC	1.17	6.06	1.17	5.31	-0.75	40	No
PM/PM_{10}	0.40	2.07	0.40	1.82	-0.25	25/15	No
Total HAPs	6.22E-02	0.32	6.22E-02	0.28	-0.04	NA	NA

Notes:

1. Alternate Operating Scenario Emission Rates are based on the combined annual fuel limit of 1,781,000 gallons (10,355 unit-hours at peak load) specified in CSP No. 0686-01-C, Attachment II, Special Condition No. C.4.a.iii.
2. Proposed Modification Emission Rates are based on the proposed combined annual fuel limit of 1,562,276 gallons (9,083 unit-hours at peak load).

Air Quality Assessment:

The applicant submitted an air quality assessment for this project. EPA's recommended dispersion model, AERMOD (version 11103), was used for this modeling analysis. AERMOD is a steady-state plume model capable of modeling simple, intermediate, and complex terrain receptors. In the stable boundary layer (nighttime), it assumes the concentration distribution to be Gaussian in both the vertical and horizontal. In the convective boundary layer (daytime), the probability density function describing the horizontal distribution is assumed to be Gaussian, while the vertical distribution is assumed to be bi-Gaussian. AERMOD also contains the PRIME algorithm which incorporates the two fundamental features associated with building downwash: (1) enhanced plume dispersion coefficients due to the turbulent wake, and (2) reduced plume rise caused by a combination of the descending streamlines in the lee of the building and the increased entrainment in the wake (EPA 2004a and 2004d).

The modeling of SO_2, PM_{10}, $PM_{2.5}$ and CO project impacts was performed using default settings in AERMOD. One-hour NO_2 project impacts were modeled using the Plume Volume Molar Ratio Method (PVMRM) modeling option. The PVMRM calculates the conversion of NO_x to NO_2. The method is a non-regulatory option and is approved by DOH for use. HECO has evaluated the suitability of the PVMRM option and found the method suitable for modeling applications in Hawaii. The PVMRM option requires hourly ozone data. Hourly ozone data

collected at Sand Island was obtained from EPA's AQS data mart for the year modeled. Sand Island is the only ozone monitor operated by DOH. Missing observations were filled with the maximum observation within a ± 12 hour period of the missing data. If no valid data existed within ± 12-hours, then the maximum observation for the year was substituted for the missing observation.

AERMOD contains the ability to calculate the distribution of daily maximum 1-hour values. The daily maximum 1-hour values are calculated when the pollutant ID is either SO_2 or NO_2 and the only short term averaging period specified is "1-hour". When modeling with 5-years of National Weather Service (NWS) meteorological data, the receptor-by receptor 5-year average serves as an unbiased estimate of the 3-year average for comparison to the 1-hour SO_2 and NO_2 NAAQS (EPA 2010b and 2010c).

Controlling modeled concentrations for percentile based 1-hour SO_2 and NO_2 and 24-hour $PM_{2.5}$ NAAQS is explained below:

- The 1-hour SO_2 NAAQS controlling modeled concentration is the 5-year average of the 99th percentile (4th rank) daily maximum 1-hour average SO_2 concentration on a receptor-by-receptor basis.
- The 1-hour NO_2 NAAQS controlling modeled concentration is the 5-year average of the 98th percentile (8th rank) daily maximum 1-hour average NO_2 concentration on a receptor-by-receptor basis.
- The 24-hour $PM_{2.5}$ NAAQS is compared against the 5-year average of the maximum 24-hour average PM_{10} concentration on a receptor-by-receptor basis. However, compliance with the NAAQS is based on the 98th percentile (8th rank) of the daily $PM_{2.5}$ concentrations.

