OLYMPIC REGION CLEAN AIR AGENCY

2940 Limited Lane NW - Olympia, Washington 98502 - 360-539-7610 – Fax 360-491-6308

FORM 1- NOTICE OF CONSTRUCTION

TO CONSTRUCT - INSTALL - ESTABLISH OR MODIFY AN AIR CONTAMINANT SOURCE

Form 1 Instructions:

1. Please complete all the fields below. **This NOC application is considered incomplete until signed.**
2. If the application contains any confidential business information, please complete a Request of Confidentiality of Records (www.orcaa.org/forms).
3. Duty to Correction Application: An applicant has the duty to supplement or correct an application. Any applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application must, upon becoming aware of such failure or incorrect submittal, promptly submit supplementary factors or corrected information.

Business Name:
Washington Department of Fish and Wildlife

Mailing Address:
270 N Valley Rd, Naselle, WA 98638

Physical Address of Project or New Source:
270 N Valley Rd, Naselle, WA 98638

Billing Address:
270 N Valley Rd, Naselle, WA 98638

For ORCAA use only

File No: 590
County No: 49
Source No: 201
Application No: 23 NOC 1601

Date Received:

Received
JUN 26 2023
ORCAA

Project or Equipment to be installed/established:

Naselle Hatchery - Emergency Engine

Anticipated startup date: 6 / 30 / 24 Is facility currently registered with ORCAA? Yes ☐ No ☑

This project must meet the requirements of the State Environmental Policy Act (SEPA) before ORCAA can issue final approval. Indicate the SEPA compliance option:

☑ SEPA was satisfied by WDFW SEPA is Pending (government agency) on ___/___/___ (date) - Include a copy of the SEPA determination

☐ SEPA threshold determination by _____ (government agency) is pending - Include a copy of the environmental checklist

☐ ORCAA is the only government agency requiring a permit - Include ORCAA Environmental Checklist

☐ This project is exempt from SEPA per _____ (WAC citation).

Name of Owner of Business:
Washington State Department of Fish and Wildlife

Agency Use Only

Title: Chief Engineer CAMP

Email: donald.ponder@dfw.wa.gov Phone: 360-902-2547

Authorized Representative for Application (if different than owner):
Washington State Department of Fish and Wildlife

Title: Environmental Engineer CAMP

Email: robert.lund@dfw.wa.gov Phone: 360-819-3735

I hereby certify that the information contained in this application is, to the best of my knowledge, complete and correct.

Signature of Owner or Authorized Representative: (sign in Blue Ink)

Date: 6/22/23

IMPORTANT: Do not send via email or other electronic means. ORCAA must receive Original, hardcopy, signed application and payment prior to processing application.

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FORM 1D- Contact Information

Business Name	**FOR ORCAA USE**
Washington State Department of Fish and Wildlife - Naselle Hatchery	**FILE #** 590
Physical Site Address (Street address, city, state, zip)	**CTY #** 49
270 N Valley Rd, Naselle, WA 98638	**SRC #** 201
	Date Received Received JUN 26 2023 ORCAA
Previous Business Name (if applicable)	
NA	

Contact Information

Inspection Contact	
Name John Larson	Title Fish Hatchery Ops, Region 6, Naselle Hatchery
Phone 360-484-7716	Email john.larson@dfw.wa.gov
Billing Contact	
Name John Larson	Title Fish Hatchery Ops, Region 6, Naselle Hatchery
Phone 360-484-7716	Email john.larson@dfw.wa.gov
Emission Inventory Contact	
Name John Larson	Title Fish Hatchery Ops, Region 6, Naselle Hatchery
Phone 360-484-7716	Email john.larson@dfw.wa.gov
Complaint Contact	
Name John Larson	Title Fish Hatchery Ops, Region 6, Naselle Hatchery
Phone 360-484-7716	Email john.larson@dfw.wa.gov
Permit Contact	
Name John Larson	Title Fish Hatchery Ops, Region 6, Naselle Hatchery
Phone 360-484-7716	Email john.larson@dfw.wa.gov

The **inspection contact** is the on-site person responsible for the everyday operation of the site and is available for inspections.
The **billing contact** is the person invoices are sent.
The **emission inventory contact** is the person requests for emissions information and material use information are sent.
The **complaint contact** is the person who receives and responds to complaints received on-site and who is contacted regarding complaints ORCAA receives.
The **permit contact** is the person responsible for filling out permit applications and receiving approval from ORCAA.

Attachment B – Form 18
Internal Combustion Engines

OLYMPIC REGION CLEAN AIR AGENCY (ORCAA)
2940 Limited Lane NW, Olympia, WA 98502
Engineering Division (360) 539-7610
Website: orcaa.org fax (360) 491-6308

Form 18
Internal Combustion Engines

NOC #	Date	File #
23NOC1601	6-26-23	590

Form 18 is to be completed for all internal combustion engines except turbines. (For turbines, submit Form 17). Submit one form for each engine. If this is a new engine or a modification to an existing engine, your application must also include Form 5 and an analysis of toxic air pollutant emissions in accordance with Chapter 173-460 of the Washington Administrative Code. Completion of Form 5 requires determining daily and annual toxic air pollutant emissions based on the maximum potential to emit of the engine. Additional forms and all ORCAA regulations and rules are available on the Agency's web site. Contact ORCAA's Engineering Division at the above telephone number if you need assistance completing this form. Please include the engine manufacturer's equipment specification sheet or brochure if one is available.

