

Northwest Pipeline LLC
650 S. Main Street, Suite 300
Salt Lake City, UT 84101

April 29, 2025

(Submitted via email)

Mr. Marc Thornsbury
Executive Director
Yakima Regional Clean Air Agency
186 Iron Horse Court, Suite 101
Yakima, WA 98901

**Subject: Request for Administrative Amendment to Permit NOC-09-NWPC-00
Northwest Pipeline LLC
Zillah Compressor Station**

Dear Mr. Thornsbury:

Northwest Pipeline LLC (NWP) is submitting a request for an administrative amendment to permit NOC-09-NWPC-00, for the Zillah Compressor Station in Yakima County to update the generator make and model listed in the permit. This request is based on correspondence with Ms. Elizel Reynoso March 7-21, 2025.

NWP is needing to replace an aging emergency generator that is no longer reliable. The current generator, a Kohler Model 100R272, is listed in the permit and restricted to 500 hours/yr (Approval Condition 1). The new generator will be a similar horsepower-rated natural gas Caterpillar DG100 with and NSPS JJJJ EPA Certification for emergency generator emissions. No change in allowed operating hours is being requested. In addition, a facility blowdown will be required to perform the replacement. The new generator will have lower NOx and CO emissions than the existing generator and the emissions associated with the blowdown will be minimal. All emissions associated with this project will be below emissions thresholds listed in WAC 173-400-110(5).

Emissions calculations for the generator and the facility blowdown, emissions comparison between the current and new generator, manufacturer's information and the EPA Certificate are all included in the attachments.

On-site work is expected to begin in mid-September 2025 and the project should be completed by the beginning of October 2025.

If you have any questions or require additional information, please contact me at (303) 475-0989 or by email at Kirsten.Derr@Williams.com.

Mr. Marc Thornsbury
Yakima Regional Clean Air Agency
April 29, 2025

Sincerely,

Northwest Pipeline LLC



Kirsten Derr
Environmental Specialist

Enclosures:

Attachment A – Emissions Calculations

Attachment B – Generator Emissions Comparison

Attachment C – Supporting Documents and EPA Certification

Attachment A - Emissions Calculations

Northwest Pipeline LLC
Zillah Compressor Station
Emissions Calculations
Engine Emissions

Source ID	Description	Reference	Pollutant	Pre-Controlled Emissions			Control Efficiency	Controlled Emissions		
				g/bhp-hr	lb/MMBtu	lb/hr	tpy	g/bhp-hr	lb/hr	tpy
Emergency Generator	Emergency Generator Engine Caterpillar DG100 (4SLB) 134 bhp 500 hr/yr 1,800 rpm, 378 in3 Displacement	NSPS JJJJ	NOx	---	---	---	---	2.00	0.59	0.15
		NSPS JJJJ	CO	---	---	---	---	4.00	1.18	0.30
		NSPS JJJJ	NMNEHC	---	---	---	---	1.00	0.30	0.07
		NSPS JJJJ	VOC (w/Aldehydes)	---	---	---	---	1.12	0.33	0.08
		AP-42 Table 3.2-3	SO2	2.67E-03	5.88E-04	0.00	4E-05	3E-03	0.00	2E-04
		AP-42 Table 3.2-3	PM10/2.5	8.80E-02	1.94E-02	0.03	1E-03	0.09	0.03	0.01
		AP-42 Table 3.2-3	Acetaldehyde*	1.27E-02	2.79E-03	0.00	2E-04	0.01	0.00	9E-04
		AP-42 Table 3.2-3	Acrolein*	1.19E-02	2.63E-03	0.00	2E-04	0.01	0.00	9E-04
		AP-42 Table 3.2-3	Benzene	7.17E-03	1.58E-03	0.00	1E-04	7E-03	0.00	5E-04
		AP-42 Table 3.2-3	Butadiene, 1,3-	3.01E-03	6.63E-04	0.00	4E-05	3E-03	0.00	2E-04
		AP-42 Table 3.2-3	Ethylbenzene	1.12E-04	2.48E-05	3E-05	2E-06	1E-04	3E-05	8E-06
		AP-42 Table 3.2-3	Formaldehyde*	9.30E-02	2.05E-02	0.03	0.00	0.09	0.03	0.01
		AP-42 Table 3.2-3	n-Hexane	---	---	---	---	---	---	---
		AP-42 Table 3.2-3	Methanol	1.39E-02	3.06E-03	0.00	2E-04	0.01	0.00	1E-03
		AP-42 Table 3.2-3	POM/PAH	1.08E-03	2.38E-04	3E-04	2E-05	1E-03	3E-04	8E-05
		AP-42 Table 3.2-3	Toluene	2.53E-03	5.58E-04	0.00	4E-05	3E-03	0.00	2E-04
		AP-42 Table 3.2-3	TMP, 2,2,4-	1.50E-01	6.63E-04	0.09	7E-03	3E-01	0.13	4E-02
Emergency Generator	Manufactured After 01/01/2009 NSPS JJJJ Affected	Sum	Xylenes	8.84E-04	1.95E-04	3E-04	1E-05	9E-04	3E-04	7E-05
		Sum	Other/Trace HAP Total HAP	8.13E-04	1.79E-04	2E-04	1E-05	8E-04	2E-04	6E-05
		Sum		0.30	0.03	0.13	0.01	0.44	0.17	0.05
		AP-42 Table 3.2-3	CO2 (GWP=1)	498.92	110.00	147	7	498.92	147	37
		AP-42 Table 3.2-3	CH4 (GWP=28)	1.04	0.23	0.31	0.02	1.04	0.31	0.08
		40CFR98 - Table C2	N2O (GWP=265)	1.00E-03	2.20E-04	3E-04	1E-05	1E-03	3E-04	7E-05
		Weighted Sum	CO2e	528.40	116.50	156	8	528.40	156	39.02

