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Time(s)	Normalized speed (percent)	Normalized torque (percent) ¹	Time(s)	Normalized speed (percent)	Normalized torque (percent) ¹
972	80	41	1044	81	43
973	81	30	1045	81	41
974	81	23	1046	79	46
975	81	19	1047	80	44
976	81	25	1048	84	20
977	81	29	1049	79	31
978	83	47	1050	87	29
979	81	90	1051	82	49
980	81	75	1052	84	21
981	80	60	1053	82	56
982	81	48	1054	81	30
983	81	41	1055	85	21
984	81	30	1056	86	16
985	80	24	1057	79	52
986	81	20	1058	78	60
987	81	21	1059	74	55
988	81	29	1060	78	84
989	81	29	1061	80	54
990	81	27	1062	80	35
991	81	23	1063	82	24
992	81	25	1064	83	43
993	81	26	1065	79	49
994	81	22	1066	83	50
995	81	20	1067	86	12
996	81	17	1068	64	14
997	81	23	1069	24	14
998	83	65	1070	49	21
999	81	54	1071	77	48
1000	81	50	1072	103	11
1001	81	41	1073	98	48
1002	81	35	1074	101	34
1003	81	37	1075	99	39
1004	81	29	1076	103	11
1005	81	28	1077	103	19
1006	81	24	1078	103	7
1007	81	19	1079	103	13
1008	81	16	1080	103	10
1009	80	16	1081	102	13
1010	83	23	1082	101	29
1011	83	17	1083	102	25
1012	83	13	1084	102	20
1013	83	27	1085	96	60
1014	81	58	1086	99	38
1015	81	60	1087	102	24
1016	81	46	1088	100	31
1017	80	41	1089	100	28
1018	80	36	1090	98	3
1019	81	26	1091	102	26
1020	86	18	1092	95	64
1021	82	35	1093	102	23
1022	79	53	1094	102	25
1023	82	30	1095	98	42
1024	83	29	1096	93	68
1025	83	32	1097	101	25
1026	83	28	1098	95	64
1027	76	60	1099	101	35
1028	79	51	1100	94	59
1029	86	26	1101	97	37
1030	82	34	1102	97	60
1031	84	25	1103	93	98
1032	86	23	1104	98	53
1033	85	22	1105	103	13
1034	83	26	1106	103	11
1035	83	25	1107	103	11
1036	83	37	1108	103	13
1037	84	14	1109	103	10
1038	83	39	1110	103	10
1039	76	70	1111	103	11
1040	78	81	1112	103	10
1041	75	71	1113	103	10
1042	86	47	1114	102	18
1043	83	35	1115	102	31

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Time(s)	Normalized speed (percent)	Normalized torque (percent) ¹	Time(s)	Normalized speed (percent)	Normalized torque (percent) ¹
1116	101	24	1188	74	19
1117	102	19	1189	70	22
1118	103	10	1190	71	23
1119	102	12	1191	73	19
1120	99	56	1192	73	19
1121	96	59	1193	72	20
1122	74	28	1194	64	60
1123	66	62	1195	70	39
1124	74	29	1196	66	56
1125	64	74	1197	68	64
1126	69	40	1198	30	68
1127	76	2	1199	70	38
1128	72	29	1200	66	47
1129	66	65	1201	76	14
1130	54	69	1202	74	18
1131	69	56	1203	69	46
1132	69	40	1204	68	62
1133	73	54	1205	68	62
1134	63	92	1206	68	62
1135	61	67	1207	68	62
1136	72	42	1208	68	62
1137	78	2	1209	68	62
1138	76	34	1210	54	50
1139	67	80	1211	41	37
1140	70	67	1212	27	25
1141	53	70	1213	14	12
1142	72	65	1214	0	0
1143	60	57	1215	0	0
1144	74	29	1216	0	0
1145	69	31	1217	0	0
1146	76	1	1218	0	0
1147	74	22	1219	0	0
1148	72	52	1220	0	0
1149	62	96	1221	0	0
1150	54	72	1222	0	0
1151	72	28	1223	0	0
1152	72	35	1224	0	0
1153	64	68	1225	0	0
1154	74	27	1226	0	0
1155	76	14	1227	0	0
1156	69	38	1228	0	0
1157	66	59	1229	0	0
1158	64	99	1230	0	0
1159	51	86	1231	0	0
1160	70	53	1232	0	0
1161	72	36	1233	0	0
1162	71	47	1234	0	0
1163	70	42	1235	0	0
1164	67	34	1236	0	0
1165	74	2	1237	0	0
1166	75	21	1238	0	0
1167	74	15			
1168	75	13			
1169	76	10			
1170	75	13			
1171	75	10			
1172	75	7			
1173	75	13			
1174	76	8			
1175	76	7			
1176	67	45			
1177	75	13			
1178	75	12			
1179	73	21			
1180	68	46			
1181	74	8			
1182	76	11			
1183	76	14			
1184	74	11			
1185	74	18			
1186	73	22			
1187	74	20			

¹ The percent torque is relative to maximum torque at the commanded engine speed.

[69 FR 39213, June 29, 2004, as amended at 70 FR 40465, July 13, 2005]

PART 1042—CONTROL OF EMISSIONS FROM NEW AND IN-USE MARINE COMPRESSION-IGNITION ENGINES AND VESSELS

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APPENDIX III TO PART 1042—NOT-TO-EXCEED ZONES

AUTHORITY: 42 U.S.C. 7401–7671q.

SOURCE: 73 FR 37243, June 30, 2008, unless otherwise noted.

Subpart A—Overview and Applicability

§ 1042.1 Applicability.

Except as provided in this section and §1042.5, the regulations in this part 1042 apply for all new compression-ignition marine engines (including new engines deemed to be compression-ignition engines under this section) and vessels containing such engines. See §1042.901 for the definitions of engines and vessels considered to be new.

(a) The emission standards of this part 1042 for freshly manufactured engines apply for new marine engines starting with the model years noted in the following table:

TABLE 1 TO § 1042.1—PART 1042 APPLICABILITY BY MODEL YEAR

Engine category	Maximum engine power ^a	Displacement (L/cyl) or application	Model year
Category 1	kW < 75	disp. < 0.9	^b 2009
		75 ≤ kW ≤ 3700	2012
		disp. < 0.9	2013
		0.9 ≤ disp. < 1.2	2014
		1.2 ≤ disp. < 2.5	2013
		2.5 ≤ disp. < 3.5	2012
	kW > 3700	All	2014
Category 2	kW ≤ 3700	7.0 ≤ disp. < 15.0	2013
	kW > 3700	7.0 ≤ disp. < 15.0	2014
	All	15 ≤ disp. < 30	2014
Category 3	All	disp. ≥ 30	2011

^a See § 1042.140, which describes how to determine maximum engine power.
^b See Table 1 of § 1042.101 for the first model year in which this part 1042 applies for engines with maximum engine power below 75 kW and displacement at or above 0.9 L/cyl.

(b) New engines with maximum engine power below 37 kW and originally manufactured and certified before the model years identified in Table 1 to this section are subject to emission standards as specified in appendix I of this part. The provisions of this part do not apply for such engines, except as follows beginning June 29, 2010:

- (1) The allowances of this part apply.
- (2) The definitions of “new marine engine” and “model year” apply.
- (c) Marine engines originally meeting Tier 1 or Tier 2 standards as specified

in appendix I of this part remain subject to those standards. This includes uncertified engines that meet standards under 40 CFR 1068.265. Those engines remain subject to recall provisions as specified in 40 CFR part 1068, subpart F, throughout the useful life corresponding to the original certification. Also, tampering and defeat-device prohibitions continue to apply for those engines as specified in 40 CFR 1068.101. The remanufacturing provisions in subpart I of this part may apply for remanufactured engines

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originally manufactured in model years before the model years identified in Table 1 to this section.