1. SUMMARY ☒ New Engine ☐ Engine Modification ☐ New/Additional Fuel ☐ Other:

Company Name: Washington Department of Fish and Wildlife - Naselle Hatchery — County No.*:

Source Description: Emergency Engine (Stationary) — Source No.*: *(If unknown leave blank)*

Initial Date of Operation: 6/30/24 *(Not required for modification of an existing permitted source)*

Operating Schedule: *Typical hrs/day* 0 *Days/week* 0 *Weeks/yr* 0.297 *Maximum hrs/day* 50 hour exercise each year

2. ENGINE INFORMATION ☐ *Check here if applying for approval of portable equipment.*
(See ORCAA Regulation 6.1.1 for portable equipment requirements)

Engine Type: *(Check one)* ☒ 4 Stroke ☐ 2 Stroke Compression Ignition (Diesel) or ☐ 4 Stroke ☐ 2 Stroke Spark Ignition

Engine Manufacturer: Cummins Inc. Model: QSX15 450 DFEJ D-3400 Model Year: 2020

EPA/CARB Engine Family Name: MCEXL015.AAJ Engine Serial No.: TBD

Engine Displacement: 912 *(cu in)* Maximum rated output *(bhp)*: 450 kw Typical load as % of bhp rating:

Is this an emergency/standby engine? ☒ Yes ☐ No

(Complete and check all that apply)

Certification: ☒ EPA Certified ☐ CARB Certified MCEXL015.AAJ-024

☐ None *(If None is checked, please indicate below the items applicable to this engine.)*

☐ Naturally aspirated ☐ Supercharged ☐ Turbocharged ☐ Inter-cooled ☐ After-cooled

☐ Timing retard ≥ 4° ☐ Lean-burn ☐ Rich-burn

Primary Use: ☒ Electrical generation ☐ Cogeneration ☐ Pump driver ☐ Fire pump driver

☐ Compressor driver ☐ Tub grinder driver ☐ Other:

3. CONTROL DEVICE INFORMATION *Complete this section only if the engine exhausts to an add-on control device.*
☐ *Check here if the engine has more than one add-on control device and repeat this section for each. Include manufacturer's technical specification sheet or brochure for each control device.*

Control device number # *(If unknown leave blank)* ☐ New ☐ Existing

Device type: ☐ Diesel catalyzed particulate filter ☐ Oxidation catalyst ☐ Selective catalytic reduction (SCR)

☐ Non-selective catalytic reduction (NSCR or 3-way catalyst) ☐ Other:

Make, Model, and Rated Capacity

Control device control efficiencies at typical operation *(Use the basis codes listed below. If unknown leave blank)*

Control Efficiency/Emission Factor Basis Codes: *(Submit supporting documentation if available)*

(1) Source testing or other measurement by plant
(2) Source testing or measurement by ORCAA
(3) Specification from vendor
(4) Material balance by plant using knowledge of process
(5) Material balance by ORCAA
(6) EPA Document AP-42 Emission Factors
(7) Taken from literature other than AP-42
(8) Guess
(9) EPA/CARB Certification

Pollutant Name	Wt % Reduction	Basis Code
Particulates		
Organics		
Nitrogen Oxides		
Sulfur Dioxide		
Carbon Monoxide		
Others – ☐ Check here and attach a separate list of pollutants. Include the basis code and the control efficiency.		

Continued on reverse side

OLYMPIC REGION CLEAN AIR AGENCY

Form 18 (continued)
Internal Combustion Engines

4. EMISSION POINT/STACK INFORMATION ☐ *Check here if the engine has more than one stack or has a continuous pollutant emission monitor and repeat this section for each.*

Emission point number # _____ *(If unknown leave blank)* ☒ New ☐ Existing

Stack outlet height from ground level *(ft)* 11'-8" CENTER OF PIPE

Diameter of stack outlet *(inches)* 8 or Outlet cross-section area *(square inches)* _____

Direction of outlet *(check one)* ☒ Horizontal ☐ Vertical End of outlet *(check one)* ☒ Open/hinged flap ☐ Rain cap

Exhaust rate at typical operation *(acfm)* 3110 Exhaust temperature at typical operation *(°F)* 865

5. AIR TOXIC ASSESSMENT INFORMATION.

Distance from engine to the property line of the nearest residence *(ft)* 122 or *(check if)* ☐ Greater than one mile

Distance from engine to the property line of the nearest school[1] *(ft)* _____ or *(check if)* ☒ Greater than 1000 ft

Describe the nearest non-residential, non-school site *(check one)* ☐ Industrial ☐ Commercial ☐ Hospital ☐ Day care center ☒ Other Agricultural Hatchery Operations Building (Onsite)

Distance from engine to the property line of the nearest non-residential, non- school site*(ft)* 260 or ☐ Greater than one mile

*Offsite Taxidermy Shop 1000 ft East

1. *K-12 and more than twelve children only.*

6. FUEL DATA *Complete the table below for each fuel burned. If you are using a fuel other than those listed in the fuel table, attach a* ***fuel analysis*** *indicating the higher heating value, sulfur content, and nitrogen content. Please clearly indicate the measurement unit that corresponds to the information you are submitting.* ☐ *Check here if you are using more than two fuels, and attach a copy of this page listing the additional fuels.*

Primary Fuel

Fuel[1] Diesel Name _____

Maximum Fuel Use Rate[2] 30.3 *gal/hr or SCF/hr*

Annual Fuel Usage[3] 1515 *gal/yr or therm/yr or SCF/yr*

Typical Heat Content[4] _____ *BTU/gal or BTU/SCF*

Sulfur Content[4] _____ *wt% liquids or ppmv gases*

Emission Factors *(Optional)* See Cummins Performance Data

Pollutant Name	Emission Factor	Units[5]	Basis Code[6]	Control Factor (√)[7]
Particulates				☐
Organics				☐
Nitrogen Oxides				☐
Carbon Monoxide				☐

Others – ☐ Check here and attach a separate list under each fuel used.

