AKRF
Environmental and Planning Consultants

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March 22, 2011

Ms. Elizabeth Clarke
Permit Administrator
New York State Department of Environmental Conservation
Division of Environmental Permits, Region 2
1 Hunters Point Plaza
47-40 21st Street
Long Island City, NY 11101-5407

Re: Rikers Island Cogeneration
Application for Title V Permit Modification – Addition of Emergency Blackstart Generator
Facility ID #: 2-6007-00259

Dear Ms. Clarke:

AKRF, on behalf of New York City Department of Correction (NYCDOC), is submitting the certification page with the additional information and revised permit forms for the 2,000 KW emergency blackstart generator, which is part of the proposed cogeneration plant at the Rikers Island Correctional Facility.

This blackstart generator has already been included in the draft permit by the permit reviewer, Cicily Nirappel, and NYCDOC has no further comments. The DEC can notice the final draft in the ENB and send us the letter for public notice in the local newspaper. NYCDOC will conduct the public outreach for the ELJ concurrently.

Please call me at 646-388-9724 with any questions or concerns.

Sincerely,
AKRF, Inc.

Ramon Li, P.E.
Technical Director

cc: Sam Lieblich, P.E. NYSDEC
Cicily Nirappel, NYSDEC
Randall Solomon, NYPA
Michael Gillespie, AECOM
File

# New York State Department of Environmental Conservation
# Air Permit Application

| DEC ID | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | - | 6 | 0 | 0 | 7 | - | 0 | 0 | 2 | 5 | 9 |

## Section I - Certification

### Title V Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons directly responsible for gathering the information [required pursuant to 6 NYCRR 201-6.3(d)] I believe the information is, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

| | | | |
|---|---|---|---|
| Responsible Official | Gregory McLaughlin | Title | Warden/Support Services Division |
| Signature (X) | Warden McLaughlin | Date | 03 / 16 / 11 |

### State Facility Certification

I certify that this facility will be operated in conformance with all provisions of existing regulations.

| | |
|---|---|
| Responsible Official | Title |
| Signature | Date / / |

## Section II - Identification Information

Title V Facility Permit
- ❑ New
- X Significant Modification
- ❑ Administrative Amendment
- ❑ Renewal
- ❑ Minor Modification
- General Permit Title:

State Facility Permit
- ❑ New
- ❑ Modification
- General Permit Title:

❑ Application involves construction of new facility ❑ Application involves construction of new emission unit(s)

### Owner/Firm

| | | | | | |
|---|---|---|---|---|---|
| Name | NYC Department of Correction | | | | |
| Street Address | 75-20 Astoria Boulevard | | | | |
| City | Queens | State NY | Country USA | Zip | 11370 |
| Owner Classification | ❑ Federal ❑ Corporation/Partnership | X State ❑ Individual | ❑ Municipal | Taxpayer ID | 1 3 6 4 0 0 4 3 4 |

### Facility ❑ Confidential

| | | | |
|---|---|---|---|
| Name | NYC-DOC – Rikers Island | | |
| Location Address | 17-25 Hazen Street | | |
| X City / ❑ Town / ❑ Village | East Elmhurst, NY | Zip | 11370 |

### Project Description ❑ Continuation Sheet(s)

The New York City Department of Correction (NYCDOC) is seeking to construct two new 7.5 MW natural gas-fired simple cycle gas combustion turbines (CTGs) equipped with duct firing heat recovery steam generators (HRSGs) as an additional and reliable on-site source of power generation to reduce the need for off-site power to a minimum. The turbines would be housed in a new building approximately 39.5 feet in height. Each turbine would have two exhaust stacks, a main stack for the exhaust from the duct firing HRSGs, and a bypass stack for the exhaust from the turbine only. During warm weather months when there is not a large steam demand for heating, some of the exhaust gas from the turbines may bypass the duct burners and the HRSGs and exhaust through the bypass stack. The main stacks would be approximately 150 feet above grade and the bypass stacks would be approximately 100 feet above grade. Natural gas will be the sole fuel burned. There will also be a 2000 KW emergency black start generator used to kick start the turbines. An Environmental Assessment Statement (EAS) for the proposed project has also been submitted.

### Owner/Firm Contact Mailing Address

| | | | | | |
|---|---|---|---|---|---|
| Name (Last, First, Middle Initial) | Gregory McLaughlin Warden McLaughlin | | | | Phone No. (718) 546-1429 |
| Affiliation | NYC Department of Correction, Support Services Division | Title | Warden/Support Services Division | | Fax No. ( |
| Street Address | 13-11 Hazen Street | | | | |
| City | East Elmhurst | State NY | Country USA | Zip | 11370 |

# New York State Department of Environmental Conservation
# Air Permit Application

| DEC ID | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | - | 6 | 0 | 0 | 7 | - | 0 | 0 | 2 | 5 | 9 |

| Facility Contact Mailing Address | | | | | | | |
|---|---|---|---|---|---|---|---|
| Name (Last, First, Middle Initial) | Pierre, Curtis | | | | | | Phone No. (718) 546-1488 |
| Affiliation | NYC-DOC Support Services Division | Title | | | | | Fax No. () |
| Street Address | 17-25 Hazen Street | | | | | | |
| City | East Elmhurst | State | NY | Country | USA | Zip | 11370 |