Stack Parameters and Emission Rates

The analysis evaluates SO_2, PM_{10}, $PM_{2.5}$ as PM_{10}, NO_2, and CO impacts from the facility versus the National Ambient Air Quality Standards (NAAQS) and State Ambient Air Quality Standards (SAAQS). Shown in the table below are the stack parameters and modeled emission rates. The modeled short-term emission rates for NO_x, SO_2, PM_{10}, $PM_{2.5}$ and CO are based on unlimited simultaneous operation at their maximum emission rates. Annual SO_2, PM_{10} and $PM_{2.5}$ modeling does not take credit for the annual operating limit. Annual NO_2 impacts are evaluated by modeling each unit individually at the annual emission limit (249 tpy).

Stack Parameters and Emission Rates for the Four (4) 2.5 MW Diesel Engine Generators

Unit	Stack Height (m)	Stack Temp. (K)	Stack Velocity (m/s)	Stack Diameter (m)	SO_2 (g/s)	CO (g/s)	PM_{10} (g/s)	$PM_{2.5}$ (g/s)	1-hr NO_x (g/s)	Annual NO_x (g/s)	NO_2/NO_x Ratio
1, 2, 3 or 4	26.67	767.2	44.4	0.508	0.00459	0.738	0.0504	0.101	6.91	7.16	0.10

Note

1. SO_2 emissions based on 15 ppm sulfur fuel.
2. CO and filterable PM_{10} emission rates are based on the maximum short-term emission rates provided by Caterpillar.
3. Guaranteed $PM_{2.5}$ (filterable + condensable) emission rates are not available. Since almost all filterable PM_{10} is less than 2.5 µm and condensable PM emissions from combustion sources can equal the filterable fraction, the modeled $PM_{2.5}$ emission rate is based on doubling the filterable PM_{10} emission rate.
4. The 1-hour NO_x emission rate is based on the NSPS limit of 6.9 g/HP-hr and the unit's power rating of 3604 HP.
5. The annual NO_x modeling is based on any one of the four units emitting the entire 249 tpy emission limit.
6. Caterpillar provided the NO_x split between NO and NO_2, is typically 5% NO_2 and 95% NO. The 1-hour NO_2 modeling is based on NO_2/NO_x ratio of 0.10 (2X the provided value).

Receptor Grids

Receptor densities of 25 meters, 100 meters and 250 meters were used in the modeling. The receptor grids were placed concentrically about each other starting with the 25 meter grid around the site perimeter of the project's property line. Flagpole receptors were also placed along the elevated highway ramp located directly adjacent to the east of the property of the DSG project. This receptor scheme ensured that the maximum predicted concentrations were identified. The *State Air Modeling Guidelines for Prevention of Significant Deterioration and Covered Source Permit Applications* (DOH 1998) recommends a refined grid spacing of 50 meters for simple terrain and 30 meters for complex terrain when the maximum modeling impact is greater than 75% of the standard. Receptor elevations are derived from the USGS 10 meter DEM (Digital Elevation Model) using EPA's AERMAP program (EPA 2004c and 2011d). The receptor grid density scheme used in the modeling analysis exceeds DOH's recommendations.

Meteorological Data

Five years of National Weather Service (NWS) Automated Surface Observation System (ASOS) surface data from Honolulu International Airport and upper air data from Lihue provides the meteorological data for the modeling. EPA's AERMET meteorological data processor was used to produce the required meteorological data files. The Honolulu International Airport ASOS station is located approximately 3.1 kilometers to the southwest of the project site and is the nearest available meteorological station. The five-year data collection period was from January 1, 1990 through December 31, 1994. All surface data were collected at a height of 33 feet (10 meters).

Building Downwash

Downwash effects are limited to stacks located within 5L of a structure. The only buildings influencing the downwash calculations are the DSG project building which houses the four DEGs, the electrical substation control building, and the fuel storage tanks. The ratios of the distance from the stacks and the height of the remaining structures within a 325 meter radius of the DSG building are greater than 5. Therefore, those buildings are more than 5L from the stacks and do not impact downwash.