Secondary Fuel

Fuel[1] _____ Name _____

Maximum Fuel Use Rate[2] _____ *gal/hr or SCF/hr*

Annual Fuel Usage[3] _____ *gal/yr or therm/yr or SCF/yr*

Typical Heat Content[4] _____ *BTU/gal or BTU/SCF*

Sulfur Content[4] _____ *wt% liquids or ppmv gases*

Emission Factors *(Optional)*

Pollutant Name	Emission Factor	Units[5]	Basis Code[6]	Control Factor (√)[7]
Particulates				☐
Organics				☐
Nitrogen Oxides				☐
Carbon Monoxide				☐

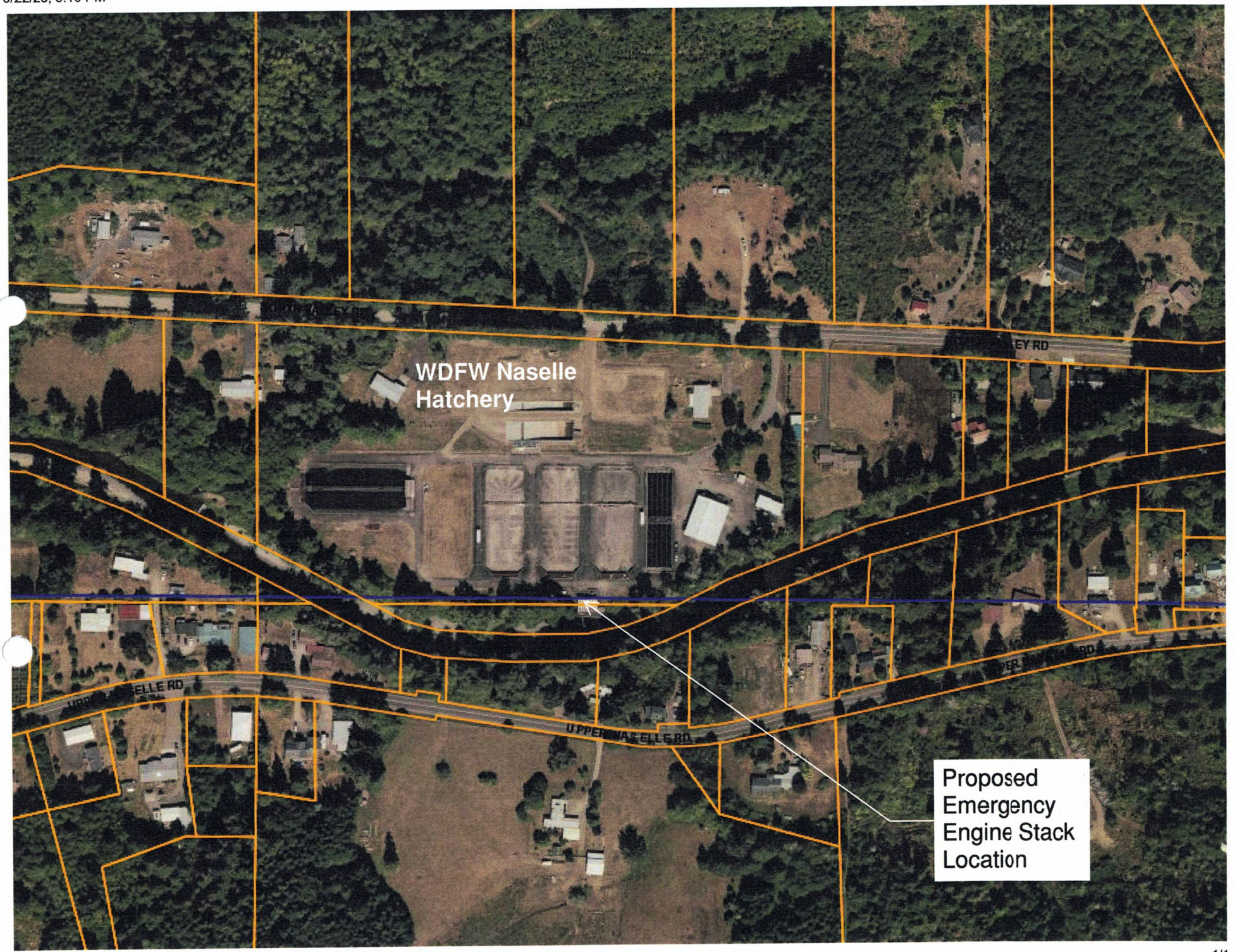
Others – ☐ Check here and attach a separate list under each fuel used.

1. *Fuel Table:* Diesel, Natural Gas, Bio Diesel B100, Landfill Gas, Bio Diesel B20 Blend, Digester Gas, Gasoline, Liquid Petroleum Gas (LPG)
2. *Maximum fuel use rate units: gallon/hr for liquid fuels and SCF/hr for gaseous fuels. (SCF =Standard Cubic Foot)*
3. *The annual fuel usage is the actual or projected engine fuel consumption over a rolling 12-month time period. Annual usage units: gallons for liquid fuel, therms for natural gas, and SCF for other gaseous fuels. (therm = 100,000 BTUs, BTU =British Thermal Unit)*
4. *If you are using diesel, natural gas, or gasoline, you may skip this entry. Heat content units: BTU/gallon for liquid fuels, BTU/SCF for gaseous fuels. Sulfur content* units: weight % for liquid fuels, ppmv for gaseous fuels. (ppmv = parts per million by volume)
5. *Emission factors may be reported as gram/brakehp-hr, or as lb per gallon, or as lb per therm, or as lb per SCF.*
6. *See the Control Efficiency/Emission Factor Basis Code table under Section 3 on page 1 of this form.*
7. *Place a check in this column if the emission factor applies to emissions after an add-on control device.*

7. CERTIFICATION I hereby certify that all information contained herein is true and correct. *(Please sign and date this form)*

Robert Lund	Env. Engineer		6/22/23
Name of person certifying (print)	Title of person certifying	Signature of person certifying	Date

Phone Number: Email:


WDFW Naselle Hatchery
UPPER NASELLE RD
Proposed Emergency Engine Stack Location

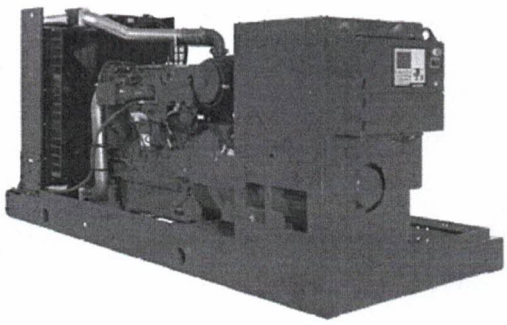
Attachment D – SEPA (Pending)

Attachment E – Manufacturer Data

Specification sheet

Diesel generator set QSX15 series engine

450 kW – 500 kW Standby



Description

Cummins® commercial generator sets are fully integrated power generation systems providing optimum performance, reliability and versatility for stationary standby and prime power applications.