* = Aldehyde
Notes:

- 1 - Pre-controlled and controlled emissions shown are based on operation at 100% of rated load for 100 hr/yr.
- 2 - As per vendor specifications, NMNEHC (non-methanethion-ethane hydrocarbons) do NOT include aldehydes. VOC is the sum of NMNEHC, Acetaldehyde, Acrolein, and Formaldehyde.
- 3 - PM10/2.5 is filterable and condensable particulate matter, including PM10 and PM2.5
- 4 - *Other/Trace HAPs* includes: Carbon Tetrachloride, Chlorobenzene, Chloroform, Dichloropropane, 1,3-Dichloropropane, Ethylene Dibromide, Methylene Chloride, Phenol, Propylene Oxide, Styrene, 1,1,2,2-Tetrachloroethane, 1,1,2-Trichloroethane, and Vinyl Chloride (as per AP-42).
- 5 - The fuel heating value will vary, 1,020 Btu/scf (HHV) is at the low end of the range and results in a high (conservative) fuel consumption estimate. (It does NOT impact the emission estimates.)

Northwest Pipeline LLC
Ziliah Compressor Station
Emissions Calculations
Blowdown Emissions

Source ID	Unit Description (Facility Blowdown - Raw Natural Gas)	Blowdown		Total Gas Vented		Pre-Control VOC		Control %	VOC		CO2 (w/o Control)		CH4		CO2e	
		scf/event	Events	MMscf/yr	lb/hr*	lb/MMscf	lb/hr*		lb/hr*	tpy	lb/hr*	tpy	lb/hr*	tpy	lb/hr*	tpy
BD	Facility Blowdown	195	1	0.0002	0.00	1.78E-04	0.00		0.00	1.78E-04	0.00	8.20E-05	0.00	4.18E-03	0.03	0.12
TOTAL:			1	0.00	0.00	0.00	0.00		0.00	0.00	0.00	0.00	0.00	0.00	0	0

* lb/hr is averaged over 8,760 hr/yr

Source ID	Unit Description (Facility Blowdown - Raw Natural Gas)	Benzene		Ethylbenzene		n-Hexane		Methanol		Toluene		2,2,4-TMP		Xylene		Total HAP
		lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	lb/hr*	lb/MMscf	
BD	Facility Blowdown	4E-08	2E-07	4E-08	2E-07	7E-07	3E-06	2E-08	1E-07	4E-08	2E-07	4E-08	2E-07	4E-08	2E-07	9E-07
TOTAL:		9E-08	2E-07	9E-08	2E-07	1E-06	0.00	4E-08	1E-07	9E-08	2E-07	9E-08	2E-07	9E-08	2E-07	2E-06