Background Ambient Air Monitoring Data

Background ambient air quality data were obtained from DOH's *2007, 2008 and 2009 Annual Summary Hawaii Air Quality Data* and from EPA's AQS data mart. The new percentile based 1-hour SO_2 and NO_2, and 24-hour $PM_{2.5}$ standards complicate the inclusion of background ambient air concentrations into the modeling. The maximum monitored concentration will be used for the remaining pollutant averaging periods. EPA has provided the following guidance to address the new percentile based standards.

- 24-hour $PM_{2.5}$ – Per EPA's March 23, 2010 memorandum, as a "first tier" for the 24-hour NAAQS analysis, the maximum modeled concentration should be added to the monitored 24-hour design value (98^{th} percentile). A "second tier" approach based on combining the monitored and modeled $PM_{2.5}$ concentrations on a seasonal or quarterly basis, and re-sorting the total impacts across the year to determine the cumulative design value may be considered on a case-by-case basis. The background $PM_{2.5}$ concentration is the maximum monitored 24-hour design value from DOH's Honolulu, Pearl City, and Sand Island monitors.
- 1-hour NO_2 – Per EPA's March 1, 2011 memorandum, as a "first tier" for the 1-hour NO_2 NAAQS analysis, the monitored NO_2 design value (98^{th} percentile) of the annual distribution of daily maximum 1-hour values averaged across the most recent three years of monitored data, should be added to the modeled NO_2 design value (98^{th}

percentile). A "second tier" based on multiyear averages of the 98th percentile background concentrations by hour-of-day and/or season can be used. The background NO_2 is the maximum monitored 24-hour design value from DOH's Kapolei and West Beach monitors.

- 1-hour SO_2 – Per EPA's August 23, 2010 memorandum, a "first tier" for comparison with the NAAQS is to add the overall highest hourly background SO_2 concentration from a representative monitor to the modeled design value, based on the form of the standard, for comparison to the NAAQS. A "second tier" approach based on some level of temporal pairing of modeled and monitored values may be considered on a case-by-case basis. The project is not expected to have a significant SO_2 impact. If needed the background 1-hour SO_2 concentrations will be based on maximum modeled value from DOH's Honolulu monitor.

Modeled Results

The 1-hour SO_2, 1-hour NO_2 and $PM_{2.5}$ NAAQS represent a strengthening of the previous standards. These standards are defined in terms of the 3-year average; this definition does not preempt or alter the Appendix W requirement for use of 5 years of NWS meteorological data. The 5-year average based on the use of NWS data serves as an unbiased estimate of the 3-year average for purposes of modeling demonstrations of compliance with the NAAQS. The listed modeled concentrations are based on the 5-year average of the modeled controlling concentration independent of receptor location.

The table below compares the project impacts to the modeling significance level. The project only has a significant impact for $PM_{2.5}$ and NO_2.

Comparison of Project Impacts to Significant Impact Levels

Pollutant	Averaging Period	Average Project Concentration (1990 to 1994) ($\mu g/m^3$)	Maximum Project Concentration (1990 to 1994) ($\mu g/m^3$)	Significant Impact Level ($\mu g/m^3$)	Project Exceeds Significant Impact Level?
SO_2	1-hour (max)	0.515		7.9	No
	3-hour		0.352	25	No
	24-hour		0.198	5	No
	Annual		0.0828	1	No
PM_{10}	24-hour		2.179	5	No
	Annual		0.910	1	No
$PM_{2.5}$	24-hour (max)	4.12		1.2	Yes
	Annual	1.55		0.3	Yes
NO_2	1-hour (max)	124		7.5	Yes
	1-hour (98^{th} %)		71.1		
	Annual		26.7	1	Yes
CO	1-hour		90.9	2000	No
	8-hour		42.3	500	No

Notes:

1. The listed short-term SO_2, $PM_{2.5}$, PM_{10} and CO concentrations are the maximum modeling impacts.
2. The listed annual SO_2, PM_{10}, and $PM_{2.5}$ concentration do not account for the annual fuel limit.
3. The listed 1-hour NO_2 concentration is based on PVMRM modeling option and a 10% NO_2/NO_X in-stack ratio.
4. The listed modeled annual NO_2 concentrations are based on a NO_x to NO_2 conversion based on the Ambient Ratio Method (75% NO_x = NO_2). The annual NO_2 modeling is based on any one of the four units emitting the entire 249 tpy NO_x emission limit.
5. EPA plans to undertake rulemaking to develop a 1-hour NO_2 and SO_2 SIL. Until this process is completed, EPA is recommending the use of an NO_2 SIL of 4 ppb (7.5 $\mu g/m^3$) and a SO_2 SIL of 3 ppb (7.0 5 $\mu g/m^3$). (EPA Memo dated June 29, 2010 from Stephen D. Page, re: Guidance Concerning the Implementation of the 1-hour NO_2 NAAQS for the Prevention of Significant Deterioration Program; EPA Memo dated August 23, 2010 form Stephen D. Page, re: Guidance Concerning the Implementation of the 1-hour SO_2 NAAQS for the Prevention of Significant Deterioration Program.)

Shown below are the total project impacts including background concentrations for the four (4) 2.5 MW diesel engine generators for the proposed operating scenario. There were no exceedances of the State and National Ambient Air Quality Standards for those pollutants which exceeded the significant impact levels ($PM_{2.5}$ and NO_2).

Project Impacts for the Four (4) 2.5 MW Diesel Engine Generators

Pollutant	Averaging Period	Project Concentration[1,2] (µg/m^3)	Background Concentration[3] (µg/m^3)	Total Concentration (µg/m^3)	NAAQS/SAAQS[6] (µg/m^3)	Percent of NAAQS/SAAQS (%)
NO_2	1-hr	71.1	48.9	120	188	64
	Annual	26.7	9.4	36.1	70	52
$PM_{2.5}$	24-hr	4.12	11.7	15.8	35	45
	Annual	1.55	5.9	7.42	15	49

Notes:

1. The listed $PM_{2.5}$ project concentrations are the 5-year average of the maximum modeled impacts. The annual $PM_{2.5}$ concentration does not account for the annual fuel limit.
2. The 1-hour NO_2 project concentration is based on PVMRM modeling option and a 10% NO_2/NO_x in-stack ratio. The listed NO_2 project concentration is the 5-year average of the 98th percentile of the 1-hour daily maximum concentrations for each year.
3. The listed project annual NO_2 concentrations are based on a NO_x to NO_2 conversion based on the Ambient Ratio Method (75% NO_x = NO_2). The annual NO_2 modeling is based on any one of the four units emitting the entire 249 tpy NO_x emission limit.

Significant Permit Conditions:

Significant permit conditions included the following:

• Revised Section C. Emission and Operational Limitations, and/or Standards as follows:

C.1. Fuel Limits

a. The diesel engine generators shall be fired only on diesel no. 2, biodiesel (B100), and blends of biodiesel (B100) and diesel no. 2 with:

i. A maximum sulfur content of 0.0015% by weight; and
ii. A cetane index or aromatic content as follows:
    1) Minimum cetane index of 40; or
    2) Maximum aromatic content of 35 volume percent.

b. The total combined fuel consumption of diesel no. 2, biodiesel (B100), and blends of biodiesel (B100) and diesel no. 2 for the four (4) diesel engine generators shall not exceed 1,562,276 gallons per any rolling twelve (12) month period.

C.5. The permittee shall not discharge or cause the discharge into the atmosphere from the diesel engine generators in excess of the following emission rates:

Pollutant	**Emission Limit (3-hr Avg.)**
Nitrogen Oxides (NO_x)	54.8 lb/hr

The Department of Health may lower the allowable emission limitation for NO_x after reviewing the initial performance test results required under Attachment II, Special Conditions, Section F.