Features

Cummins heavy-duty engine - Rugged 4-cycle, industrial diesel delivers reliable power, low emissions and fast response to load changes.

Alternator - Several alternator sizes offer selectable motor starting capability with low reactance 2/3 pitch windings, low waveform distortion with non-linear loads and fault clearing short-circuit capability.

Permanent Magnet Generator (PMG) - Offers enhanced motor starting and fault clearing short-circuit capability.

Control system - The PowerCommand® electronic control is standard equipment and provides total genset system integration including automatic remote starting/stopping, precise frequency and voltage regulation, alarm and status message display, AmpSentry™ protection, output metering, auto-shutdown at fault detection and NFPA 110 Level 1 compliance.

Cooling system - Standard integral set-mounted radiator system, designed and tested for rated ambient temperatures, simplifies facility design requirements for rejected heat.

Enclosures - Optional weather protective and sound attenuated enclosures are available.

Fuel tanks - Dual wall sub-base fuel tanks are also available.

NFPA - The genset accepts full rated load in a single step in accordance with NFPA 110 for Level 1 systems.

Warranty and service - Backed by a comprehensive warranty and worldwide distributor network.

	Standby rating	Prime rating	Continuous rating	Data sheets
Model	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz kW (kVA)	60 Hz
DFEJ	450 (563)	410 (513)		D-3400
DFEK	500 (625)	455 (569)		D-3401

Generator set specifications

Governor regulation class	ISO 8528 part 1 Class G3
Voltage regulation, no load to full load	± 0.5%
Random voltage variation	± 0.5%
Frequency regulation	Isochronous
Random frequency variation	± 0.25%
EMS compatibility	IEC 61000-4-2: Level 4 Electrostatic discharge IEC 61000-4-3: Level 3 Radiated susceptibility

Engine specifications

Design	Turbocharged with air-to-air charge air-cooling
Bore	136.9 mm (5.39 in.)
Stroke	168.9 mm (6.65 in.)
Displacement	14.9 L (912.0 in^3)
Cylinder block	Cast iron with replaceable wet liners, in-line 6 cylinder
Battery capacity	1400 Amps minimum at ambient temperature 0 °C (32 °F)
Battery charging alternator	35 Amps
Starting voltage	24 volt, negative ground
Fuel system	Full authority electronic (FAE) Cummins HPI-TP
Fuel filter	
Air cleaner type	
Lube oil filter type(s)	Single spin-on combination full flow and bypass filters
Standard cooling system	40 ºC (104 ºF) ambient radiator

Alternator specifications

Design	Brushless, 4 pole, drip-proof revolving field
Stator	2/3 pitch
Rotor	Single bearing, flexible discs
Insulation system	Class H
Standard temperature rise	125 °C standby at 40 °C ambient
Exciter type	PMG (Permanent Magnet Generator)
Phase rotation	A (U), B (V), C (W)
Alternator cooling	Direct drive centrifugal blower fan
AC waveform total harmonic distortion (THDV)	< 5% no load to full linear load, < 3% for any single harmonic
Telephone influence factor (TIF)	< 50% per NEMA MG1-22.43
Telephone harmonic factor (THF)	< 3%

Available voltages

60 Hz Line – Neutral/Line - Line

- 110/190
- 110/220
- 115/200
- 115/230
- 120/208
- 127/220
- 139/240
- 220/380
- 230/400
- 240/416
- 255/440
- 277/480
- 347/600

Note: Consult factory for other voltages.

Generator set options

See Bill of Material for Options

Control system 2.3

The PowerCommand 2.3 control system - An integrated generator set control system providing voltage regulation, engine protection, generator protection, operator interface and isochronous governing (optional).

Control – Provides battery monitoring and testing features and smart-starting control system.

InPower™ – PC-based service tool available for detailed diagnostics.

PCCNet RS485 – Network interface (standard) to devices such as remote annunciator for NFPA 110 applications.

Control boards – Potted for environmental protection.

Ambient operation – Suitable for operation in ambient temperatures from -40 ℃ to +70 ℃ and altitudes to 13,000 feet (5000 meters). Prototype tested - UL, CSA and CE compliant.

AC protection

- AmpSentry protective relay
- Over current warning and shutdown
- Over and under voltage shutdown
- Over and under frequency shutdown
- Over excitation (loss of sensing) fault
- Field overload
- Overload warning
- Reverse kW shutdown
- Reverse Var shutdown
- Short circuit protection

Engine protection

- Overspeed shutdown
- Low oil pressure warning and shutdown
- High coolant temperature warning and shutdown
- Low coolant level warning or shutdown
- Low coolant temperature warning
- High, low and weak battery voltage warning
- Fail to start (overcrank) shutdown
- Fail to crank shutdown
- Redundant start disconnect
- Cranking lockout
- Sensor failure indication
- Low fuel level warning or shutdown
- Fuel-in-rupture-basin warning or shutdown

Operator/display panel

- Manual off switch
- 128 x 128 Alpha-numeric display with push button access for viewing engine and alternator data and providing setup, controls and adjustments (English or international symbols)
- LED lamps indicating genset running, not in auto, common warning, common shutdown, manual run mode and remote start
- Suitable for operation in ambient temperatures from -20 ºC to +70 ºC

Alternator data

- Line-to-Neutral AC volts
- Line-to-Line AC volts
- 3-phase AC current
- Frequency
- kVA, kW, power factor

Engine data

- DC voltage
- Lube oil pressure
- Coolant temperature

Control functions

- Time delay start and cool down
- Glow plug control (some models)
- Cycle cranking
- PCCNet interface
- (4) Configurable inputs
- (4) Configurable outputs
- Remote emergency stop
- Battle short mode
- Load shed
- Real time clock with exerciser
- Derate

Digital governing (optional)

- Integrated digital electronic isochronous governor
- Temperature dynamic governing

Digital voltage regulation

- Integrated digital electronic voltage regulator
- 3-phase Line-to-Line sensing
- Configurable torque matching
- Fault current regulation under single or three phase fault conditions