(d) [Reserved]

(e) The requirements of subpart I of this part apply to remanufactured Category 1 and Category 2 engines beginning July 7, 2008.

(f) The marine engines listed in this paragraph (f) are subject to all the requirements of this part even if they do not meet the definition of “compression-ignition” in § 1042.901. The following engines are deemed to be compression-ignition engines for purposes of this part:

(1) Marine engines powered by natural gas or other gaseous fuels with maximum engine power at or above 250 kW. Note that gaseous-fueled engines with maximum engine power below 250 kW may or may not meet the definition of “compression-ignition” in § 1042.901.

(2) Marine gas turbine engines.

(3) Other marine internal combustion engines that do not meet the definition of “spark-ignition” in § 1042.901.

(g) Some of the provisions of this part may apply for other engines as specified in 40 CFR part 1043.

(h) Starting with the model years noted in Table 1 of this section, all of the subparts of this part, except subpart I, apply as specified in 40 CFR part 60, subpart IIII, to freshly manufactured stationary compression-ignition engines subject to the standards of 40 CFR part 60, subpart IIII, that have a per-cylinder displacement at or above 10 liters and below 30 liters per cylinder. Such engines are considered Category 2 engines for purposes of this part 1042.

[75 FR 22994, Apr. 30, 2010, as amended at 76 FR 37977, June 28, 2011; 81 FR 74142, Oct. 25, 2016; 86 FR 34507, June 29, 2021]

§ 1042.2 Who is responsible for compliance?

The regulations in this part 1042 contain provisions that affect both engine manufacturers and others. However, the requirements of this part, other than those of subpart I of this part, are generally addressed to the engine manufacturer for freshly manufactured marine engines or other certificate holders. The term “you” generally means

the engine manufacturer, as defined in § 1042.901, especially for issues related to certification (including production-line testing, reporting, etc.). Note that for engines that become new after being placed into service (such as engines converted from highway or stationary use, or engines installed on vessels that are reflagged to become U.S. vessels), the requirements that normally apply for manufacturers of freshly manufactured engines apply to the importer or any other entity we allow to obtain a certificate of conformity.

[81 FR 74142, Oct. 25, 2016]

§ 1042.5 Exclusions.

This part does not apply to the following marine engines:

(a) *Foreign vessels.* The requirements and prohibitions of this part do not apply to engines installed on foreign vessels, as defined in § 1042.901. Note however, that the requirements and prohibitions of this part do apply to engines installed on any formerly foreign vessels that are reflagged as U.S.-flagged vessels.

(b) *Hobby engines.* Engines installed in reduced-scale models of vessels that are not capable of transporting a person are not subject to the provisions of this part 1042.

(c) *Recreational gas turbine engines.* The requirements and prohibitions of this part do not apply to gas turbine engines installed on recreational vessels, as defined in § 1042.901.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59192, Oct. 8, 2008; 75 FR 22995, Apr. 30, 2010]

§ 1042.10 Organization of this part.

This part 1042 is divided into the following subparts:

(a) Subpart A of this part defines the applicability of this part 1042 and gives an overview of regulatory requirements.

(b) Subpart B of this part describes the emission standards and other requirements that must be met to certify engines under this part. Note that § 1042.145 discusses certain interim requirements and compliance provisions that apply only for a limited time.

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(c) Subpart C of this part describes how to apply for a certificate of conformity.

(d) Subpart D of this part describes general provisions for testing production-line engines.

(e) Subpart E of this part describes general provisions for testing in-use engines.

(f) Subpart F of this part and 40 CFR 1065 describe how to test your engines.

(g) Subpart G of this part and 40 CFR part 1068 describe requirements, prohibitions, and other provisions that apply to engine manufacturers, vessel manufacturers, owners, operators, rebuilders, and all others.

(h) Subpart H of this part describes how you may generate and use emission credits to certify your engines.

(i) Subpart I of this part describes how these regulations apply for remanufactured engines.

(j) Subpart J of this part contains definitions and other reference information.

§ 1042.15 Do any other regulation parts apply to me?

(a) Part 1043 of this chapter describes requirements related to international pollution prevention that apply for some of the engines subject to this part.

(b) The evaporative emission requirements of part 1060 of this chapter apply to vessels that include installed engines fueled with a volatile liquid fuel as specified in § 1042.107. (Note: Conventional diesel fuel is not considered to be a volatile liquid fuel.)

(c) Part 1065 of this chapter describes procedures and equipment specifications for testing engines to measure exhaust emissions. Subpart F of this part 1042 describes how to apply the provisions of part 1065 of this chapter to determine whether engines meet the exhaust emission standards in this part.

(d) The requirements and prohibitions of part 1068 of this chapter apply to everyone, including anyone who manufactures, imports, installs, owns, operates, or rebuilds any of the engines subject to this part 1042, or vessels containing these engines. Part 1068 of this chapter describes general provisions, including these seven areas:

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(1) Prohibited acts and penalties for engine manufacturers, vessel manufacturers, and others.

(2) Rebuilding and other aftermarket changes.

(3) Exclusions and exemptions for certain engines.

(4) Importing engines.

(5) Selective enforcement audits of your production.

(6) Defect reporting and recall.

(7) Procedures for hearings.

(e) Other parts of this chapter apply if referenced in this part.

[75 FR 22995, Apr. 30, 2010]

§ 1042.30 Submission of information.

Unless we specify otherwise, send all reports and requests for approval to the Designated Compliance Officer (see § 1042.901). See § 1042.925 for additional reporting and recordkeeping provisions.

[81 FR 74142, Oct. 25, 2016]

Subpart B—Emission Standards and Related Requirements

§ 1042.101 Exhaust emission standards for Category 1 and Category 2 engines.

(a) *Duty-cycle standards.* Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part.

(2) The following CO emission standards in this paragraph (a)(2) apply starting with the applicable model year identified in § 1042.1:

(i) 8.0 g/kW-hr for engines below 8 kW.

(ii) 6.6 g/kW-hr for engines at or above 8 kW and below 19 kW.

(iii) 5.5 g/kW-hr for engines at or above 19 kW and below 37 kW.

(iv) 5.0 g/kW-hr for engines at or above 37 kW.

(3) Except as described in paragraphs (a)(4) and (5) of this section, the Tier 3 standards for PM and NO_x+HC emissions are described in the following tables:

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TABLE 1 TO § 1042.101—TIER 3 STANDARDS FOR CATEGORY 1 ENGINES BELOW 3700 kW^a

Power density and application	Displacement (L/cyl)	Maximum engine power	Model year	PM (g/kW-hr)	NO _x +HC (g/kW-hr) ^b	
All	disp. < 0.9	kW < 19	2009+	0.40	7.5	
		19 ≤ kW < 75	2009–2013	0.30	7.5	
			2014+	0.30 ^c	4.7 ^c	
Commercial engines with kW/L ≤ 35.	disp. < 0.9	kW ≥ 75	2012+	0.14	5.4	
	0.9 ≤ disp. < 1.2	all	2013+	0.12	5.4	
	1.2 ≤ disp. < 2.5	kW < 600	2014–2017	0.11	5.6	
		kW ≥ 600	2018+	0.10	5.6	
	2.5 ≤ disp. < 3.5	kW < 600	2014+	0.11	5.6	
	kW ≥ 600	2013–2017	0.11	5.6		
3.5 ≤ disp. < 7.0	kW ≥ 600	2018+	0.10	5.6		
	kW < 600	2012–2017	0.11	5.8		
	kW ≥ 600	2018+	0.10	5.8		
	kW ≥ 600	2012+	0.11	5.8		
Commercial engines with kW/L > 35, and all recreational engines ≥ 75 kW.	disp. < 0.9	kW ≥ 75	2012+	0.15	5.8	
	0.9 ≤ disp. < 1.2	all	2013+	0.14	5.8	
	1.2 ≤ disp. < 2.5		2014+	0.12	5.8	
	2.5 ≤ disp. < 3.5		2013+	0.12	5.8	
	3.5 ≤ disp. < 7.0		2012+	0.11	5.8	

^a No Tier 3 standards apply for commercial Category 1 engines at or above 3700 kW. See § 1042.1(c) and paragraph (a)(7) of this section for the standards that apply for these engines.