* lb/hr is averaged over 8,760 hr/yr

Notes: 1 - The results of a representative Inlet Gas Analysis were used to determine the following worst-case components (See Attachment C1 - Lab Data):

Pollutant	Inlet Gas	Minimum Contingency:		20% VOC	
		Worst Case	%Total	%VOC	
CO2	698.15 lb/MMscf	840.00 lb/MMscf	1.82%	--	
Methane (CH4)	38,766 lb/MMscf	42,750 lb/MMscf	92.53%	--	
N2/Water/Ethane/Etc	5,132 lb/MMscf	0 lb/MMscf	0.00%	--	
VOC	1,516.30 lb/MMscf	1,820.00 lb/MMscf	3.94%	100.00%	
TOTAL Gas	46,111 lb/MMscf	46,200 lb/MMscf	100.00%	--	

Pollutant	Inlet Gas	Worst Case	%Total		%VOC	
			%Total	%VOC		
Benzene	-- lb/MMscf	2.00 lb/MMscf	0.00%	0.11%		
Ethylbenzene	-- lb/MMscf	2.00 lb/MMscf	0.00%	0.11%		
n-Hexane	24.07 lb/MMscf	30.00 lb/MMscf	0.06%	1.65%		
Methanol	-- lb/MMscf	1.00 lb/MMscf	0.00%	0.05%		
Toluene	-- lb/MMscf	2.00 lb/MMscf	0.00%	0.11%		
2,2,4-TMP	-- lb/MMscf	2.00 lb/MMscf	0.00%	0.11%		
Xylenes	-- lb/MMscf	2.00 lb/MMscf	0.00%	0.11%		
Total HAP	-- lb/MMscf	41.00 lb/MMscf	0.09%	2.25%		

Northwest Pipeline LLC
Zillah Compressor Station
Emissions Calculations
Inlet Gas Analysis

Sampled: Feb-Mar, 2025										Zilian Auxiliary Fuel		
Component	CAS	Formula	Molecular Weight (MW)	GRI #	Mole % (M% = V%)	Wgt Sum (MW*MF)	lb/MMscf (WS/UGC#)	Weight % Total	Weight % THC	Weight % VOC	Component Btu/scf (HHV)	Gas Btu/scf (HHV)
Water	enry Generator E	H2O	18.015	---	---	---	---	1.5141	---	---	---	---
Carbon Dioxide	124-38-9	CO2	44.010	1	0.6020	0.2649	698.15	---	---	---	---	---
Hydrogen Sulfide	2148-87-8	H2S	34.086	2	---	---	---	0.5578	---	---	637.6	---
Nitrogen	7727-37-9	N2	28.013	3	0.3484	0.0976	257.19	---	---	---	---	---
Methane*	75-82-8	CH4	16.042	4	91.6982	14.7106	38,765.07	84.0683	85.8469	---	1,010.0	926.152
Ethane*	74-84-0	C2H6	30.069	5	6.1520	1.8498	4,874.66	10.5715	10.7962	---	1,769.7	108.872
Propane**	74-98-6	C3H8	44.096	6	0.9231	0.4070	1,072.64	2.3262	2.3754	70.7404	2,516.2	23.227
iso-Butane**	75-28-5	i-C4H10	58.122	7	0.1106	0.0643	169.40	0.3674	0.3751	11.1717	3,252.0	3.597
n-Butane**	106-97-8	n-C4H10	58.122	8	0.1209	0.0703	185.17	0.4016	0.4101	12.2121	3,262.4	3.944
iso-Pentane**	78-78-4	i-C5H12	72.149	9	0.0201	0.0145	38.22	0.0829	0.0846	2.5203	4,000.9	0.804
n-Pentane**	109-66-0	n-C5H12	72.149	10	0.0141	0.0102	26.81	0.0581	0.0594	1.7680	4,008.9	0.565
Cyclopentane**	287-92-3	C5H10	70.100	11	---	---	---	---	---	---	3,763.6	---
Cyclohexane**	110-82-7	C6H12	84.162	13	---	---	---	---	---	---	4,481.6	---
Other Hexanes**	Various	C6H14	86.175	14	---	---	---	---	---	---	4,750.3	---
Methylcyclohexane**	108-87-2	C7H14	98.186	16	---	---	---	---	---	---	5,215.9	---
C8+ Heavies**	Various	C8+	138.00 est.	22	---	---	---	---	---	---	7,000.0	---
Benzene***	71-43-2	C6H6	78.112	18	---	---	---	---	---	---	3,741.9	---
Ethylbenzene***	100-41-4	C8H10	106.165	20	---	---	---	---	---	---	5,222.0	---
n-Hexane***	110-54-3	C6H14	86.175	12	0.0106	0.0091	24.07	0.0522	0.0533	1.5875	4,756.0	0.504
Methanol***	67-56-1	CH3OH	32.040	---	---	---	---	---	---	---	866.9	---
Toluene***	108-88-3	C7H8	92.138	19	---	---	---	---	---	---	4,474.9	---
2,2,4-Trimethylpentane***	540-84-1	C8H18	114.229	17	---	---	---	---	---	---	6,213.6	---
Xylenes***	1330-20-7	C8H10	106.165	21	---	---	---	---	---	---	5,208.7	---