# New York State Department of Environmental Conservation
# Air Permit Application

| DEC ID |
|---|
| 2 - 6 0 0 7 - 0 0 2 5 9 |

## Section IV - Emission Unit Information

| Emission Unit Description ☐ Continuation Sheet(s) |
|---|
| EMISSION UNIT U - 0 0 0 1 1 |
| This emission unit is comprised of the cogeneration plant equipment, which includes two new 7.5 MW simple cycle natural gas-fired turbines equipped with duct firing heat recovery steam generators and one 2,000 KW emergency blackstart generator. |
| |

| Building ☐ Continuation Sheet(s) | | | | |
|---|---|---|---|---|
| Building | Building Name | Length (ft) | Width (ft) | Orientation |
| 15 | Cogeneration Plant | | | |

| Emission Point ☐ Continuation Sheet(s) | | | | | | |
|---|---|---|---|---|---|---|
| EMISSION PT. | U 0 0 2 9 | | | | | |
| Ground Elev. (ft) | Height (ft) | Height Above Structure (ft) | Inside Diameter (in) | Exit Temp. (°F) | Cross Section Length (in) | Cross Section Width (in) |
| 15 | 150 | 107 | 60 | | | |
| Exit Velocity (FPS) | Exit Flow (ACFM) | NYTM (E) (KM) | NYTM (N) (KM) | Building | Distance to Property Line (ft) | Date of Removal |
| | | 593.6 | 4516.6 | 15 | | |
| EMISSION PT. | U 0 0 3 0 | | | | | |
| Ground Elev. (ft) | Height (ft) | Height Above Structure (ft) | Inside Diameter (in) | Exit Temp. (°F) | Cross Section Length (in) | Cross Section Width (in) |
| 15 | 100 | 57 | 66 | | | |
| Exit Velocity (FPS) | Exit Flow (ACFM) | NYTM (E) (KM) | NYTM (N) (KM) | Building | Distance to Property Line (ft) | Date of Removal |
| | | 593.6 | 4516.6 | 15 | | |
| EMISSION PT. | U 0 0 3 1 | | | | | |
| Ground Elev. (ft) | Height (ft) | Height Above Structure (ft) | Inside Diameter (in) | Exit Temp. (°F) | Cross Section Length (in) | Cross Section Width (in) |
| 15 | 150 | 107 | 60 | | | |
| Exit Velocity (FPS) | Exit Flow (ACFM) | NYTM (E) (KM) | NYTM (N) (KM) | Building | Distance to Property Line (ft) | Date of Removal |
| | | 593.6 | 4516.6 | 15 | | |
| EMISSION PT. | U 0 0 3 2 | | | | | |
| Ground Elev. (ft) | Height (ft) | Height Above Structure (ft) | Inside Diameter (in) | Exit Temp. (°F) | Cross Section Length (in) | Cross Section Width (in) |
| 15 | 100 | 57 | 66 | | | |
| Exit Velocity (FPS) | Exit Flow (ACFM) | NYTM (E) (KM) | NYTM (N) (KM) | Building | Distance to Property Line (ft) | Date of Removal |
| | | 593.6 | 4516.6 | 15 | | |
| EMISSION PT. | U 0 0 3 3 | | | | | |
| Ground Elev. (ft) | Height (ft) | Height Above Structure (ft) | Inside Diameter (in) | Exit Temp. (°F) | Cross Section Length (in) | Cross Section Width (in) |
| 15 | 13.5 | 0 | 18 | | | |
| Exit Velocity (FPS) | Exit Flow (ACFM) | NYTM (E) (KM) | NYTM (N) (KM) | Building | Distance to Property Line (ft) | Date of Removal |
| | | 593.6 | 4516.6 | 15 | | |

| DEC ID |
|---|
| 2 - 6 0 0 7 - 0 0 2 5 9 |

## Section IV - Emission Unit Information

Emission Source/Control ❑ Continuation Sheet(s)

| Emission Source ID | Emission Source Type | Date of Construction | Date of Operation | Date of Removal | Control Type Code | Control Type Description | Manufacturer's Name/Model No. | |
|---|---|---|---|---|---|---|---|---|
| 00029 | C | 6/1/2011 | 7/18/2012 | | | | SOLAR Taurus 70-10301S | |
| Design Capacity | Design Capacity Units Code | Design Capacity Units Description | | | Waste Feed Code | Waste Feed Description | Waste Type Code | Waste Type Description |
| 7.5 | 216 | megawatts | | | | | | |

| Emission Source ID | Emission Source Type | Date of Construction | Date of Operation | Date of Removal | Control Type Code | Control Type Description | Manufacturer's Name/Model No. | |
|---|---|---|---|---|---|---|---|---|
| 00030 | C | 6/1/2011 | 7/18/2012 | | | | SOLAR Taurus 70-10301S | |
| Design Capacity | Design Capacity Units Code | Design Capacity Units Description | | | Waste Feed Code | Waste Feed Description | Waste Type Code | Waste Type Description |
| 7.5 | 216 | megawatts | | | | | | |

Emission Source/Control ❑ Continuation Sheet(s)

| Emission Source ID | Emission Source Type | Date of Construction | Date of Operation | Date of Removal | Control Type Code | Control Type Description | Manufacturer's Name/Model No. | |
|---|---|---|---|---|---|---|---|---|
| 00031 | C | 6/1/2011 | 7/18/2012 | | | | Rentech | |
| Design Capacity | Design Capacity Units Code | Design Capacity Units Description | | | Waste Feed Code | Waste Feed Description | Waste Type Code | Waste Type Description |
| 38.2 | 25 | million Btu per hour | | | | | | |

| Emission Source ID | Emission Source Type | Date of Construction | Date of Operation | Date of Removal | Control Type Code | Control Type Description | Manufacturer's Name/Model No. | |
|---|---|---|---|---|---|---|---|---|
| 00032 | C | 6/1/2011 | 7/18/2012 | | | | Rentech | |
| Design Capacity | Design Capacity Units Code | Design Capacity Units Description | | | Waste Feed Code | Waste Feed Description | Waste Type Code | Waste Type Description |
| 38.2 | 25 | million Btu per hour | | | | | | |

| Emission Source ID | Emission Source Type | Date of Construction | Date of Operation | Date of Removal | Control Type Code | Control Type Description | Manufacturer's Name/Model No. | |
|---|---|---|---|---|---|---|---|---|
| 00033 | C | 6/1/2011 | 7/18/2012 | | | | MTU Model 16V 4000 G43 (T1638A36) or equivalent | |
| Design Capacity | Design Capacity Units Code | Design Capacity Units Description | | | Waste Feed Code | Waste Feed Description | Waste Type Code | Waste Type Description |
| 2 | 216 | megawatts | | | | | | |

## Section IV - Emission Unit Information (continued)

**Process Information** ☐ Continuation Sheet(s)

| EMISSION UNIT | U-0001 1 | PROCESS | 007 |
|---|---|---|---|

**Description**

Firing natural gas in the cogeneration plant.