^b The applicable NO_x+HC standards specified for Tier 2 engines in Appendix I of this part continue to apply instead of the values noted in the table for commercial engines at or above 2000 kW. FELs for these engines may not be higher than the Tier 1 NO_x standard specified in Appendix I of this part.

^c See paragraph (a)(4) of this section for alternative PM and NO_x+HC standards for engines at or above 19 kW and below 75 kW with displacement below 0.9 L/cyl.

TABLE 2 TO § 1042.101— TIER 3 STANDARDS FOR CATEGORY 2 ENGINES BELOW 3700 kW^a

Displacement (L/cyl)	Maximum engine power	Model year	PM (g/kW-hr)	NO _x +HC (g/kW-hr)
7.0 ≤ disp. < 15.0	kW < 2000	2013+	0.14	6.2
	2000 ≤ kW ≤ 3700	2013+	0.14	7.8 ^b
15.0 ≤ disp. < 20.0 ^c	kW < 2000	2014+	0.34	7.0
20.0 ≤ disp. < 25.0 ^c	kW < 2000	2014+	0.27	9.8
25.0 ≤ disp. < 30.0 ^c	kW < 2000	2014+	0.27	11.0

^a The Tier 3 standards in this table do not apply for Category 2 engines at or above 2000 kW with per-cylinder displacement at or above 15.0 liters, or for any Category 2 engines at or above 3700 kW. See § 1042.1(c) and paragraphs (a)(6) through (8) of this section for the standards that apply for these engines.

^b For engines subject to the 7.8 g/kW-hr NO_x+HC standard, FELs may not be higher than the Tier 1 NO_x standards specified in Appendix I of this part.

^c There are no Tier 3 standards for Category 2 engines with per-cylinder displacement at or above 15 and 20 liters with maximum engine power at or above 2000 kW. See paragraphs (a)(6) and (7) of this section for the Tier 4 standards that apply for these engines starting with the 2014 model year.

(4) For Tier 3 engines at or above 19 kW and below 75 kW with displacement below 0.9 L/cyl, you may alternatively certify some or all of your engine families to a PM emission standard of 0.20 g/kW-hr and a NO_x+HC emission standard of 5.8 g/kW-hr for 2014 and later model years.

(5) Starting with the 2014 model year, recreational marine engines at or above 3700 kW (with any displacement) must be certified under this part 1042 to the Tier 3 standards specified in this

section for 3.5 to 7.0 L/cyl recreational marine engines.

(6) Interim Tier 4 PM standards apply for 2014 and 2015 model year engines between 2000 and 3700 kW as specified in this paragraph (a)(6). These engines are considered Tier 4 engines.

(i) For Category 1 engines, the Tier 3 PM standards from Table 1 to this section continue to apply. PM FELs for these engines may not be higher than the applicable Tier 2 PM standards specified in appendix I of this part.

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(ii) For Category 2 engines with per-cylinder displacement below 15.0 liters, the Tier 3 PM standards from Table 2 to this section continue to apply. PM FELs for these engines may not be higher than 0.27 g/kW-hr.

(iii) For Category 2 engines with per-cylinder displacement at or above 15.0 liters, the PM standard is 0.34 g/kW-hr

for engines at or above 2000 kW and below 3300 kW, and 0.27 g/kW-hr for engines at or above 3300 kW and below 3700 kW. PM FELs for these engines may not be higher than 0.50 g/kW-hr.

(7) Except as described in paragraph (a)(8) of this section, the Tier 4 standards for PM, NO_x, and HC emissions are described in the following table:

TABLE 3 TO § 1042.101—TIER 4 STANDARDS FOR CATEGORY 2 AND COMMERCIAL CATEGORY 1 ENGINES AT OR ABOVE 600 kW

Maximum engine power	Displacement (L/cyl)	Model year	PM (g/kW-hr)	NO _x (g/kW-hr)	HC (g/kW-hr)
600 ≤ kW < 1400	all	2017+	0.04	1.8	0.19
1400 ≤ kW < 2000	all	2016+	0.04	1.8	0.19
2000 ≤ kW ≤ 3700 ^a	all	2014+	0.04	1.8	0.19
kW > 3700	disp. < 15.0	2014–2015	0.12	1.8	0.19
	15.0 ≤ disp. < 30.0	2014–2015	0.25	1.8	0.19
	all	2016+	0.06	1.8	0.19

^a See paragraph (a)(6) of this section for interim PM standards that apply for model years 2014 and 2015 for engines between 2000 and 3700 kW. The Tier 4 NO_x FEL cap for engines at or above 2000 kW and below 3700 kW is 7.0 g/kW-hr. Starting in the 2016 model year, the Tier 4 PM FEL cap for engines at or above 2000 kW and below 3700 kW is 0.34 g/kW-hr.

(8) The following optional provisions apply for complying with the Tier 3 and Tier 4 standards specified in paragraphs (a)(3) through (7) of this section:

(i) You may use NO_x credits accumulated through the ABT program to certify Tier 4 engines to a NO_x+HC emission standard of 1.9 g/kW-hr instead of the NO_x and HC standards that would otherwise apply by certifying your family to a NO_x+HC FEL. Calculate the NO_x credits needed as specified in subpart H of this part using the NO_x+HC emission standard and FEL in the calculation instead of the otherwise applicable NO_x standard and FEL. You may not generate credits relative to the alternate standard or certify to the standard without using credits.

(ii) For engines below 1000 kW, you may delay complying with the Tier 4 standards in the 2017 model year for up to nine months, but you must comply no later than October 1, 2017.

(iii) For engines at or above 3700 kW, you may delay complying with the Tier 4 standards in the 2016 model year for up to twelve months, but you must comply no later than December 31, 2016.

(iv) For Category 2 engines at or above 1400 kW, you may alternatively comply with the Tier 3 and Tier 4 standards specified in Table 4 of this section instead of the NO_x, HC, NO_x+HC, and PM standards specified in paragraphs (a)(3) through (7) of this section. The CO standards specified in paragraph (a)(2) of this section apply without regard to whether you choose this option. If you choose this option, you must do so for all engines at or above 1400 kW in the same displacement category (that is, 7–15, 15–20, 20–25, or 25–30 liters per cylinder) in model years 2012 through 2015.

TABLE 4 TO § 1042.101—OPTIONAL TIER 3 AND TIER 4 STANDARDS FOR CATEGORY 2 ENGINES AT OR ABOVE 1400 kW

Tier	Maximum engine power	Model year	PM (g/kW-hr)	NO _x (g/kW-hr)	HC (g/kW-hr)
Tier 3	kW ≥ 1400	2012–2014	0.14	7.8 NO _x +HC	
Tier 4	1400 ≤ kW ≤ 3700	2015	0.04	1.8	0.19
	kW > 3700	2015	0.06	1.8	0.19

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(b) *Averaging, banking, and trading.* You may generate or use emission credits under the averaging, banking, and trading (ABT) program as described in subpart H of this part for demonstrating compliance with NO_x, NO_x+HC, and PM emission standards for Category 1 and Category 2 engines. You may also use NO_x or NO_x+HC emission credits to comply with the alternate NO_x+HC standard in paragraph (a)(8)(i) of this section. Generating or using emission credits requires that you specify a family emission limit (FEL) for each pollutant you include in the ABT program for each engine family. These FELs serve as the emission standards for the engine family with respect to all required testing instead of the standards specified in paragraph (a) of this section. The FELs determine the not-to-exceed standards for your engine family, as specified in paragraph (c) of this section. Unless otherwise specified, the following FEL caps apply:

(1) FELs for Tier 3 engines may not be higher than the applicable Tier 2 standards specified in Appendix I of this part.