Other data

- Genset model data
- Start attempts, starts, running hours
- Fault history
- RS485 Modbus® interface
- Data logging and fault simulation (requires InPower service tool)
- Total kilowatt hours
- Load profile

Options

- Auxiliary output relays (2)
- 120/240 V, 100 W anti-condensation heater
- Remote annunciator with (3) configurable inputs and (4) configurable outputs
- PMG alternator excitation
- PowerCommand for Windows® remote monitoring software (direct connect)
- AC output analogue meters
- PowerCommand 2.3 and 3.3 control with AmpSentry protection

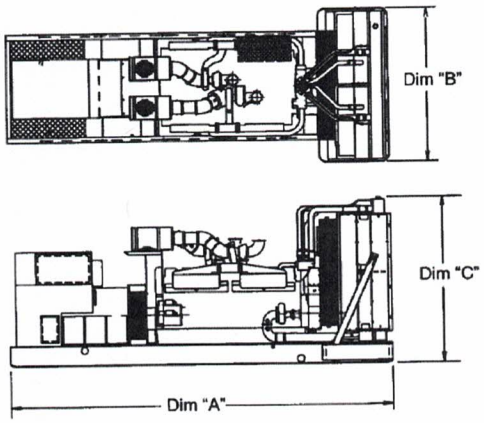
For further detail on PC 2.3 see document S-1569.
For further detail on PC 3.3 see document S-1570.

Emergency Standby Power (ESP):
Applicable for supplying power to varying electrical load for the duration of power interruption of a reliable utility source. Emergency Standby Power (ESP) is in accordance with ISO 8528. Fuel Stop power in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Limited-Time running Power (LTP):
Applicable for supplying power to a constant electrical load for limited hours. Limited Time Running Power (LTP) is in accordance with ISO 8528.

Prime Power (PRP):
Applicable for supplying power to varying electrical load for unlimited hours. Prime Power (PRP) is in accordance with ISO 8528. Ten percent overload capability is available in accordance with ISO 3046, AS 2789, DIN 6271 and BS 5514.

Base Load (Continuous) Power (COP):
Applicable for supplying power continuously to a constant electrical load for unlimited hours. Continuous Power (COP) in accordance with ISO 8528, ISO 3046, AS 2789, DIN 6271 and BS 5514.



This outline drawing if for reference only. See respective model data sheet for specific model outline drawing number.

Do not use for installation design

Model	Dim 'A' mm (in.)	Dim 'B' mm (in.)	Dim 'C' mm (in.)	Set weight dry* kg (lbs)	Set weight wet* kg (lbs)
DFEJ	3864 (152.1)	1524 (60.0)	1812 (71.3)	4098 (9035)	4234 (9335)
DFEK	3864 (152.1)	1524 (60.0)	1812 (71.3)	4325 (9535)	4461 (9835)

*Weights represent a set with standard features. See outline drawings for weights of other configurations.

Codes and standards

Codes or standards compliance may not be available with all model configurations – consult factory for availability.

	This generator set is designed in facilities certified to ISO 9001 and manufactured in facilities certified to ISO 9001 or ISO 9002.		The generator set is available listed to UL 2200, Stationary Engine Generator Assemblies for all 60 Hz low voltage models. The PowerCommand control is Listed to UL 508 - Category NITW7 for U.S. and Canadian usage. Circuit breaker assemblies are UL 489 Listed for 100% continuous operation and also UL 869A Listed Service Equipment.
	The Prototype Test Support (PTS) program verifies the performance integrity of the generator set design. Cummins products bearing the PTS symbol meet the prototype test requirements of NFPA 110 for Level 1 systems.	**U.S EPA**	Engine certified to Stationary Emergency U.S. EPA New Source Performance Standards, 40 CFR 60 subpart IIII Tier 2 exhaust emission levels. U.S. applications must be applied per this EPA regulation.
	All low voltage models are CSA certified to product class 4215-01.	**International Building Code**	The generator set package is available certified for seismic application in accordance with the following International Building Code: IBC2000, IBC2003, IBC2006, IBC2009 and IBC2012.

Warning: Back feed to a utility system can cause electrocution and/or property damage. Do not connect to any building's electrical system except through an approved device or after building main switch is open.

For more information contact your local Cummins distributor or visit power.cummins.com

Our energy working for you.™

S-1582 (08/17)

Prototype Test Support (PTS)
60 Hz test summary

Generator set models	Representative prototype	
450DFEJ 500DFEK	Model:	500DFEK
	Alternator:	HC5F
	Engine:	QSX15-G9

The following summarizes prototype testing conducted on the designated representative prototype of the specified models. This testing is conducted to verify the complete generator set electrical and mechanical design integrity. Prototype testing is conducted only on generator sets not sold as new equipment.

Maximum surge power: **516 kW**

The generator set was evaluated to determine the stated maximum surge power.

Maximum motor starting: **2429 kVA**

The generator set was tested to simulate motor starting by applying the specified kVA load at low lagging power factor (0.4 or lower). With this load applied, the generator set recovered to a minimum of 90% rated voltage.

Torsional analysis and testing:

The generator set was tested to verify that the design is not subjected to harmful torsional stresses in excess of 5000 psi. A spectrum analysis of the transducer output was conducted over the speed range of 1200 to 2000 RPM.

Cooling system: 50 °C ambient
0.50 in. H_2O restriction

The cooling system was tested to determine ambient temperature and static restriction capabilities. The test was performed at full rated load in elevated ambient temperature under static restriction conditions.

Durability:

The generator set was subjected to a minimum 500 hour endurance test operating at variable load up to the Standby rating based upon MIL-STD-705 to verify structural soundness and durability of the design.

Electrical and mechanical strength:

The generator set was tested to several single phase and three phase faults to verify that the generator can safely withstand the forces associated with short circuit conditions. The generator set was capable of producing full rated output at the conclusion of the testing.

Steady state performance:

The generator set was tested to verify steady state operating performance was within the specified maximum limits.