| Source Classification Code (SCC) | Total Thruput | | Thruput Quantity Units | |
|---|---|---|---|---|
| | Quantity/Hr | Quantity/Yr | Code | Description |
| 2-03-002-03 | | | | |

| ☐ Confidential<br>☐ Operating at Maximum Capacity<br>☐ Activity with Insignificant Emissions | Operating Schedule | | Building | Floor/Location |
|---|---|---|---|---|
| | Hrs/Day | Days/Yr | | |
| | 24 | 365 | 15 | |

**Emission Source/Control Identifier(s)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 00029 | 00030 | 00031 | 00032 | | | | |
| | | | | | | | |

**Process Information** ☐ Continuation Sheet(s)

| EMISSION UNIT | U-0001 1 | PROCESS | 008 |
|---|---|---|---|

**Description**

Firing diesel in the emergency blackstart engine.

| Source Classification Code (SCC) | Total Thruput | | Thruput Quantity Units | |
|---|---|---|---|---|
| | Quantity/Hr | Quantity/Yr | Code | Description |
| 2-02-001-02 | | | | |

| ☐ Confidential<br>☐ Operating at Maximum Capacity<br>☐ Activity with Insignificant Emissions | Operating Schedule | | Building | Floor/Location |
|---|---|---|---|---|
| | Hrs/Day | Days/Yr | | |
| | 0.5 | 24 | 15 | |

**Emission Source/Control Identifier(s)**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 00033 | | | | | | | |
| | | | | | | | |

## Section IV - Emission Unit Information (continued)

| Emission Unit | Emission Point | Process | Emission Source | Emission Unit Applicable Federal Requirements (continuation) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Title | Type | Part | Sub Part | Section | Sub Division | Parag. | Sub Parag. | Clause | Sub Clause |
| U - 00011 | | 007 | 00030 | 40 | CFR | 60 | 4365 | (a) | | | | | |
| U - 00011 | | 007 | 00030 | 40 | CFR | 60 | 4375 | (b) | | | | | |
| U - 00011 | | 007 | 00030 | 40 | CFR | 60 | 4400 | | | | | | |
| | | | | | | | | | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 6.1 | (b) | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 6.2 | | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 8.1 | (b) | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 8.2 | | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 10.1 | | | | | | |
| U - 00011 | | | | 6 | NYCRR | 231 | 10.4 | | | | | | |
| | | | | | | | | | | | | | |
| U - 00011 | | | | 6 | NYCRR | 201 | 7 | 3 | | | | | |
| | | | | | | | | | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4200 | (a) | (2) | (i) | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4205 | (b) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4202 | (a) | (2) | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 89 | 112 | | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 89 | 113 | | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4206 | | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4207 | (b) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4209 | (a) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4211 | (a) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4211 | (c) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4211 | (e) | | | | | |
| U - 00011 | | 008 | 00033 | 40 | CFR | 60 | 4214 | (b) | | | | | |

| Emission Unit | Emission Point | Process | Emission Source | Emission Unit State Only Requirements ☐ Continuation Sheet(s) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Title | Type | Part | Sub Part | Section | Sub Division | Parag. | Sub Parag. | Clause | Sub Clause |
| - | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | |
| - | | | | | | | | | | | | | |

# TABLE 12
# NYC-DOC-Rikers Island
# Emergency Blackstart Engine Emission Rates

| | | | | |
|---|---|---|---|---|
| Capacity | 2000 | kW | 22.02 | mmBtu/hr |
| Operating Hours | 12 | hours/yr | | |
| Max. Fuel Flow | 147 | gals/hr | | |
| Max. Fuel Flow | 1768 | gals/yr | | |

| Pollutant | Emission Factor | Units | Emissions (lbs/hr) | Emissions (tons/yr) | Emissions (lbs/yr) |
|---|---|---|---|---|---|
| NOx + NMHC[1] | 5.9 | g/kW-hr | 26.01 | 0.16 | 312 |
| CO | 1.9 | g/kW-hr | 8.38 | 0.050 | 101 |
| VOC[2] | 0.00064 | lb/hp-hr | 1.72 | 0.010 | 21 |
| PM10/PM2.5 | 0.2 | g/kW-hr | 0.88 | 0.0053 | 11 |
| SO2[3] | 0.000012 | lb/hp-hr | 0.03 | 0.00020 | 0.39 |
| CO2 | 163 | lbs/mmBtu | 3590 | 21.54 | 43085 |
| CH4 | 0.01 | lbs/mmBtu | 0.15 | 0.00087 | 1.75 |
| N2O | 0.00 | lbs/mmBtu | 0.029 | 0.00017 | 0.35 |

Notes:

1. Emission factors for NOx + NMHC, CO, and PM are from manufacturer data. PM10/PM2.5 are assumed equal to PM emissions.
2. From AP-42. TOC is by weight 9% methane and 91% nonmethane.
3. Assumes a sulfur in fuel contect of 15 ppm.

A TOGNUM GROUP BRAND

# DIESEL ENGINE-GENERATOR SET
# 2000-XC6DT2

2000 kWe / 60 Hz / Standby
1800 kWe / 60 Hz / Prime
480 - 13.8kV

## SYSTEM RATINGS

### Standby

| Voltage (L-L) | 480V** | 600V | 4160V | 12470V | 13200V | 13800V |
|---|---|---|---|---|---|---|
| Phase | 3 | 3 | 3 | 3 | 3 | 3 |
| PF | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Hz | 60 | 60 | 60 | 60 | 60 | 60 |
| kW | 2000 | 2000 | 2000 | 2000 | 2000 | 2000 |
| kVA | 2500 | 2500 | 2500 | 2500 | 2500 | 2500 |
| AMPS | 3007 | 2406 | 347 | 116 | 109 | 105 |
| skVA@30% Voltage Dip | 5800 | 3600 | 5100 | C/F | C/F | C/F |
| Generator Model* | 744RSL4054 | 744RSS4292 | 744FSM4374 | 1020FDH5582 | 1020FDH5582 | 1020FDH5582 |
| Temp Rise | 130°C/27°C | 125°C/40°C | 130°C/27°C | 130°C/27°C | 130°C/27°C | 130°C/27°C |
| Connection | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE |

### Prime

| Voltage (L-L) | 480V | 600V | 4160V | 12470V | 13200V | 13800V |
|---|---|---|---|---|---|---|
| Phase | 3 | 3 | 3 | 3 | 3 | 3 |
| PF | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 | 0.8 |
| Hz | 60 | 60 | 60 | 60 | 60 | 60 |
| kW | 1800 | 1800 | 1800 | 1800 | 1800 | 1800 |
| kVA | 2250 | 2250 | 2250 | 2250 | 2250 | 2250 |
| AMPS | 2710 | 2168 | 312 | 104 | 99 | 94 |
| skVA@30% Voltage Dip | 5800 | 3600 | 5100 | C/F | C/F | C/F |
| Generator Model* | 744RSL4054 | 744RSS4292 | 744FSM4374 | 1020FDH5582 | 1020FDH5582 | 1020FDH5582 |
| Temp Rise | 105°C/40°C | 105°C/40°C | 105°C/40°C | 105°C/40°C | 105°C/40°C | 105°C/40°C |
| Connection | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE | 4 BAR WYE |

* The Generator Model Number identified in the table is for standard C Series Configuration. Consult the factory for alternate configuration.
** UL2200 Offered

## STANDARD FEATURES

// EPA Tier 2 Certified
// Engine-Generator Set Tested to ISO 8528-5 for Transient Response
// UL2200 Listed, CSA Certified – Offered
// Accepts Rated Load in One Step Per NFPA 110
// All engine-generator sets are prototype and factory tested
// MTU Onsite Energy is a single source supplier
// Global Product Support
// 2 Year Standard Warranty
// 16V 4000 Diesel Engine
- 76.3 Liter Displacement
- Common Rail Fuel Injection
- 4-Cycle

// Complete Range of Accessories
// Generator
- Brushless, Rotating Field Generator
- PMG (Permanent Magnet Generator) supply to regulator
- 300% Short Circuit Capability
- 2/3 Pitch Windings
- Standard for 570 frame and larger
- Optional for 430 frame and smaller

// Digital Control Panel(s)
- UL Recognized, CSA Certified, NFPA 110
- Complete System Metering
- LCD Display

// Cooling System
- Integral Set-Mounted
- Engine Driven Fan

## STANDARD EQUIPMENT

### // Engine

Air Cleaner
Oil Pump
Full Flow Oil Filter
Closed Crankcase Ventilation
Jacket Water Pump
Inter Cooler Water Pump
Thermostats
Exhaust Manifold – Dry
Blower Fan & Fan Drive
Radiator - Unit Mounted
Electric Starting Motor - 24V
Governor – Electronic Isochronous
Base - Structural Steel
SAE Flywheel & Bell Housing
Charging Alternator - 24V
Battery Box & Cables
Flexible Fuel Connectors
Flexible Exhaust Connection
EPA Certified Engine

### // Generator

NEMA MG1, IEEE and ANSI standards compliance for temperature rise and motor starting
Sustained short circuit current of up to 300% of the rated current for up to 10 seconds
Self-Ventilated and Drip-Proof
Superior Voltage Waveform
Digital, Solid State, Volts-per-Hertz Regulator
No Load to Full Load Regulation
Brushless Alternator with Brushless Pilot Exciter
4 Pole, Rotating Field
130°C Maximum Standby Temperature Rise
1 Bearing, Sealed
Flexible Coupling
Full Amortisseur Windings
125% Rotor Balancing
3-Phase Voltage Sensing
±0.25% Voltage Regulation
100% of Rated Load - One Step
3% Maximum Harmonic Content

### // Digital Control Panel(s)

Digital Metering
Engine Parameters
Generator Protection Functions
Engine Protection
SAE J1939 Engine ECU Communications
Windows-Based Software
Multilingual Capability
Remote Communications to our RDP-110 Remote Annunciator
16 Programmable Contact Inputs
Up to 11 Contact Outputs
UL Recognized, CSA Certified, CE Approved
Event Recording
IP 54 Front Panel Rating with Integrated Gasket
NFPA110 Compatible

# APPLICATION DATA

## // Engine

| | |
|---|---|
| Manufacturer | MTU |
| Model | 16V 4000 G43 (T1638A36) |
| Type | 4-Cycle |
| Arrangement | 16-V |
| Displacement: L (in³) | 76.3 (4,656) |
| Bore: cm (in) | 17 (6.69) |
| Stroke: cm (in) | 21 (8.27) |
| Compression Ratio | 16.5:1 |
| Rated RPM | 1,800 |
| Engine Governor | Electronic Isochronous (ADEC) |
| Maximum Power: Standby: kWm (bhp) | 2,280 (3,058) |
| Maximum Power: Prime: kWm (bhp) | 2,020 (2,709) |
| Speed Regulation | ±0.25% |
| Air Cleaner | Dry |

## // Liquid Capacity (Lubrication)

| | |
|---|---|
| Total Oil System: L (gal) | 300 (79.3) |
| Engine Jacket Water Capacity: L (gal) | 175 (46.2) |
| After Cooler Water Capacity: L (gal) | 50 (13.2) |
| System Coolant Capacity: L (gal) | 651 (172) |

## // Electrical

| | |
|---|---|
| Electric Volts DC | 24 |
| Cold Cranking Amps Under -17.8°C (0°F) | 2,600 |

## // Fuel System

| | |
|---|---|
| Fuel Supply Connection Size | 1" NPT |
| Fuel Return Connection Size | 3/4" NPT |
| Maximum Fuel Lift: m (ft) | 1 (3) |
| Recommended Fuel | Diesel #2 |
| Total Fuel Flow: L/hr (gal/hr) | 1,020 (269) |

## // Fuel Consumption

| | STANDBY | PRIME |
|---|---|---|
| At 100% of Power Rating: L/hr (gal/hr) | 558 (147.3) | 487 (128.6) |
| At 75% of Power Rating: L/hr (gal/hr) | 426 (112.6) | 381 (100.7) |
| At 50% of Power Rating: L/hr (gal/hr) | 299 (78.9) | 265 (69.9) |