(2) FELs for Tier 4 engines may not be higher than the applicable Tier 3 standards specified in paragraph (a)(3) of this section.

(3) The following FEL caps apply for engines at or above 3700 kW that are not subject to Tier 3 standards under paragraph (a)(3) of this section:

(i) FELs may not be higher than the applicable Tier 1 NO_x standards specified in Appendix I of this part before the Tier 4 standards start to apply.

(ii) FELs may not be higher than the applicable Tier 2 NO_x+THC standards specified in Appendix I of this part after the Tier 4 standards start to apply.

(c) *Not-to-exceed standards.* Except as noted in §1042.145(e), exhaust emissions from all engines subject to the requirements of this part may not exceed the not-to-exceed (NTE) standards as follows:

(1) Use the following equation to determine the NTE standards:

(i) NTE standard for each pollutant = $STD \times M$.

Where:

STD = The standard specified for that pollutant in this section if you certify without using ABT for that pollutant; or the FEL for that pollutant if you certify using ABT.

M = The NTE multiplier for that pollutant.

(ii) Round each NTE standard to the same number of decimal places as the emission standard.

(2) Determine the applicable NTE zone and subzones as described in §1042.515. Determine NTE multipliers for specific zones and subzones and pollutants as follows:

(i) For marine engines certified using the duty cycle specified in §1042.505(b)(1), except for variable-speed propulsion marine engines used with controllable-pitch propellers or with electrically coupled propellers, apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_x+HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for Tier 4 NO_x and HC standards and for Tier 3 NO_x+HC standards.

(D) Subzone 2: 1.9 for PM and CO standards.

(ii) For recreational marine engines certified using the duty cycle specified in §1042.505(b)(2), except for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers, apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_x+HC standards.

(B) Subzone 1: 1.5 for Tier 3 PM and CO standards.

(C) Subzones 2 and 3: 1.5 for Tier 3 NO_x+HC standards.

(D) Subzones 2 and 3: 1.9 for PM and CO standards.

(iii) For variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers that are certified using the duty cycle specified in §1042.505(b)(1), (2), or (3), apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_x+HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for Tier 4 NO_x and HC standards and for Tier 3 NO_x+HC standards.

(D) Subzone 2: 1.9 for PM and CO standards. However, there is no NTE standard in Subzone 2b for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(iv) For constant-speed engines certified using a duty cycle specified in §1042.505(b)(3) or (4), apply the following NTE multipliers:

(A) Subzone 1: 1.2 for Tier 3 NO_x+HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.5 for Tier 4 NO_x and HC standards and for Tier 3 NO_x+HC standards.

(D) Subzone 2: 1.9 for PM and CO standards. However, there is no NTE standard for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(v) For variable-speed auxiliary marine engines certified using the duty cycle specified in §1042.505(b)(5)(ii) or (iii):

(A) Subzone 1: 1.2 for Tier 3 NO_x+HC standards.

(B) Subzone 1: 1.5 for Tier 4 standards and Tier 3 PM and CO standards.

(C) Subzone 2: 1.2 for Tier 3 NO_x+HC standards.

(D) Subzone 2: 1.5 for Tier 4 standards and Tier 3 PM and CO standards. However, there is no NTE standard for PM emissions if the engine family's applicable standard for PM is at or above 0.07 g/kW-hr.

(3) The NTE standards apply to your engines whenever they operate within the NTE zone for an NTE sampling period of at least thirty seconds, during which only a single operator demand set point may be selected. Engine operation during a change in operator demand is excluded from any NTE sampling period. There is no maximum NTE sampling period.

(4) Collect emission data for determining compliance with the NTE standards using the procedures described in subpart F of this part.

(5) You may ask us to accept as compliant an engine that does not fully meet specific requirements under the applicable NTE standards where such deficiencies are necessary for safety.

(d) *Fuel types.* The exhaust emission standards in this section apply for en-

gines using the fuel type on which the engines in the engine family are designed to operate.

(1) You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

(i) Alcohol-fueled engines must comply with Tier 3 HC standards based on THCE emissions and with Tier 4 standards based on NMHCE emissions.

(ii) Gaseous-fueled engines must comply with HC standards based on nonmethane-nonethane hydrocarbon emissions.

(iii) Diesel-fueled and all other engines not described in paragraph (d)(1)(i) or (ii) of this section must comply with Tier 3 HC standards based on THC emissions and with Tier 4 standards based on NMHC emissions.

(2) Tier 3 and later engines must comply with the exhaust emission standards when tested using test fuels containing 15 ppm or less sulfur (ultra low-sulfur diesel fuel). Manufacturers may use low-sulfur diesel fuel (without request) to certify an engine otherwise requiring an ultra low-sulfur test fuel; however, emissions may not be corrected to account for the effects of using higher sulfur fuel.

(3) Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel in addition to complying with the requirements of this part when operated using diesel fuel.

(e) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life values are as follows, except as specified by paragraph (e)(2) or (3) of this section:

(i) 10 years or 1,000 hours of operation for recreational Category 1 engines

(ii) 5 years or 3,000 hours of operation for commercial engines below 19 kW.

(iii) 7 years or 5,000 hours of operation for commercial engines at or above 19 kW and below 37kW.

(iv) 10 years or 10,000 hours of operation for commercial Category 1 engines at or above 37 kW.

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(v) 10 years or 20,000 hours of operation for Category 2 engines.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design your engine to operate longer than the minimum useful life. Indicators of design life include your recommended overhaul interval and may also include your advertising and marketing materials.

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(3) You may request in your application for certification that we approve a shorter useful life for an engine family. We may approve a shorter useful life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than the shorter useful life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The

useful life value may not be shorter than any of the following:

- (i) 1,000 hours of operation.
- (ii) Your recommended overhaul interval.
- (iii) Your mechanical warranty for the engine.

(f) *Applicability for testing.* The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing. The not-to-exceed standards apply for all testing performed according to the procedures of subpart F of this part.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59192, Oct. 8, 2008; 74 FR 8425, Feb. 24, 2009; 75 FR 22996, Apr. 30, 2010; 81 FR 74142, Oct. 25, 2016; 86 FR 34508, June 29, 2021]

§ 1042.104 Exhaust emission standards for Category 3 engines.

(a) *Duty-cycle standards.* Exhaust emissions from your engines may not exceed emission standards, as follows:

(1) Measure emissions using the test procedures described in subpart F of this part. Note that while no PM standards apply for Category 3 engines, PM emissions must be measured for certification testing and reported under §1042.205. Note also that you are not required to measure PM emissions for other testing.

(2) NO_x standards apply based on the engine's model year and maximum in-use engine speed as shown in the following table:

TABLE 1 TO § 1042.104—NO_x EMISSION STANDARDS FOR CATEGORY 3 ENGINES
[g/kW-hr]

Emission standards	Model year	Maximum in-use engine speed		
		Less than 130 RPM	130–2000 RPM ^a	Over 2000 RPM
Tier 1	2004–2010	17.0	45.0·n ^(-0.20)	9.8
Tier 2	2011–2015	14.4	44.0·n ^(-0.23)	7.7
Tier 3 ^b	2016 and later	3.4	9.0·n ^(-0.20)	2.0

^a Applicable standards are calculated from n (maximum in-use engine speed, in RPM, as specified in § 1042.140). Round the standards to one decimal place.

^b For engines designed with on-off controls as specified in § 1042.115(g), the Tier 2 standards continue to apply any time the engine has disabled its Tier 3 NO_x emission controls.

(3) The HC standard for Tier 2 and later engines is 2.0 g/kW-hr. This standard applies as follows:

(i) Alcohol-fueled engines must comply with HC standards based on THCE emissions.