C.6. The exhaust stacks for the four (4) diesel engine generators shall each be increased to a total stack height of 87.5 feet.

C.4. Alternate Operating Scenarios.

The terms and conditions under the following alternate operating scenarios shall meet all applicable requirements including all conditions of this permit. Requests for written approval to operate under the applicable alternate operating scenario shall be in accordance with Attachment II, Special Condition No. E.6.

a. Temporary Replacement. The permittee may replace the diesel engine generators with an equivalent temporary replacement unit with equal or lesser emissions in the event of a failure or major overhaul of the equipment.

b. Alternate Fuels. The permittee may fire the diesel engine generators on an alternate fuel provided all conditions of the Covered Source Permit are complied with including compliance with the NAAQS/SAAQS and with prior written approval from the Department of Health.

• Revised Section D. Monitoring and Recordkeeping Requirements as follows:

D.4. Alternate Operating Scenarios:

a. The permittee shall contemporaneously with making a change from one operating scenario to another in accordance with Attachment II, Special Condition No. C.4., record in a log at the permitted facility the scenario under which it is operating.

b. The permittee shall maintain all records corresponding to the implementation of an Alternate Operating Scenario specified in Attachment II, Special Condition No. C.4.

• Revised Section E. Notification and Reporting Requirements as follows:

E.6. Alternate Operating Scenarios:

a. Temporary Replacement. Within **thirty (30) days** of commencement of the temporary replacement, the permittee shall submit in writing to the Department of Health, the reason for the temporary replacement, removal and return dates, and

the make, model, and serial number of the existing and temporary replacement units.

b. Alternate Fuels. In requesting for approval to fire alternate fuels, the permittee shall at a minimum, provide the Department of Health with information on the type of fuel proposed, reason for using the alternate fuel, and emissions data. The Department of Health may require an ambient air quality impact assessment for firing the alternate fuel and/or provide a conditional approval to impose additional monitoring, testing, recordkeeping, and reporting requirements.

• Revised Section F. Testing Requirements as follows:

F.1. Initial Performance Tests

The permittee shall conduct or cause to be conducted initial performance tests within **one (1) year** of startup and subsequent performance tests every **8,760 hours** of operation or **three (3) years**, whichever comes first, on the diesel engine generators for NO_x, CO, PM/PM_{10}, and VOCs in accordance with 40 CFR Part 60, Section 60.4211(g)(3). The performance test shall be performed within 10% of peak load or the highest achievable load and shall consist of three (3) separate one-hour runs. For the purposes of determining compliance with the applicable NTE standards, the arithmetic mean of the results from the three (3) runs shall apply.

F.2. Performance Test Methods

The performance test shall be conducted and the results reported in accordance with the test methods set forth in 40 CFR Part 60, Subpart IIII or EPA-approved alternative test methods.

F.3. Performance Test Plan

At least **thirty (30) days** prior to performing a test, the permittee shall submit a written performance test plan to the Department of Health and U.S. EPA Region 9, that includes the date(s) of the test, test duration, test locations, test methods, source operation, and other parameters that may affect test results. Such a plan shall conform to EPA guidelines including quality assurance procedures. A test plan that does not have the approval of the Department of Health may be grounds to invalidate any test and require a retest.

F.4. Performance Test Report

Within **sixty (60) days** after completion of the performance test, the permittee shall submit to the Department of Health and U.S. EPA Region 9, the test report which shall include the operating conditions of the diesel engine generators at the time of the test, the analysis of the fuel, the summarized test results, comparative results with the not-to-exceed (NTE) standards for each pollutant in accordance with 40 CFR Part 60, Section 60.4212.

Conclusion and Recommendations:

Recommend issuing the Significant Modification to Covered Source Permit, CSP No. 0686-01-

C, subject to the significant permit conditions shown above, a 30-day public comment period and 45-day EPA review period. The project will be in compliance with all State and National ambient air quality standards.

Reviewer: Darin Lum
Date: 2/2012