## // Cooling - Radiator System

| | STANDBY | PRIME |
|---|---|---|
| Ambient Capacity of Radiator: °C (°F) | 40 (104) | 40 (104) |
| Maximum Restriction of Cooling Air, Intake, and Discharge Side of Rad.: kPa (in. $H_2O$) | 0.12 (0.5) | 0.12 (0.5) |
| Water Pump Capacity: L/min (gpm) | 1,350 (357) | 1,350 (357) |
| After Cooler Pump Capacity: L/min (gpm) | 583 (154) | 583 (154) |
| Heat Rejection to Coolant: kW (BTUM) | 874 (49,704) | 770 (43,790) |
| Heat Rejection to After Cooler: kW (BTUM) | 671 (38,160) | 572 (32,530) |
| Heat Radiated to Ambient: kW (BTUM) | 184 (10,478) | 173.6 (9,871) |

## // Air Requirements

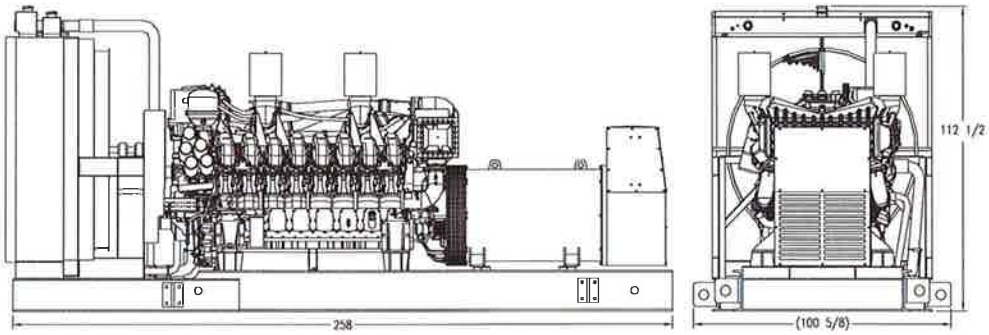
| | STANDBY | PRIME |
|---|---|---|
| Aspirating: *m³/min (SCFM) | 186 (6,569) | 180 (6,357) |
| Air Flow Required for Rad. Cooled Unit: *m³/min (SCFM) | 2,270 (80,160) | 2,270 (80,160) |
| Air Flow Required for Heat Exchanger/Remote Rad. based on 25°F Rise: *m³/min (SCFM) | 673 (23,631) | 634 (22,262) |

* Air density = 1.184 kg/m³ (0.0739 lbm/ft³)

## // Exhaust System

| | STANDBY | PRIME |
|---|---|---|
| Gas Temp. (Stack): °C (°F) | 480 (896) | 435 (815) |
| Gas Volume at Stack Temp: m³/min (CFM) | 456 (16,103) | 426 (15,044) |
| Maximum Allowable Back Pressure: kPa (in. $H_2O$) | 8.5 (34.1) | 8.5 (34.1) |

## WEIGHTS AND DIMENSIONS




Drawing above for illustration purposes only, based on standard open power 480 volt engine-generator set. Lengths may vary with other voltages. Do not use for installation design. See website for unit specific template drawings.

| System | Dimensions (LxWxH) | Weight (less tank) |
|---|---|---|
| OPU | 6,550 x 2,560 x 2,860 mm (258 x 100.6 x 112.5 in) | 16,477 kg (36,326 lb) |

Weights and dimensions are based on open power units and are estimates only. Consult the factory for accurate weights and dimensions for your specific engine-generator set.

## SOUND DATA

| Unit Type | Standby Full Load | Prime Full Load |
|---|---|---|
| Level 0: Open Power Unit (dBA) | 104 | 102.5 |

Sound data is provided at 7 m (23 ft). Engine-generator set tested in accordance with ISO 8528-10 and with infinite exhaust.

## EMISSIONS DATA

| $NO_x$ + NMHC | CO | PM |
|---|---|---|
| C/F | C/F | C/F |

**All units are in g/hp-hr and are EPA D2 cycle values.** Emission levels of the engine may vary as a function of ambient temperature, barometric pressure, humidity, fuel type and quality, installation parameters, measuring instrumentation, etc. The data provided are laboratory results from one engine representing this rating. The data was obtained under controlled environmental conditions with calibrated instrumentation traceable to the United States National Bureau of Standards and in compliance with US EPA regulations found within 40 CFR Part 89. The weighted cycle value from each engine is guaranteed to be below the US EPA Standards at the US EPA defined conditions.

## RATING DEFINITIONS AND CONDITIONS

// Standby ratings apply to installations served by a reliable utility source. The standby rating is applicable to varying loads for the duration of a power outage. No overload capability for this rating. Ratings are in accordance with ISO-8528-1, ISO-3046-1, BS 5514, AS 2789, and DIN 6271. Permissible average power output during 24 hours of operation is approved up to 85%.

// Prime power ratings apply to installations where utility power is unavailable or unreliable. At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour in twelve. Ratings are in accordance with ISO-8528-1, ISO-3046-1, BS 5514, AS 2789, and DIN 6271. Permissible average power output during 24 hours of operation is approved up to 75%.

// Deration Factor:
**Altitude**: Consult your local MTU Onsite Energy Power Generation Distributor for altitude derations.
**Temperature**: Consult your local MTU Onsite Energy Power Generation Distributor for temperature derations.

Materials and specifications subject to change without notice.
**C/F** = Consult Factory/MTU Onsite Energy Distributor

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| California Environmental Protection Agency AIR RESOURCES BOARD | MTU DETROIT DIESEL, INC. | EXECUTIVE ORDER U-R-052-0014 New Off-Road Compression-Ignition Engines |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

**IT IS ORDERED AND RESOLVED:** That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | ENGINE FAMILY | DISPLACEMENT (liters) | FUEL TYPE | USEFUL LIFE (hours) |
|---|---|---|---|---|
| 2010 | AMDDL95.4XTR | 57.2, 76.3, 95.4 | Diesel | 8,000 |

| SPECIAL FEATURES & EMISSION CONTROL SYSTEMS | TYPICAL EQUIPMENT APPLICATION |
|---|---|
| Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module | Loader, Tractor, Pump, Compressor, Generator Set |

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

| RATED POWER CLASS | EMISSION STANDARD CATEGORY | | EXHAUST (g/kW-hr) | | | | | OPACITY (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | HC | NOx | NMHC+NOx | CO | PM | ACCEL | LUG | PEAK |
| kW > 560 | Tier 2 | STD | N/A | N/A | 6.4 | 3.5 | 0.20 | 20 | 15 | 50 |
| | | CERT | -- | -- | 5.9 | 1.9 | 0.20 | 4 | 2 | 5 |

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

**This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.**

Executed at El Monte, California on this 11 day of February 2010.