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(ii) Natural gas-fueled engines must comply with HC standards based on NMHC emissions.

(iii) Diesel-fueled and all other engines not described in paragraph (a)(3)(i) or (ii) of this section must comply with HC standards based on THC emissions.

(4) The CO standard for Tier 2 and later engines is 5.0 g/kW-hr.

(b) *Averaging, banking, and trading.* Category 3 engines are not eligible for participation in the averaging, banking, and trading (ABT) program as described in subpart H of this part.

(c) *Mode caps.* Measured NO_x emissions from Tier 3 engines may not exceed the cap specified in this paragraph (c) for any applicable duty-cycle test modes with power greater than 10 percent maximum engine power. Calculate the mode cap by multiplying the applicable Tier 3 NO_x standard by 1.5 and rounding to the nearest 0.1 g/kW-hr. Note that mode caps do not apply for pollutants other than NO_x and do not apply for any modes of operation outside of the applicable duty cycles in §1042.505. Category 3 engines are not subject to not-to-exceed standards.

(d) *Useful life.* Your engines must meet the exhaust emission standards of this section over their full useful life, expressed as a period in years or hours of engine operation, whichever comes first.

(1) The minimum useful life value is 3 years or 10,000 hours of operation.

(2) Specify a longer useful life in hours for an engine family under either of two conditions:

(i) If you design, advertise, or market your engine to operate longer than the minimum useful life (your recommended hours until rebuild indicates a longer design life).

(ii) If your basic mechanical warranty is longer than the minimum useful life.

(e) *Applicability for testing.* The duty-cycle emission standards in this section apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing. See paragraph (g) of this section for standards that apply for certain other test procedures, such as some production-line testing.

(f) *Domestic engines.* Engines installed on vessels excluded from 40 CFR part 1043 because they operate only domestically may not be certified for use with residual fuels.

(g) *Alternate installed-engine standards.* NO_x emissions may not exceed the standard specified in this paragraph (g) for test of engines installed on vessels when you are unable to operate the engine at the test points for the specified duty cycle, and you approximate these points consistent with the specifications of section 6 of Appendix 8 to the NO_x Technical Code (incorporated by reference in §1042.910). Calculate the alternate installed-engine standard by multiplying the applicable NO_x standard by 1.1 and rounding to the nearest 0.1 g/kW-hr.

[75 FR 22997, Apr. 30, 2010; 81 FR 74145, Oct. 25, 2016; 86 FR 34508, June 29, 2021]

§ 1042.107 Evaporative emission standards.

(a) There are no evaporative emission standards for diesel-fueled engines, or engines using other nonvolatile or non-liquid fuels (for example, natural gas).

(b) If an engine uses a volatile liquid fuel, such as methanol, the engine's fuel system and the vessel in which the engine is installed must meet the evaporative emission requirements of 40 CFR part 1045 that apply with respect to spark-ignition engines. Manufacturers subject to evaporative emission standards must meet the requirements of 40 CFR 1045.112 as described in 40 CFR part 1060 and do all the following things in the application for certification:

(1) Describe how evaporative emissions are controlled.

(2) Present test data to show that fuel systems and vessels meet the evaporative emission standards we specify in this section if you do not use design-based certification under 40 CFR 1060.240. Show these figures before and after applying deterioration factors, where applicable.

[73 FR 59193, Oct. 8, 2008]

§ 1042.110 Recording reductant use and other diagnostic functions.

(a) Engines equipped with SCR systems using a reductant other than the

engine's fuel must meet the following requirements:

(1) The diagnostic system must monitor reductant supply and alert operators to the need to restore the reductant supply, or to replace the reductant if it does not meet your concentration specifications. Unless we approve other alerts, use a warning lamp and an audible alarm. You do not need to separately monitor reductant quality if your system uses input from an exhaust NO_x sensor (or other sensor) to alert operators when reductant quality is inadequate. However, tank level or DEF flow must be monitored in all cases.

(2) The onboard computer log must record in nonvolatile computer memory all incidents of engine operation with inadequate reductant injection or reductant quality. Use good engineering judgment to ensure that the operator can readily access the information to submit the report required by §1042.660. For example, you may meet this requirement by documenting the incident in a text file that can be downloaded or printed by the operator.

(3) SCR systems must also conform to the provisions of paragraph (d) of this section if they are equipped with on-off controls as allowed under §1042.115(g).

(b) [Reserved]

(c) You may equip your engine with other diagnostic features. If you do, they must be designed to allow us to read and interpret the codes. Note that §§1042.115 and 1042.205 require that you provide us any information needed to read, record, and interpret all the information broadcast by an engine's onboard computers and electronic control units.

(d) For Category 3 engines equipped with on-off NO_x controls (as allowed by §1042.115(g)), you must also equip your engine to continuously monitor NO_x concentrations in the exhaust. See §1042.650 to determine if this requirement applies for a given Category 1 or Category 2 engine. For measurement technologies involving discrete sampling events, measurements are considered continuous if they repeat at least once every 60 seconds; we may approve a longer sampling period if it is necessary or appropriate for sufficiently

accurate measurements. Describe your system for onboard NO_x measurements in your application for certification. Use good engineering judgment to alert operators if measured NO_x concentrations indicate malfunctioning emission controls. Record any such operation in nonvolatile computer memory. You are not required to monitor NO_x concentrations during operation for which the emission controls may be disabled under §1042.115(g). For the purpose of this paragraph (d), "malfunctioning emission controls" means any condition in which the measured NO_x concentration exceeds the highest value expected when the engine is in compliance with the installed engine standard of §1042.104(g). Use good engineering judgment to determine these expected values during production-line testing of the engine using linear interpolation between test points and accounting for the degree to which the cycle-weighted emissions of the engine are below the standard. You may also use additional intermediate test points measured during the production-line test. Note that the provisions of paragraph (a) of this section also apply for SCR systems covered by this paragraph (d). For engines subject to both the provisions of paragraph (a) of this section and this paragraph (d), use good engineering judgment to integrate diagnostic features to comply with both paragraphs. For example, engines may use on-off NO_x controls to disable certain emission control functions only if the diagnostic system indicates that the monitoring described in this paragraph (d) is active.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22998, Apr. 30, 2010; 81 FR 74145, Oct. 25, 2016; 88 FR 4660, Jan. 24, 2023]

§ 1042.115 Other requirements.

Engines that are required to comply with the emission standards of this part must meet the following requirements:

(a) *Crankcase emissions.* Crankcase emissions may not be discharged directly into the ambient atmosphere from any engine throughout its useful life, except as follows:

(1) Engines may discharge crankcase emissions to the ambient atmosphere if the emissions are added to the exhaust

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emissions (either physically or mathematically) during all emission testing. If you take advantage of this exception, you must do both of the following things:

(i) Manufacture the engines so that all crankcase emissions can be routed into the applicable sampling systems specified in 40 CFR part 1065.

(ii) Account for deterioration in crankcase emissions when determining exhaust deterioration factors.

(2) For purposes of this paragraph (a), crankcase emissions that are routed to the exhaust upstream of exhaust aftertreatment during all operation are not considered to be discharged directly into the ambient atmosphere.

(b) *Torque broadcasting.* Electronically controlled engines must broadcast their speed and output shaft torque (in newton-meters). Engines may alternatively broadcast a surrogate value for determining torque. Engines must broadcast engine parameters such that they can be read with a remote device, or broadcast them directly to their controller area networks. This information is necessary for testing engines in the field (see § 1042.515).

(c) *EPA access to broadcast information.* If we request it, you must provide us any hardware or tools we would need to readily read, interpret, and record all information broadcast by an engine's on-board computers and electronic control modules. If you broadcast a surrogate parameter for torque values, you must provide us what we need to convert these into torque units. We will not ask for hardware or tools if they are readily available commercially.