GP-SA-sec 23

#UGC (Universal Gas Constant)
= 379.482 scf/lb-mol @ 60 of and 14.6959 psia.
lb "X"/scf =
(M% of "X") x (MW of "X") / #UGC

Component	Representative Inlet Gas Analysis			Assumed "Worst-Case"			Margin for Changes in Future Gas Composition	
	Mole %	Wgt %	lb/MMscf	Minimum VOC/HAP Margin:	lb/MMscf	% VOC	Margin	Margin
CO2	0.6020	1.514	698.15	1.82%	840.00	---	---	---
Methane*	91.6982	84.068	38,765	92.53%	42,750	---	---	---
Other (N2, C2, O2, CO, H2O)	6.5004	11.129	5,132	0.00%	0	---	---	---
VOC**	1.1994	3.288	1,516.30	3.94%	1,820.00	100.00%	20.0% Margin	---
TOTAL GAS	100.0000	100.000	46,111	100.00%	46,200	---	0.2% Margin	---
Benzene***	---	---	---	0.004%	2.00	0.11%	---	Margin
Ethylbenzene***	---	---	---	0.004%	2.00	0.11%	---	Margin
n-Hexane***	0.0106	0.052	24.07	0.065%	30.00	1.65%	---	Margin
Methanol***	---	---	---	0.002%	1.00	0.05%	---	Margin
Toluene***	---	---	---	0.004%	2.00	0.11%	---	Margin
2,2,4-Trimethylpentane***	---	---	---	0.004%	2.00	0.11%	---	Margin
Xylenes***	---	---	---	0.004%	2.00	0.11%	---	Margin
Total HAP***	---	---	---	0.09%	41.00	2.25%	---	Margin

* = Hydrocarbon (HC)
** = also Volatile Organic Compound (VOC)
*** = also Hazardous Air Pollutant (HAP)

Attachment B – Generator Emissions Comparison

Current to New Generator Comparison Summary (tpy)

Pollutant		Current Generator	New Generator	Difference
Criteria	NOx	2.22	0.15	(2.07)
	CO	3.64	0.30	(3.34)
	VOC	0.03	0.08	0.05
	SO2	0.00	0.00	0.00
	PM10/2.5	0.01	0.01	(0.00)

Current generator emissions based on Emission factors used in annual reporting and assuming permitted 500 hr/hr

Attachment C – Supporting Documents and EPA Certification

Cat® DG100

GAS GENERATOR SETS

NORTH AMERICA



Image shown may not reflect actual configuration.