Annette Hebert, Chief
Mobile Source Operations Division

# Engine Model Summary Template

ATTACHMENT 1 OF 2

U-R-052-0014

2/9/10

| Engine Family | 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|---|
| AMDDL95.4XTR | 7000 | 12V4000G83 3D | 2561 @ 1800 | 733@2561 | 877@2561 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7001 | 12V4000G43 3D | 2328 @ 1800 | 655@2328 | 788@2328 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7002 | 12V4000G83 3B | 2328 @1800 | 655@2328 | 788@2328 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7003 | 12V4000G43 3B | 2038 @ 1800 | 571@2038 | 687@2038 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7004 | 16V4000G83 3D | 3353@1800 | 760@3353 | 1155@3353 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7005 | 16V4000G43 3D | 3057@1800 | 690@3057 | 1046@3057 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7006 | 16V4000G83 3B | 3353@1800 | 690@3057 | 1046@3057 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7007 | 16V4000G43 3B | 2709 @ 1800 | 500@2709 | 912@2709 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7008 | 20V4000G83L 3D | 4680@1800 | 852@4680 | 1641@4680 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7009 | 20V4000G83 3D | 4036@1800 | 704@4036 | 1468@4036 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7010 | 20V4000G43 3D | 3674@1800 | 642@3674 | 1272@3674 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7011 | 20V4000G83L 3B | 4036@1800 | 704@4036 | 1468@4036 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7012 | 20V4000G83 3B | 3674@1800 | 642@3674 | 1272@3674 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7013 | 20V4000G43 3B | 3339@1800 | 582@3339 | 1152@3339 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7014 | 12V4000C23 | 2253 @ 1800 | 667@2253 | 756@2253 | 9440@1700 | 690@9440 | 748@9440 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7015 | 12V4000C23R | 2025 @ 1800 | 597@2025 | 679@2025 | 8480@1700 | 630@8480 | 673@8480 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7016 | 12V4000C13L | 1911 @ 1800 | 567@1911 | 647@1911 | 9072@1500 | 665@9072 | 628@9072 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7017 | 12V4000C13 | 1801 @ 1800 | 539@1801 | 613@1801 | 8550@1500 | 630@8550 | 598@8550 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7018 | 12V4000C13R | 1600@1800 | 438@1600 | 550@1600 | 7595@1500 | 560@7595 | 534@7595 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7019 | 16V4000C23 | 3004 @ 1800 | 701@3004 | 1022@3004 | 12583@1700 | 720@12583 | 987@12583 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7020 | 16V4000C23R | 2699 @ 1800 | 628@2699 | 919@2699 | 11308@1700 | 648@11308 | 896@11308 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7021 | 16V4000C13L | 2501 @ 1800 | 589@2501 | 868@2501 | 11873@1500 | 670@11873 | 827@11873 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7022 | 16V4000C13 | 2347 @ 1800 | 555@2347 | 822@2347 | 11140@1500 | 635@11140 | 780@11140 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7023 | 16V4000C13R | 2001 @ 1800 | 480@2001 | 701@2001 | 9550@1500 | 540@9550 | 691@9550 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7024 | 20V4000C23L | 4023 @ 1800 | 740@4023 | 1409@4023 | 16850@1700 | 765@16850 | 1377@16850 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7025 | 20V4000C23 | 3755 @ 1800 | 680@3755 | 1308@3755 | 15730@1700 | 705@15730 | 1265@15730 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7026 | 20V4000C13L | 3185 @ 1800 | 580@3185 | 1100@3185 | 15120@1500 | 640@15120 | 1037@15120 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7027 | 12V4000S23 | 1911 @ 1900 | 649@1911 | 663@1911 | 9221@1475 | 619@9221 | 613@9221 | DFI, TC, CAC, ECM |

# Engine Model Summary Template

ATTACHMENT 2 OF 2

U-R-052-0014
2/9/10

| Engine Family | 1.Engine Code | 2.Engine Model | 3.BHP@RPM (SAE Gross) | 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) | 5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only) | 6.Torque @ RPM (SEA Gross) | 7.Fuel Rate: mm/stroke@peak torque | 8.Fuel Rate: (lbs/hr)@peak torque | 9.Emission Control Device Per SAE J1930 |
|---|---|---|---|---|---|---|---|---|---|
| AMDDL95.4XTR | 7028 | 12V4000S83 | 2253 @ 1900 | 633@2253 | 807@2253 | 10014@1600 | 678@10014 | 729@10014 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7029 | 12V4000S83L | 2501 @ 1900 | 696@2501 | 876@2501 | 10472@1700 | 740@10472 | 831@10472 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7032 | 12V4000G73 3A | 1167 @ 1200 | 448@1167 | 408@1167 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7033 | 12V4000G73 3B | 1482 @ 1200 | 601@1482 | 480@1482 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7073 | 12V4000C23 TB | 2253@1900 | 659@2253 | 802@2253 | 8410@1900 | 696@8410 | 527@8410 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7081 | 16V4000G73 | 1529 @ 1200 | 465@1529 | 464@1529 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7082 | 16V4000G73 | 1864 @ 1200 | 561@1864 | 598@1529 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7090 | 12V4000R33 | 2250 @ 1800 | 663@2250 | 796@2250 | 6572@1800 | 663@6572 | 796@6572 | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7116 | 12V4000P83 | 2478 @ 1800 | 733@2478 | 872@2478 | Genset | NA | NA | DFI, TC, CAC, ECM |
| AMDDL95.4XTR | 7117 | 16V4000P83 | 3304 @ 1800 | 722@3304 | 1146@3304 | Genset | NA | NA | DFI, TC, CAC, ECM |

Building(s): 14

**Item 23.3(From Mod 2):**
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: U-00003
Emission Unit Description:
THIS EMISSION UNIT IS COMPRISED OF ONE KEELER 96 MMBTU/HR BOILER, AND ONE UNION IRON WORKS BOILER, EACH CAPABLE OF PRODUCING 70,000 LB/HR OF 150 PSI STEAM. EACH BOILER IS RETROFITTED WITH TWO LOW NOX BURNERS. THE TWO BOILERS DISCHARGE THROUGH A COMMON STACK. EMISSION SOURCES LISTED UNDER THIS EMISSION UNIT, 00007, 00008 ARE THE BOILERS NUMBERED AS 4 & 5 IN THE NOX RACT AVERAGING COMPLIANCE PLAN SUBMITTED ON 10/5/01. OPERATION OF THESE TWO BOILERS IS BEING CURTAILED AND ERCS ARE BEING APPLIED FOR AND USED AS INTERNAL OFFSETS.