(d) *Adjustable parameters.* General provisions for adjustable parameters apply as specified in 40 CFR 1068.50. The following additional category-specific provisions apply:

(1) Category 1 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the physically adjustable range. We may require that you set adjustable parameters to any specification within the adjustable range during any testing, including certification testing, selective enforcement auditing, or in-use testing.

(2) Category 2 and Category 3 engines that have adjustable parameters must meet all the requirements of this part for any adjustment in the specified adjustable range. You must specify in your application for certification the adjustable range of each adjustable parameter on a new engine to—

(i) Ensure that safe engine operating characteristics are available within that range, as required by section 202(a)(4) of the Clean Air Act (42 U.S.C. 7521(a)(4)), taking into consideration the production tolerances.

(ii) Limit the physical range of adjustability to the maximum extent practicable to the range that is necessary for proper operation of the engine.

(e) *Prohibited controls—(1) General provisions.* You may not design your engines with emission control devices, systems, or elements of design that cause or contribute to an unreasonable risk to public health, welfare, or safety while operating. For example, an engine may not emit a noxious or toxic substance it would otherwise not emit that contributes to such an unreasonable risk.

(2) *Vanadium sublimation in SCR catalysts.* For engines equipped with vanadium-based SCR catalysts, you must design the engine and its emission controls to prevent vanadium sublimation and protect the catalyst from high temperatures. We will evaluate your engine design based on the following information that you must include in your application for certification:

(i) Identify the threshold temperature for vanadium sublimation for your specified SCR catalyst formulation as described in 40 CFR 1065.1113 through 1065.1121.

(ii) Describe how you designed your engine to prevent catalyst inlet temperatures from exceeding the temperature you identify in paragraph (e)(2)(i) of this section, including consideration of engine wear through the useful life. Also describe your design for catalyst protection in case catalyst temperatures exceed the specified temperature. In your description, include how you considered elevated catalyst temperature resulting from sustained high-load engine operation, catalyst exotherms,

DPF regeneration, and component failure resulting in unburned fuel in the exhaust stream.

(f) *Defeat devices.* You may not equip your engines with a defeat device. A defeat device is an auxiliary emission control device that reduces the effectiveness of emission controls under conditions that the engine may reasonably be expected to encounter during normal operation and use. (Note that this means emission control for operation outside of and between the official test modes is generally expected to be similar to emission control demonstrated at the test modes.) This does not apply to auxiliary emission control devices you identify in your application for certification if any of the following is true:

(1) The conditions of concern were substantially included in the applicable duty-cycle test procedures described in subpart F of this part (the portion during which emissions are measured).

(2) You show your design is necessary to prevent engine (or vessel) damage or accidents.

(3) The reduced effectiveness applies only to starting the engine.

(4) The engine is a Category 3 engine and the AECD conforms to the requirements of paragraph (g) of this section. See §1042.650 to determine if this allowance applies for a given Category 1 or Category 2 engine.

(g) *On-off controls for engines on Category 3 vessels.* Manufacturers may equip Category 3 propulsion engines with features that disable Tier 3 NO_x emission controls subject to the provisions of this paragraph (g). For auxiliary engines allowed to use on-off controls as specified in §1042.650(d), read “Tier 2” to mean “IMO Tier II” and read “Tier 3” to mean “IMO Tier III”.

(1) Features that disable Tier 3 NO_x emission controls are considered to be AECDs whether or not they meet the definition of an AECD. For example, manually operated on-off features are AECDs under this paragraph (g). The features must be identified in your application for certification as AECDs. For purposes of this paragraph (g), the term “features that disable Tier 3 emission controls” includes (but is not limited to) any combination of the fol-

lowing that cause the engine’s emissions to exceed any Tier 3 emission standard:

(i) Bypassing of exhaust aftertreatment.

(ii) Reducing or eliminating flow of reductant to an SCR system.

(iii) Modulating engine calibration in a manner that increases engine-out emissions of a regulated pollutant.

(2) You must demonstrate that the AECD will not disable NO_x emission controls while operating shoreward of the boundaries of the North American ECA and the U.S. Caribbean Sea ECA. You must demonstrate that the AECD will not disable emission control while operating in these waters. (Note: See the regulations in 40 CFR part 1043 for requirements related to operation in ECAs, including foreign ECAs.) Compliance with this paragraph (g)(2) will generally require that the AECD operation be based on Global Positioning System (GPS) inputs. We may consider any relevant information to determine whether your AECD conforms to this paragraph (g).

(3) The onboard computer log must record in nonvolatile computer memory all incidents of engine operation with the Tier 3 NO_x emission controls disabled.

(4) The engine must comply with the Tier 2 NO_x standard when the Tier 3 NO_x emission controls are disabled.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59193, Oct. 8, 2008; 75 FR 22998, Apr. 30, 2010; 86 FR 34509, June 29, 2021; 88 FR 4660, Jan. 24, 2023]

§ 1042.120 Emission-related warranty requirements.

(a) *General requirements.* You must warrant to the ultimate purchaser and each subsequent purchaser that the new engine, including all parts of its emission control system, meets two conditions:

(1) It is designed, built, and equipped so it conforms at the time of sale to the ultimate purchaser with the requirements of this part.

(2) It is free from defects in materials and workmanship that may keep it from meeting these requirements.

(b) *Warranty period.* Your emission-related warranty must be valid for at least as long as the minimum warranty

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periods listed in this paragraph (b) in hours of operation and years, whichever comes first. You may offer an emission-related warranty more generous than we require. The emission-related warranty for the engine may not be shorter than any basic mechanical warranty you provide without charge for the engine. Similarly, the emission-related warranty for any component may not be shorter than any warranty you provide without charge for that component. This means that your warranty may not treat emission-related and nonemission-related defects differently for any component. If an engine has no hour meter, we base the warranty periods in this paragraph (b) only on the engine's age (in years). The warranty period begins when the engine is placed into service. The following minimum warranty periods apply:

(1) For Category 1 and Category 2 engines, your emission-related warranty must be valid for at least 50 percent of the engine's useful life in hours of operation or a number of years equal to at least 50 percent of the useful life in years, whichever comes first.

(2) For Category 3 engines, your emission-related warranty must be valid throughout the engine's full useful life as specified in § 1042.104(d).

(c) *Components covered.* The emission-related warranty covers all components whose failure would increase an engine's emissions of any regulated pollutant, including components listed in 40 CFR part 1068, Appendix I, and components from any other system you develop to control emissions. The emission-related warranty for freshly manufactured marine engines covers these components even if another company produces the component. Your emission-related warranty does not need to cover components whose failure would not increase an engine's emissions of any regulated pollutant. For remanufactured engines, your emission-related warranty is required to cover only those parts that you supply or those parts for which you specify allowable part manufacturers. It does not need to cover used parts that are not replaced during the remanufacture.

(d) *Limited applicability.* You may deny warranty claims under this sec-

tion if the operator caused the problem through improper maintenance or use, as described in 40 CFR 1068.115.

(e) *Owners manual.* Describe in the owners manual the emission-related warranty provisions from this section that apply to the engine.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010; 81 FR 74146, Oct. 25, 2016]

§ 1042.125 Maintenance instructions.

Give the ultimate purchaser of each new engine written instructions for properly maintaining and using the engine, including the emission control system, as described in this section. The maintenance instructions also apply to service accumulation on your emission-data engines as described in § 1042.245 and in 40 CFR part 1065. The restrictions specified in paragraphs (a) through (e) of this section related to allowable maintenance apply only to Category 1 and Category 2 engines. Manufacturers may specify any maintenance for Category 3 engines.