Voltage regulation:	± 0.5%
Random voltage variation:	± 0.3%
Frequency regulation:	Isochronous
Random frequency variation:	± 0.25%

Transient performance:

The generator set was tested with the standard alternator to verify single step loading capability as required by NFPA 110. Verify acceptable Voltage and frequency response on load addition or rejection were evaluated. The following results were recorded:

Full load acceptance:

Voltage dip:	30.1%
Recovery time:	3.6 seconds
Frequency dip:	9.9%
Recovery time:	3.8 seconds

Full load rejection:

Voltage rise:	12.8%
Recovery time:	3.8 seconds
Frequency rise:	3.2%
Recovery time:	1.5 seconds

Harmonic analysis:

(per MIL-STD-705B, method 601.4)

	Line to Line		Line to Neutral	
Harmonic	No load	Full load	No load	Full load
3	0.1	0.1	0.1	0.1
5	0.3	1.2	0.3	1.1
7	0.4	1.1	0.4	1.0
9	0.0	0.0	0.0	0.0
11	0.7	0.9	0.6	0.8
13	0.2	0.3	0.1	0.2
15	0.0	0.0	0.0	0.0

Exhaust Emission Data Sheet
450DFEJ
60 Hz Diesel Generator Set
EPA NSPS Stationary Emergency

Engine Information:

Model:	Cummins Inc. QSX15-G9 NR 2	Bore:	5.39 in. (137 mm)
Nameplate BHP @ 1800 RPM:	755	Stroke:	6.65 in. (169 mm)
Type:	4 cycle, in-line, 6 cylinder diesel	Displacement:	912 cu. in. (14.9 liters)
Aspiration:	Turbocharged with air-to-air charge air cooling		
Compression Ratio:	17:1		
Emission Control Device:	Turbocharged with charge air-cooled		

Performance Data	1/4 Standby	1/2 Standby	3/4 Standby	Full Standby	Full Prime
Engine HP @ Stated Load (1800 RPM)	185	344	502	661	605
Fuel Consumption (gal/Hr)	10.6	17.4	23.6	30.3	28.0
Exhaust Gas Flow (CFM)	1360	2000	2605	3110	2920
Exhaust Gas Temperature (°F)	735	820	810	865	825
Exhaust Emission Data					
HC (Total Unburned Hydrocarbons)	0.22	0.08	0.06	0.12	0.11
NOx (Oxides of Nitrogen as NO_2)	2.97	3.31	4.20	4.00	3.66
CO (Carbon Monoxide)	0.52	0.31	0.37	0.35	0.32
PM (Particulate Matter)	0.08	0.05	0.04	0.02	0.02
Smoke (Pierburg)	0.47	0.40	0.38	0.19	0.18

All values (except smoke) are cited: g/BHP-hr

Test Methods and Conditions

Steady-state emissions recorded per ISO8178-1 during operation at rated engine speed (+/- 2%) and stated constant load (+/- 2%) with engine temperatures, pressures and emission rated stabilized.

Fuel specification:	40-48 Cetane Number, 0.05 Wt.% max. Sulfur; Reference ISO8178-5, 40CFR86.1313-98 Type 2-D and ASTM D975 No. 2-D.
Air Inlet Temperature:	25 °C (77 °F)
Fuel Inlet Temperature:	40 °C (104 °F)
Barometric Pressure:	100 kPa (29.53 in Hg)
Humidity:	10.7 g/kg (75 grains H_2O/lb) of dry air (required for NOx correction)
Intake Restriction:	Set to maximum allowable limit for clean filter
Exhaust Back Pressure:	Set to maximum allowable limit

Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subjected to instrumentation and engine-to-engine variability. Tests conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results.

2021 EPA Tier 2 Exhaust Emission Compliance Statement
450DFEJ
Stationary Emergency
60 Hz Diesel Generator Set

Compliance Information:

The engine used in this generator set complies with Tier 2 emissions limit of U.S. EPA New Source Performance Standards for stationary emergency engines under the provisions of 40 CFR 60 Subpart IIII.

Engine Manufacturer:	Cummins Inc.
EPA Certificate Number:	MCEXL015.AAJ-024
Effective Date:	06/10/2020
Date Issued:	06/10/2020
EPA Engine Family (Cummins Emissions Family):	MCEXL015.AAJ

Engine Information:

Model:	QSX/QSX15/QSX15-G/QSX15-G9	Bore:	5.39 in. (137 mm)
Engine Nameplate HP:	755	Stroke:	6.65 in. (169 mm)
Type:	4 Cycle, In-line, 6 Cylinder Diesel	Displacement:	912 cu. in. (15 liters)
Aspiration:	Turbocharged and CAC	Compression ratio:	17.0:1
Emission Control Device:	Electronic Control	Exhaust stack diameter:	8 in. (203 mm)

Diesel Fuel Emission Limits

D2 Cycle Exhaust Emissions

	Grams per BHP-hr			Grams per kWm-hr		
	NO_X + NMHC	CO	PM	NO_X + NMHC	CO	PM
Test Results	4.3	0.4	0.10	5.7	0.6	0.13
EPA Emissions Limit	4.8	2.6	0.15	6.4	3.5	0.20

Test methods: EPA emissions recorded per 40 CFR Part 60, 89, 1039, 1065 and weighted at load points prescribed in the regulations for constant speed engines.

Diesel fuel specifications: Cetane number: 40-50, Reference: ASTM D975 No. 2-D, 300-500 ppm Sulfur

Reference conditions: Air Inlet Temperature: 25 °C (77 °F), Fuel Inlet Temperature: 40 °C (104 °F). Barometric Pressure: 100 kPa (29.53 in Hg), Humidity: 10.7 g/kg (75 grains H2O/lb) of dry air; required for NOx correction, Restrictions: Intake Restriction set to a maximum allowable limit for clean filter; Exhaust Back Pressure set to a maximum allowable limit..

Tests conducted using alternate test methods, instrumentation, fuel or reference conditions can yield different results. Engine operation with excessive air intake or exhaust restriction beyond published maximum limits, or with improper maintenance, may result in elevated emission levels.

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CERTIFICATE OF COMPLIANCE
SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Certification No.

VMA-50957-01C (Revision 10)

Expiration Date: 6/30/2023

Certification Parameters:

The nonstructural products (mechanical and/or electrical components) listed on this certificate are CERTIFIED[1] FOR SEISMIC APPLICATIONS in accordance with the following building code[2] releases.