Building(s): 14

**Item 23.4(From Mod 2):**
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: U-00011
Emission Unit Description:
THIS EMISSION UNIT IS COMPRISED OF THE COGENERATION PLANT EQUIPMENT, WHICH INCLUDES TWO NEW 7.5 MW SIMPLE CYCLE NATURAL GAS-FIRED TURBINES EQUIPPED WITH DUCT FIRING HEAT RECOVERY STEAM GENERATORS. EACH TURBINE WILL HAVE TWO EXHAUST STACKS, A MAIN STACK FOR THE EXHAUST FROM THE DUCT FIRING HRSGS, AND BY PASS STACK FOR THE EXHAUST FROM THE TURBINE ONLY. DURING THE WARM WEATHER MONTH WHEN THERE IS NOT A LARGE STEAM DEMAND FOR HEATING, SOME OF THE EXHAUST GAS FROM THE TURBINE MAY BYPASS THE DUCT BURNERS AND HRSGS AND EXHAUST THROUGH THE BYPASS STACK. THE MAIN STACK WOULD BE APPROXIMATELY 150 FEET HIGH AND THE BYPASS STACKS WILL BE APPROXIMATELY 100 FEET HIGH.

and emergency blackstart generator

The emergency blackstart generator is a 2000 kW generator that would be used to kick-start the turbines in emergency situations only.

Building(s): 15

**Item 23.5(From Mod 0):**
The facility is authorized to perform regulated processes under this permit for:
Emission Unit: U-00009
Emission Unit Description:
A spray paint booth has been installed in the garage for motor vehicle refinishing. The spray paint booth is used 4 hrs/day, 235 days/yr. Emission exhaust stack will be located above the roof of the

Height (ft.): 150 Diameter (in.): 60
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: 15

Emission Point: U0030
Height (ft.): 100 Diameter (in.): 66
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: 15

Emission Point: U0031
Height (ft.): 150 Diameter (in.): 60
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: 15

Emission Point: U0032
Height (ft.): 100 Diameter (in.): 66
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: 15

← Emission Points: U0033 Height (ft): 13.5 Diameter (in): 18 Same coordinates + Building.

**Item 36.5(From Mod 0):**
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: U-00009

Emission Point: 00009
Height (ft.): 30 Diameter (in.): 48

**Item 36.6(From Mod 1):**
The following emission points are included in this permit for the cited Emission Unit:

Emission Unit: U-00010

Emission Point: 00010
Height (ft.): 110 Diameter (in.): 10
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: GRVC

Emission Point: 00011
Height (ft.): 110 Diameter (in.): 10
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: GRVC

Emission Point: 00012
Height (ft.): 110 Diameter (in.): 10
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: GRVC

Emission Point: 00013
Height (ft.): 18 Diameter (in.): 10
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: GRVC

Emission Point: 00014
Height (ft.): 35 Diameter (in.): 12
NYTMN (km.): 4516.6 NYTME (km.): 593.6 Building: RMSC

Emission Source/Control: 00008 - Combustion
Design Capacity: 96 million Btu per hour

**Item 37.6(From Mod 2):**
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00003
Process: 006 Source Classification Code: 1-03-005-02
Process Description:
Firing #2 fuel oil as backup fuel during gas interruption.

Emission Source/Control: 00007 - Combustion
Design Capacity: 96 million BTUs per hour

Emission Source/Control: 00008 - Combustion
Design Capacity: 96 million Btu per hour

**Item 37.7(From Mod 2):**
This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00011
Process: 007 Source Classification Code: 2-03-002-03
Process Description: Firing natural gas in the cogeneration plant

Emission Source/Control: 00029 - Combustion
Design Capacity: 7.5 megawatt

Emission Source/Control: 00030 - Combustion
Design Capacity: 7.5 megawatt

Emission Unit: U-00010
Process: GEN Source Classification Code: 1-02-005-02
Process Description:
Firing oil number 2 diesel oil. This unit consists of nineteen (19) generators permitted to participate in NYPA sponsored CDRP/PLM program. However, only fifteen generators will participate in CDRP/PLM programs up on grant variance. In addition to regular testing and emergency, these generators will be operated during peak loading conditions, for an average of 65 hours a year per generator.

Emission Source/Control: 00010 - Combustion
Design Capacity: 1,100 kilowatts

Emission Source/Control: 00011 - Combustion
Design Capacity: 1,100 kilowatts

Emission Source/Control: 00012 - Combustion
Design Capacity: 625 kilowatts

Emission Unit: U-00011
Process: 008
- Firing #2 oil in the emergency black start generator.
SIC: 2-02-001-02

Emission Source/Control: 00033
- Combustion
Design Capacity: 2000 KW

This permit authorizes the following regulated processes for the cited Emission Unit:

Emission Unit: U-00009
Process: 00P Source Classification Code: 4-02-001-10
Process Description: Paint spay booth operation.