(a) *Critical emission-related maintenance.* Critical emission-related maintenance includes any adjustment, cleaning, repair, or replacement of critical emission-related components. This may also include additional emission-related maintenance that you determine is critical if we approve it in advance. You may schedule critical emission-related maintenance on these components if you meet the following conditions:

(1) You demonstrate that the maintenance is reasonably likely to be done at the recommended intervals on in-use engines. We will accept scheduled maintenance as reasonably likely to occur if you satisfy any of the following conditions:

(i) You present data showing that any lack of maintenance that increases emissions also unacceptably degrades the engine's performance.

(ii) You present survey data showing that at least 80 percent of engines in the field get the maintenance you specify at the recommended intervals.

(iii) You provide the maintenance free of charge and clearly say so in your maintenance instructions.

(iv) You otherwise show us that the maintenance is reasonably likely to be done at the recommended intervals.

(2) For engines below 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

(i) For EGR-related filters and coolers, DEF filters, crankcase ventilation valves and filters, and fuel injector tips (cleaning only), the minimum interval is 1,500 hours.

(ii) For the following components, including associated sensors and actuators, the minimum interval is 3,000 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(3) For Category 1 and Category 2 engines at or above 130 kW, you may not schedule critical emission-related maintenance more frequently than the following minimum intervals, except as specified in paragraphs (a)(4), (b), and (c) of this section:

(i) For EGR-related filters and coolers, DEF filters, crankcase ventilation valves and filters, and fuel injector tips (cleaning only), the minimum interval is 1,500 hours.

(ii) For the following components, including associated sensors and actuators, the minimum interval is 4500 hours: Fuel injectors, turbochargers, catalytic converters, electronic control units, particulate traps, trap oxidizers, components related to particulate traps and trap oxidizers, EGR systems (including related components, but excluding filters and coolers), and other add-on components. For particulate traps, trap oxidizers, and components related to either of these, maintenance is limited to cleaning and repair only.

(4) We may approve shorter maintenance intervals than those listed in paragraph (a)(3) of this section where technologically necessary.

(5) If your engine family has an alternate useful life under §1042.101(e) that is shorter than the period specified in paragraph (a)(2) or (a)(3) of this section, you may not schedule critical emission-related maintenance more frequently than the alternate useful life, except as specified in paragraph (c) of this section.

(b) *Recommended additional maintenance.* You may recommend any additional amount of maintenance on the components listed in paragraph (a) of this section, as long as you state clearly that these maintenance steps are not necessary to keep the emission-related warranty valid. If operators do the maintenance specified in paragraph (a) of this section, but not the recommended additional maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these maintenance steps during service accumulation on your emission-data engines.

(c) *Special maintenance.* You may specify more frequent maintenance to address problems related to special situations, such as atypical engine operation. You must clearly state that this additional maintenance is associated with the special situation you are addressing. You may also address maintenance of low-use engines (such as recreational or stand-by engines) by specifying the maintenance interval in terms of calendar months or years in addition to your specifications in terms of engine operating hours. All special maintenance instructions must be consistent with good engineering judgment. We may disapprove your maintenance instructions if we determine that you have specified special maintenance steps to address maintenance that is unlikely to occur in use, or engine operation that is not atypical. For example, this paragraph (c) does not allow you to design engines that require special maintenance for a certain type of expected operation. If we determine that certain maintenance items do not qualify as special maintenance under this paragraph (c), you may identify this as recommended additional maintenance under paragraph (b) of this section.

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(d) *Noncritical emission-related maintenance.* Subject to the provisions of this paragraph (d), you may schedule any amount of emission-related inspection or maintenance that is not covered by paragraph (a) of this section (that is, maintenance that is neither explicitly identified as critical emission-related maintenance, nor that we approve as critical emission-related maintenance). Noncritical emission-related maintenance generally includes maintenance on the components we specify in 40 CFR part 1068, Appendix I that is not covered in paragraph (a) of this section. You must state in the owners manual that these steps are not necessary to keep the emission-related warranty valid. If operators fail to do this maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim. Do not take these inspection or maintenance steps during service accumulation on your emission-data engines.

(e) *Maintenance that is not emission-related.* For maintenance unrelated to emission controls, you may schedule any amount of inspection or maintenance. You may also take these inspection or maintenance steps during service accumulation on your emission-data engines, as long as they are reasonable and technologically necessary. This might include adding engine oil, changing air, fuel, or oil filters, servicing engine-cooling systems or fuel-water separator cartridges or elements, and adjusting idle speed, governor, engine bolt torque, valve lash, or injector lash. You may not perform this non-emission-related maintenance on emission-data engines more often than the least frequent intervals that you recommend to the ultimate purchaser.

(f) *Source of parts and repairs.* State clearly in your written maintenance instructions that a repair shop or person of the owner's choosing may maintain, replace, or repair emission control devices and systems. Your instructions may not require components or service identified by brand, trade, or corporate name. Also, do not directly or indirectly condition your warranty on a requirement that the engine be serviced by your franchised dealers or any other service establishments with

which you have a commercial relationship. You may disregard the requirements in this paragraph (f) if you do one of two things:

(1) Provide a component or service without charge under the purchase agreement.

(2) Get us to waive this prohibition in the public's interest by convincing us the engine will work properly only with the identified component or service.

(g) *Payment for scheduled maintenance.* Owners are responsible for properly maintaining their engines. This generally includes paying for scheduled maintenance. However, manufacturers must pay for scheduled maintenance during the useful life if it meets all the following criteria:

(1) Each affected component was not in general use on similar engines before the applicable dates shown in paragraph (6) of the definition of "new marine engine" in §1042.901.

(2) The primary function of each affected component is to reduce emissions.

(3) The cost of the scheduled maintenance is more than 2 percent of the price of the engine.

(4) Failure to perform the maintenance would not cause clear problems that would significantly degrade the engine's performance.

(h) *Owners manual.* Explain the owner's responsibility for proper maintenance in the owners manual.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010; 81 FR 74146, Oct. 25, 2016; 86 FR 34509, June 29, 2021]

§ 1042.130 Installation instructions for vessel manufacturers.

(a) If you sell an engine for someone else to install in a vessel, give the engine installer instructions for installing it consistent with the requirements of this part. Include all information necessary to ensure that an engine will be installed in its certified configuration.

(b) Make sure these instructions have the following information:

(1) Include the heading: "Emission-related installation instructions".

(2) State: "Failing to follow these instructions when installing a certified engine in a vessel violates federal law

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(40 CFR 1068.105(b)), subject to fines or other penalties as described in the Clean Air Act.”

(3) Describe the instructions needed to properly install the exhaust system and any other components. Include instructions consistent with the requirements of §1042.205(u).

(4) Describe any necessary steps for installing the diagnostic system described in §1042.110.

(5) Describe how your certification is limited for any type of application. For example, if your engines are certified only for constant-speed operation, tell vessel manufacturers not to install the engines in variable-speed applications or modify the governor.

(6) Describe any other instructions to make sure the installed engine will operate according to design specifications in your application for certification. This may include, for example, instructions for installing aftertreatment devices when installing the engines.

(7) State: “If you install the engine in a way that makes the engine’s emission control information label hard to read during normal engine maintenance, you must place a duplicate label on the vessel, as described in 40 CFR 1068.105.”

(8) Describe any vessel labeling requirements specified in §1042.135.

(c) You do not need installation instructions for engines you install in your own vessels.

(d) Provide instructions in writing or in an equivalent format. For example, you may post instructions on a publicly available Web site for downloading or printing. If you do not provide the instructions in writing, explain in your application for certification how you will ensure that each installer is informed of the installation requirements.

[73 FR 37243, June 30, 2008, as amended at 81 FR 74146, Oct. 25, 2016]

§ 1042.135 Labeling.

(a) Assign each engine a unique identification number and permanently affix, engrave, or stamp it on the engine in a legible way.

(b) At the time of manufacture, affix a permanent and legible label identifying each engine. The label must meet the requirements of 40 CFR 1068.45.

(c) The label must—

(1) Include the heading “EMISSION CONTROL INFORMATION”.