IBC 2015, 2012, 2009, 2006

The following model designations, options, and accessories are included in this certification. Reference report number VMA-50957-01 as issued by The VMC Group for a complete list of certified models, included accessories/options, and certified installation methods.

Cummins Power Generation, Inc.; Diesel Gensets
DSGAA-E, DSHAD, DQDAA-C, DQHAA-B, DFEJ-K; 100kW - 500kW

The above referenced equipment is **APPROVED** for seismic application when properly installed[3], used as intended, and contains a Seismic Certification Label referencing this Certificate of Compliance[4]. As limited by the tabulated values, below grade, grade, and roof-level installations, installations in essential facilities, for life safety applications, and/or of equipment containing hazardous contents are permitted and included in this certification with an Equipment Importance Factor assigned as I_p=1.5. The equipment is qualified by successful seismic shake table testing at the nationally recognized University of California Berkeley Pacific Earthquake Engineering Research Center under the review of the ISO Accredited Product Certification Agency, the VMC Group.

Certified Seismic Design Levels			
Certified **IBC**	**Importance $I_p \leq 1.5$** Soil Classes A-E Risk Categories I-IV Design Categories A-F	$z/h \leq 1.0$	$z/h = 0.0$
		$S_{DS} \leq 0.647$ g	$S_{DS} \leq 1.940$ g

Certified Seismic Installation Methods[8]	
External Isolation Mounting From Unit Base To Fuel Tank	External Isolation Mounting From Unit Base To Rigid Structure
Rigid Mounting From Unit Base To Fuel Tank	Rigid Mounting From Unit Base To Rigid Structure

HEADQUARTERS
113 Main Street
Bloomingdale, NJ 07403
Phone: 973.838.1780
Toll Free: 800.569.8423
Fax: 973.492.8430

CALIFORNIA
180 Promenade Circle
Suite 300
Sacramento, CA 95834
Phone: 916.634.7771

TEXAS
11930 Brittmoore Park Drive
Houston, TX 77041
Phone: 713.466.0003
Fax: 713.466.1355

thevmcgroup.com

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CERTIFICATE OF COMPLIANCE

SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Certified Product Table:

Series	Model	Max Rating [kW]	Length [in]	Width [in]	Height [in]	S_{DS} @ z/h=0	S_{DS} @ z/h=1	Tank Range [gal]	Enclosure[1]	Mounting Configurations
DFEx (QSX15)	J, K	450, 500	366	86	128	1.94	0.64	270-2525	F183, F200-F205	Rigid Mounting From Unit Base To Rigid Structure / Fuel Tank External Isolation Mounting From Unit Base to Rigid Structure/ Fuel Tank
DQDAx (QSL9-G7)	A, B, C	250, 275, 300	266	90	134	2.48	2.00	270-2050		
DQHAx (QSM11)	A, B	275, 300	226	80	128	2.28	2.28	270-1700		
DSHAx (QSL9-G2)	D	230	143	42	110			282-1296	F172-173, F182, F216-217	
DSGAx (QSB7)	A, B, C, D, E	100, 125, 150, 175, 200	184	44	114	2.48	2.00	309-1140	F173, F182, F216-217, F232-233	Rigid Mounting From Unit Base To Rigid Structure / Fuel Tank

[1]Note: The F201, F202, F204, & F205 are certified in the tested mineral wool foam configuration, as well as the analyzed PU foam configuration highlighted in the FEA section of Certification Report VMA-50957-01

Group	Type	S_{DS} (z/h=0)	S_{DS} (z/h=1)	A_{Flex-H}	A_{Rig-H}	A_{Flex-V}	A_{Rig-V}	Rigid Mounting F_p/W_p	Isolated Mounting F_p/W_p
Seismic	AC156	1.940	0.647	1.94	0.776	1.293	0.518	0.466	1.455

This certification includes the open generator set and the enclosed generator set when installed with or without the sub-base tank. The generator set and included options shall be a catalogue design and factory supplied. The generator set and applicable options shall be installed and attached to the building structure per the manufacturer supplied seismic installation instructions. This certification excludes After Treatment Units (ATUs), all non-factory supplied accessories, including but not limited to mufflers, isolation/restraint devices, remote control panels, remote radiators, pumps and other electrical/mechanical components.

IBC CERTIFIED VMC GROUP

VMA-50957-01C (Revision 10)
Issue Date: Thursday, March 2, 2017
Revision Date: Monday, January 25, 2021
Expiration Date: Friday, June 30, 2023

VMC GROUP
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CERTIFICATE OF COMPLIANCE
SEISMIC DESIGN OF NONSTRUCTURAL COMPONENTS AND SYSTEMS

Notes & Comments:

1. All equipment listed herein successfully passed the seismic acceptance criteria for shake testing non-structural components and systems as set forth in the ICC AC-156. The Test Response Spectrum (TRS) enveloped the Required Response Spectrum (RRS) for all units tested. The tested units were representative sample(s) of a contingent of models and all remained captive and structurally sound after the seismic shake simulation. The units also remained functionally operational after the simulation testing as functional testing was completed by the equipment manufacturer before and after the seismic simulations. Although a seismic qualified unit inherently contains some wind resisting capacity, that capacity is undetermined and is excluded from this certification. Snow/Ice loads have been neglected and thus limit the unit to be installed both indoors (covered by an independent protective structure) and out of doors (exposed to accumulating snow/ice) for ground snow loads no greater than 30 psf for all applications.

2. The following building codes are addressed under this certification:
   IBC 2015 referencing ASCE7-10 and ICC-ES AC-156
   IBC 2012 referencing ASCE7-10 and ICC-ES AC-156
   IBC 2009 referencing ASCE7-05 and ICC-ES AC-156
   IBC 2006 referencing ASCE7-05 and ICC-ES AC-156

3. Refer to the manufacturer supplied installation drawings for anchor requirements and mounting considerations for seismic applications. Required anchor locations, size, style, and load capacities (tension and shear) may be specified on the installation drawings or specified by a 3rd party. Mounting requirement details such as anchor brand, type, embedment depth, edge spacing, anchor-to-anchor spacing, concrete strength, special inspection, wall design, and attachment to non-building structures must be outlined and approved by the Engineer of Record for the project or building. Structural walls, structural floors, and housekeeping pads must also be seismically designed and approved by the project or building Structural Engineer of Record to withstand the seismic anchor loads as defined on the installation drawings. The installing contractor is responsible for ensuring the proper installation of all anchors and mounting hardware.