Engine Model	6.2L V8 TCAC
No. of Cylinders	8
Bore x Stroke	101.6 mm x 95.3 mm
Displacement	6.2 Liter
Compression Ratio	9.8:1
Aspiration	Turbocharged & Aftercooled
Fuel / Ignition System	Electronic Regulator / Spark Ignition
Governor	G2 Class* capable - Electronic

For North America, 60 Hz Market

Model	Emergency Standby		Emissions Strategy
	Natural Gas ekW	Propane ekW	
DG100	100	89	U.S. EPA Certified for Stationary Emergency Application

PACKAGE PERFORMANCE

Performance	Emergency Standby	
	Natural Gas	Propane
Frequency	60 Hz	
Genset power rating, ekW (3-Phase / 1-Phase)	100 / 100	89 / 86
Performance Numbers (3-Phase / 1-Phase)	EM6752 / EM6934	EM6753 / EM6935
Fuel System / Fuel Consumption		
Minimum required fuel delivery pressure at rail connector, psi (in. water)	0.36 (10)	
Maximum required fuel delivery pressure at rail connector, psi (in. water)	0.43 (12)	
100% load with fan, kg/hr (CFH)	27.7 (1255)	25.8 (482)
75% load with fan, kg/hr (CFH)	21.9 (989)	20.2 (378)
50% load with fan, kg/hr (CFH)	15.5 (701)	14.3 (268)
Cooling System ¹		
Radiator air flow, m³/min (CFM)	322 (11371)	
Radiator air flow restriction (system), kPa (in. water)	0.12	
Engine coolant capacity, L (gal)	14.5 (3.8)	
Radiator coolant capacity, L (gal)	7.6 (2.0)	
Total coolant capacity, L (gal)	22.1 (5.8)	
Inlet Air		
Combustion air inlet flow rate, m³/min (CFM) (kg/hr)	6.2 (219) (457.7)	5.1 (178.7) (372)
Maximum allowable intake air restriction, kPa (in. water)	3.48 (13.98)	
Exhaust System		
Exhaust gas temperature after turbo, °C (°F)	630 (1166)	619 (1146)
Exhaust gas flow rate, m³/min (CFM) (kg/hr)	24.5 (846.1) (486)	19.5 (688.6) (396)
Maximum allowable exhaust system back pressure, kPa (in. water)	15 (60.28)	
Heat Rejection		
Heat rejection to jacket water, kW (BTU/min)	74 (4208)	61 (3469)
Heat rejection to after cooler, kW (BTU/min)	11 (625)	8 (455)
Heat rejection to oil cooler, kW (BTU/min)	11 (625)	8 (455)
Heat rejection to atmosphere from engine, kW (BTU/min)	52 (2957)	37 (2104)
Heat rejection to exhaust, kW (BTU/min)	117 (6653)	96 (5459)

DG100 GAS GENERATOR SETS

Electric Power

North America



PACKAGE PERFORMANCE (contd.)

Lube System	Emergency Standby	
	Natural Gas	Propane
Sump refill with filter, L (gal)	5.4 (1.43)	
Maximum oil temperature, °C (°F)	121 (250)	
Maximum oil capacity, L (gal)	7.6 (2)	
Minimum oil capacity, L (gal)	4.7 (1.24)	
Emissions (Meets EPA Stationary Emergency Limits)		
NOx + HC, g/kW-hr	0.8	
CO, g/kW-hr	20.6	

ALTERNATOR DATA

DG100						
Alternator	60 Hz 3-Phase					60 Hz 1-Phase
Voltages	480/277	240/120	240/139	208/120	600/346	240/120
Motor starting capability @ 30% Voltage Dip, skVA	336	263	336	264	349	229
Current, Amps - Natural Gas / Propane	150 / 134	301 / 268	301 / 267	347 / 309	120 / 107	417 / 358
Temperature rise ² , °C	105	105	105	105	105	105
Frame size	M2254L4	M2254L4	M2254L4	M2254L4	M2254L4	M2238L4
Excitation	PMG	PMG	PMG	PMG	PMG	SE

Motor starting capability is based on the assumption of 0.6 pf.

Temperature rise is based on the rating type and the respective site conditions.