Emission Source/Control: 0000P - Process

**Item 37.8(From Mod 0):**
This permit authorizes the following regulated processes for the cited Emission Unit:

**Item 37.9(From Mod 1):**

**Condition 2-11: Compliance Certification**
**Effective for entire length of Permit**

**Applicable Federal Requirement:6 NYCRR Subpart 201-6**

**Item 2-11.1:**
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

Regulated Contaminant(s):
CAS No: 0NY210-00-0 OXIDES OF NITROGEN

**Item 2-11.2:**
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:
Facility must perform a NOx emission stack test, as per Department approved stack test protocol to determine NOx emission factors (used in 6 NYCRR Part 201-7 capping condition) for the turbines(00029 and 00030) with and without duct firing HRSGs(00031 and 00032). Permit conditions for 40 CFR 60 4320(a) and 40 CFR 60 4340(a) require facility to perform NOx emission stack test at least every two years. This stack test shall determine turbine NOX emission factors with and without duct firing.

and for the Emergency black start generator.

Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 6 calendar month(s).

**Condition 2-12: Compliance Certification**
**Effective for entire length of Permit**

**Applicable Federal Requirement:6 NYCRR Subpart 201-6**

**Item 2-12.1:**
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

Regulated Contaminant(s):
CAS No: 0NY075-00-5 PM-10

**Item 2-12.2:**
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Facility must perform a PM-10 emission stack test, as per Departmnt approved stack test protocol to determine PM-10 emission factors((used in 6 NYCRR Part 201-7 capping condition) for the turbines(00029 and 00030) with and without duct firing HRSGs(00031 and 00032). and for the emergency blackstart generator

Monitoring Frequency: ONCE DURING THE TERM OF THE PERMIT
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 6 calendar month(s).

**Condition 2-13: Compliance Certification**
**Effective for entire length of Permit**

**Applicable Federal Requirement:6 NYCRR Subpart 201-6**

**Item 2-13.1:**
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

**Item 2-13.2:**
Compliance Certification shall include the following monitoring:

Monitoring Type: RECORD KEEPING/MAINTENANCE PROCEDURES
Monitoring Description:

Within 180 days after the commencement of cogeneration plant, facility shall conduct PM 2.5 stack emission testing for turbines(with and without duct firing) to determine PM 2.5 emission factors as per EPA approved stack testing method to demonstrate that cogeneration plant PM 2.5 net emission increases are less than the 6 NYCRR part 231 significant net emission increase threshold of 10 tpy

A report demonstrating the compliance shall be submitted to the Department within 60 days of the test.

Stack test protocol shall be submitted to the Department for approval at least 30 days prior to the test.

Reference Test Method: EPA approved 201 A or 202
Monitoring Frequency: AS REQUIRED - SEE PERMIT MONITORING DESCRIPTION
Averaging Method: AVERAGING METHOD AS PER REFERENCE TEST METHOD INDICATED
Reporting Requirements: AS REQUIRED - SEE MONITORING DESCRIPTION

Capping: Yes
Monitoring Type: MONITORING OF PROCESS OR CONTROL DEVICE PARAMETERS AS SURROGATE
Monitoring Description:

This condition will become effective upon the commercial operation of the new cogeneration plant in Emission Unit U-00011.

NOx emissions from this emission unit shall not exceed 42 tpy.

On a monthly basis, facility must calculate total annual NOX emissions of two turbines and duct firing HRSGs and emergency blackstart generator using the following formula to demonstrate compliance with the cap on a rolling 12-month basis:

X= ((A X B) + (C X D)) + (E X F) /2000

Where,
X = monthly NOx emission(tons);
A = the monthly fuel consumption of natural gas in the two turbines (00029 and 00030) mmscf with duct firing HRSGs (00031 and 00032) mmscf;
B = NOx emission factor from the operation of the turbines with duct firing from the most recent stack test(lbs/mmscf).
C = the monthly fuel consumption of natural gas in the turbines without duct firing HRSGs
D = NOx emission from the operation of the turbines without duct burners from the most recent stack test(lbs/mmscf).
A rolling 12-month tally shall be maintained at the facility ensure compliance with the limit, and summary of the calculations shall be submitted to the Department.

E = the monthly fuel consumption of #2 fuel oil in the emergency blackstart generator (00033) (1000 gallons).

F = NOx emission factor from the operation of the emergency blackstart generator from the most recent stack test (lbs/1000 gals).

Parameter Monitored: OXIDES OF NITROGEN
Upper Permit Limit: 42 tons per year
Reference Test Method: 40 CFR Appendix A
Monitoring Frequency: MONTHLY
Averaging Method: 12-month total, rolled monthly
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 6 calendar month(s).

**Condition 2-15: Capping Monitoring Condition**
**Effective for entire length of Permit**

**Applicable Federal Requirement:6 NYCRR Subpart 201-7**

**Item 2-15.1:**

PM-10 emissions from this emission unit shall not exceed 15.77 tpy.

On a monthly basis, facility must calculate total annual PM-10 emissions of two turbines and duct firing HRSGs and emergency blackstart generator using the following formula to demonstrate compliance with the cap on a rolling 12-month basis:

X= ((A X B) + (C X D))/2000 +(E X F)

Where,
X = monthly PM-10 emission(tons);
A = the monthly fuel consumption of natural gas in the two turbines (00029 and 00030) mmscf with duct firing HRSGs (00031 and 00032) mmscf;
B = PM-10 emission factor from the operation of the turbines with duct firing from the most recent stack test(lbs/mmscf);
C = the monthly fuel consumption of natural gas in the turbines without duct firing HRSGs;
D = PM-10 emission from the operation of the turbines without duct burners from the most recent stack test(lbs/mmscf).

A rolling 12-month tally shall be maintained at the facility ensure compliance with the limit, and a summary of the calculations shall be submitted to the Department.

E= the monthly fuel consumption of #2 fuel oil in the emergency blackstart generator (1000 gallons).

F= PM-10 AP-42 emission factor (lbs/1000 gallons).

Parameter Monitored: PM-10
Upper Permit Limit: 15.77 tons per year
Reference Test Method: 40 CFR Appendix A
Monitoring Frequency: MONTHLY
Averaging Method: 12-month total, rolled monthly
Reporting Requirements: SEMI-ANNUALLY (CALENDAR)
Reports due 30 days after the reporting period.
Subsequent reports are due every 6 calendar month(s).

**Condition 2-16: Compliance Certification**
**Effective for entire length of Permit**

**Applicable Federal Requirement:6 NYCRR 227-1.3 (a)**

**Item 2-16.1:**
The Compliance Certification activity will be performed for:

Emission Unit: U-00011

**Item 2-16.2:**