4. For this certificate and certification to remain valid, this certificate must correspond to the "Seismic Certification Label" found affixed to the unit by the factory. The label ensures the manufacturer built the unit in conformance to the IBC seismic design criteria set forth by the Certified Seismic Qualification Agency, the VMC Group, and meets the seismic design levels claimed by this certificate.

5. Mechanical, Electrical, and Plumbing connections to the equipment must be flexibly attached as to not transfer load through the connection. The structural integrity of any conduit, cable trays, piping, ductwork and/or flexible connections is the responsibility of others. This certification does not guarantee the equipment will remain compliant to NEMA, IP, UL, or CSA standards after a seismic event.

6. This certificate applies to units manufactured at:
   Cummins Power Generation, Inc., 1400 73rd Ave NE, Minneapolis, MN 55432

7. This certification follows the VMC Group's ISO-17065 Scheme.

8. The certified seismic installation methods states are a summary for all series this certificate covers, for more detailed information on the certified seismic installation methods, see the certified product tables.

John P. Giuliano, PE
President, VMC Group

IAS ACCREDITED Product Certification Agency

VMA-50957-01C (Revision 10)
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IBC CERTIFIED VMC GROUP

Sound data
450DFEJ
60Hz Diesel

Sound pressure level @ 7 meters, dB(A)

See notes 1-8 listed below

Configuration		Measurement location number								Average
		1	2	3	4	5	6	7	8	
Standard – unhoused	Infinite exhaust	89	92	92	91	88	91	91	93	91
F183 – residential muffler	Mounted muffler	87	90	90	88	87	88	87	90	89
F200 – weather	Mounted muffler	88	89	84	87	89	87	84	90	88
F201 – quiet site II first stage	Mounted muffler	87	88	83	82	78	80	82	89	85
F202 – quiet site II second stage	Mounted muffler	73	73	72	74	75	75	75	74	74

Sound power level, dB(A)

See notes 2-6, 9, 10 listed below

Configuration		Octave band center frequency (Hz)								Overall sound power level
		63	125	250	500	1000	2000	4000	8000	
Standard – unhoused	Infinite exhaust	85	100	103	110	112	113	108	105	118
F183 – residential muffler	Mounted muffler	104	114	113	110	108	107	101	103	119
F200 – weather	Mounted muffler	102	108	104	108	110	109	106	101	116
F201 – quiet site II first stage	Mounted muffler	102	108	104	107	109	107	105	98	115
F202 – quiet site II second stage	Mounted muffler	83	92	95	95	97	99	96	90	104

Exhaust sound power level, dB(A)

Open exhaust (no muffler) @ rated load	Octave band center frequency (Hz)								Overall sound power level
	63	125	250	500	1000	2000	4000	8000	
	103	119	125	123	125	126	127	121	133

Note:

1. Position 1 faces the engine front. The positions proceed around the generator set in a counter-clockwise direction in 45° increments. All positions are at 7 m (23 ft) from the surface of the generator set and 1.2 m (48 in.) from floor level.
2. Sound levels are subject to instrumentation, measurement, installation and manufacturing variability.
3. Sound data with remote-cooled generator sets are based on rated loads without cooling fan noise.
4. Sound levels for aluminum enclosures are approximately 2 dB(A)s higher than listed sound levels for steel enclosures.
5. Sound data for generator set with infinite exhaust do not include exhaust noise.
6. Data is based on full rated load with standard radiator-cooling fan package.
7. Sound pressure levels are measured per ANSI S1.13 and ANSI S12.18, as applicable.
8. Reference sound pressure is 20 µPa.
9. Sound power levels per ISO 3744 and ISO 8528-10, as applicable.
10. Reference power = 1 pw (10^{-12} W).
11. Exhaust sound power levels are per ISO 6798, as applicable.

Attachment F – Filing Fee

Washington State Dept of Fish & Wildlife

Financial Services
PO Box 43160
Olympia, WA 98504-3160

Order/Payment Form (OPF)

Goods & Services

Vendor Name & Address	WDFW Ship-To Address
Olympic Region Clean Air Agency	CAMP DFW
Please mail check to CapWay	600 Capitol Way N
Att: Robert Lund	
Olympia WA 98502	Olympia WA 98501

Invoice Number	Invoice Date	Product/Service Description	Master Index	Subtotal
n/a	5/31/23	Notice of Construction Permit Fee	815G7	$ 2035
				$
				$
				$
				$
				$
				$
				$
				$
				$
				$
				$

Received
JUN 26 2023
ORCAA

In Process

Include Purpose of Purchase Below

Naselle Hatchery Renovation / Emergency Backup Generator Air Permit mi 815G7
CHECK Request

Grand Total $ 2,035.00

Prevailing Wage Applicable? If yes, please provide Form ID.	DES (Statewide) Contract Number	Novatus Payable Contract No.	Final Contract Payment?
Yes x No #			Yes No

Vehicle Related Purchases

Does this purchase include vehicle or boat charges?	Vehicle/Boat charges over $2,500?	License Plate	Program
Yes x No	Yes No		

Payment Approvals

Date Goods and Services Received:	Received By:	Fleet Manager:
06/16/2023	Robert Lund (DocuSigned by: Robert Lund)	Fleet Manager

Approved By:	Approval Comment:
Peter Hudspeth	

Do you have SAM Authority for the Master Index(es) used on this OPF? Yes No	SAM:	SAM:
Additional Approval(s) Required? Program Director or Appointing Authority: Yes No Director or Deputy Director: Yes No	SAM Comment:	SAM Comment:

Program:	Program Director or Appointing Authority:	Director or Deputy Director:
	Directors Office Regional and other BSP Director	WDFW Deputy & Director