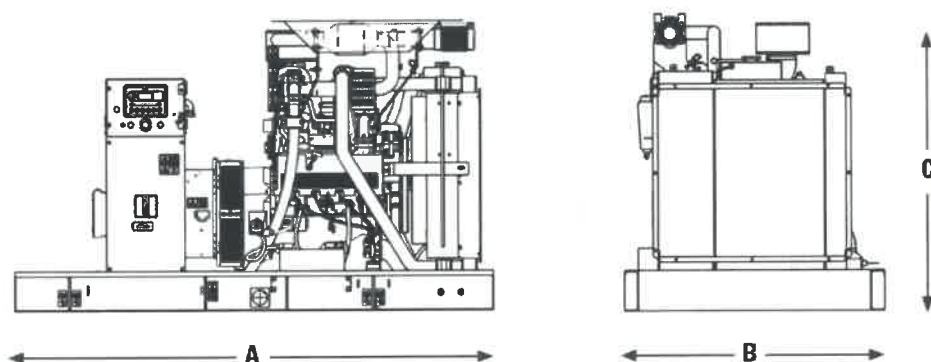
DG100 GAS GENERATOR SETS

Electric Power

North America



WEIGHTS & DIMENSIONS



Length "A" mm (in)	Width "B" mm (in)	Height "C" mm (in)	Dry Weight Kg (lb)
2442 (96)	1297 (51)	1449 (57)	1364 (3007)

Note: General configuration not to be used for installation. See general dimension drawings for detail.

APPLICABLE CODES AND STANDARDS:

CSA C22.2 No 100-04, UL142, UL489, UL869, cUL/UL2200, NFPA 37, NFPA 70, NFPA 99, NFPA 110, IBC, IEC60034-1, ISO 3046, ISO 8528, NEMA MG 1-33.

EMERGENCY STANDBY POWER (ESP): Output available with varying load for the duration of the interruption of the normal source power. Average power output is 70% of the standby rated kW. Typical operation is 50 hours per year, with maximum expected usage of 200 hours per year.

Ratings are based on SAE J1349 standard conditions. These ratings also apply at ISO 3046 standard conditions.

1 CFH = 1000 BTU/HR

Fuel Rates are based on heat values of 962 BTU/SCF for Natural Gas and 2472 BTU/SFC for Propane Vapor @77°F (25°C) and 2152 ft (656 m) above sea level.

DEFINITIONS AND CONDITIONS

¹ For ambient and altitude capabilities, consult your Cat dealer.

Air flow restriction (system) is added to the existing restriction from the factory.

² Generator temperature rise is based on 40°C (104°F) ambient per NEMA MG1-32.

*Governing Class capability as per ISO-8528-5. Consult your local Cat dealer for configuration and site specific transient performance classification.

LET'S DO THE WORK.™

LEHE21072-12 (11/24)

www.cat.com/electricpower
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Materials and specifications are subject to change without notice. The International System of Units (SI) is used in this publication. CAT, CATERPILLAR, LET'S DO THE WORK, their respective logos, "Caterpillar Corporate Yellow", the "Power Edge" and Cat "Modern Hex" trade dress as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2025 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: **Origin Engines**
(U.S. Manufacturer or Importer)

Certificate Number: **SORGB06.2ET2-007**

Effective Date:
11/27/2024

Expiration Date:
12/31/2025


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
11/27/2024
Revision Date:
N/A

Manufacturer: **Origin Engines**

Engine Family: **SORGB06.2ET2**

Mobile/Stationary Certification Type: **Stationary**

Fuel : **LPG/Propane**

Natural Gas (CNG/LNG)

Emission Standards :

Stationary Part 1048

CO (g/kW-hr) : 20.6

HC + NOx (g/kW-hr) : 0.8

NMHC + NOx (g/kW-hr) : 0.8

Part 60 Subpart JJJ Table 1

NOx (g/Hp-hr) : 2.0

VOC (g/Hp-hr) : 1.0

CO (g/Hp-hr) : 4.0

Emergency Use Only : **Y**

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60, 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60, 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60, 40 CFR Part 60.

This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60, 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60, 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