(2) Include your full corporate name and trademark. You may identify another company and use its trademark instead of yours if you comply with the branding provisions of 40 CFR 1068.45.

(3) Include EPA’s standardized designation for the engine family (and subfamily, where applicable).

(4) Identify all the emission standards that apply to the engine (or FELs, if applicable). If you do not declare an FEL under subpart H of this part, you may alternatively state the engine’s category, displacement (in liters or L/cyl), maximum engine power (in kW), and power density (in kW/L) as needed to determine the emission standards for the engine family. You may specify displacement, maximum engine power, or power density as a range consistent with the ranges listed in §1042.101. See §1042.140 for descriptions of how to specify per-cylinder displacement, maximum engine power, and power density.

(5) State the date of manufacture [DAY (optional), MONTH, and YEAR]; however, you may omit this from the label if you stamp, engrave, or otherwise permanently identify it elsewhere on the engine, in which case you must also describe in your application for certification where you will identify the date on the engine.

(6) Identify the application(s) for which the engine family is certified (such as constant-speed auxiliary, variable-speed propulsion engines used with fixed-pitch propellers, etc.). If the engine is certified as a recreational engine, state: “INSTALLING THIS RECREATIONAL ENGINE IN A COMMERCIAL VESSEL OR USING THE VESSEL FOR COMMERCIAL PURPOSES MAY VIOLATE FEDERAL LAW SUBJECT TO CIVIL PENALTY (40 CFR 1042.601).”

(7) For engines using sulfur-sensitive technologies, state: “ULTRA LOW SULFUR DIESEL FUEL ONLY”.

(8) State the useful life for your engine family if the applicable useful life is based on the provisions of §1042.101(e)(2) or (3), or §1042.104(d)(2).

(9) Identify the emission control system. Use terms and abbreviations as

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described in 40 CFR 1068.45. You may omit this information from the label if there is not enough room for it and you put it in the owners manual instead.

(10) State: "THIS MARINE ENGINE COMPLIES WITH U.S. EPA REGULATIONS FOR [MODEL YEAR]."

(11) For a Category 1 or Category 2 engine that can be modified to operate on residual fuel, but has not been certified to meet the standards on such a fuel, include the statement: "THIS ENGINE IS CERTIFIED FOR OPERATION ONLY WITH DIESEL FUEL. MODIFYING THE ENGINE TO OPERATE ON RESIDUAL OR INTERMEDIATE FUEL MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTIES."

(12) For an engine equipped with on-off emission controls as allowed by §1042.115, include the statement: "THIS ENGINE IS CERTIFIED WITH ON-OFF EMISSION CONTROLS. OPERATION OF THE ENGINE CONTRARY TO 40 CFR 1042.115(g) IS A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTIES."

(13) For engines above 130 kW that are intended for installation on domestic or public vessels, include the following statement: "THIS ENGINE DOES NOT COMPLY WITH INTERNATIONAL MARINE REGULATIONS UNLESS IT IS ALSO COVERED BY AN EIAPP CERTIFICATE."

(d) You may add information to the emission control information label as follows:

(1) You may identify other emission standards that the engine meets or does not meet (such as international standards), as long as this does not cause you to omit any of the information described in paragraphs (c)(5) through (9) of this section. You may add the information about the other emission standards to the statement we specify, or you may include it in a separate statement.

(2) You may add other information to ensure that the engine will be properly maintained and used.

(3) You may add appropriate features to prevent counterfeit labels. For example, you may include the engine's unique identification number on the label.

(e) For engines using sulfur-sensitive technologies, create a separate label with the statement: "ULTRA LOW SULFUR DIESEL FUEL ONLY". Permanently attach this label to the vessel near the fuel inlet or, if you do not manufacture the vessel, take one of the following steps to ensure that the vessel will be properly labeled:

(1) Provide the label to each vessel manufacturer and include in the emission-related installation instructions the requirement to place this label near the fuel inlet.

(2) Confirm that the vessel manufacturers install their own complying labels.

(f) You may ask us to approve modified labeling requirements in this part 1042 if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the intent of the labeling requirements of this part.

(g) If you obscure the engine label while installing the engine in the vessel such that the label will be hard to read during normal maintenance, you must place a duplicate label on the vessel. If others install your engine in their vessels in a way that obscures the engine label, we require them to add a duplicate label on the vessel (see 40 CFR 1068.105); in that case, give them the number of duplicate labels they request and keep the following records for at least five years:

(1) Written documentation of the request from the vessel manufacturer.

(2) The number of duplicate labels you send for each family and the date you sent them.

[73 FR 37243, June 30, 2008, as amended at 75 FR 22999, Apr. 30, 2010; 81 FR 74147, Oct. 25, 2016; 86 FR 34509, June 29, 2021]

§ 1042.140 Maximum engine power, displacement, power density, and maximum in-use engine speed.

This section describes how to determine the maximum engine power, displacement, and power density of an engine for the purposes of this part. Note that maximum engine power may differ from the definition of "maximum test power" in §1042.901. This section also specifies how to determine maximum in-use engine speed for Category 3 engines.

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(a) An engine configuration's maximum engine power is the maximum brake power point on the nominal power curve for the engine configuration, as defined in this section. Round the power value to the nearest whole kilowatt.

(b) The nominal power curve of an engine configuration is the relationship between maximum available engine brake power and engine speed for an engine, using the mapping procedures of 40 CFR part 1065, based on the manufacturer's design and production specifications for the engine. This information may also be expressed by a torque curve that relates maximum available engine torque with engine speed.

(c) An engine configuration's per-cylinder displacement is the intended swept volume of each cylinder. The swept volume of the engine is the product of the internal cross-section area of the cylinders, the stroke length, and the number of cylinders. Calculate the engine's intended swept volume from the design specifications for the cylinders using enough significant figures to allow determination of the displacement to the nearest 0.02 liters. Determine the final value by truncating digits to establish the per-cylinder displacement to the nearest 0.1 liters. For example, for an engine with circular cylinders having an internal diameter of 13.0 cm and a 15.5 cm stroke length, the rounded displacement would be: $(13.0/2)^2 \times (\pi) \times (15.5) \div 1000 = 2.0$ liters.

(d) The nominal power curve and intended swept volume must be within the range of the actual power curves and swept volumes of production engines considering normal production variability. If after production begins, it is determined that either your nominal power curve or your intended swept volume does not represent production engines, we may require you to amend your application for certification under §1042.225.

(e) Throughout this part, references to a specific power value for an engine are based on maximum engine power.

For example, the group of engines with maximum engine power below 600 kW may be referred to as engines below 600 kW.

(f) Calculate an engine family's power density in kW/L by dividing the unrounded maximum engine power by the engine's unrounded per-cylinder displacement, then dividing by the number of cylinders. Round the calculated value to the nearest whole number.

(g) Calculate a maximum test speed for the nominal power curve as specified in 40 CFR 1065.610. This is the maximum in-use engine speed used for calculating the NO_x standard in §1042.104 for Category 3 engines. Alternatively, you may use a lower value if engine speed will be limited in actual use to that lower value.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23000, Apr. 30, 2010; 81 FR 74147, Oct. 25, 2016]

§ 1042.145 Interim provisions.

(a) *General.* The provisions in this section apply instead of other provisions in this part. This section describes when these interim provisions expire. Only the provisions of paragraph (h) of this section apply for Category 3 engines.

(b)–(e) [Reserved]

(f) *In-use compliance limits.* The provisions of this paragraph (f) apply for the first three model years of the Tier 4 standards. For purposes of determining compliance based on testing other than certification or production-line testing, calculate the applicable in-use compliance limits by adjusting the applicable standards/FELs. The PM adjustment does not apply for engines with a PM standard or FEL above 0.04 g/kW-hr. The NO_x adjustment does not apply for engines with a NO_x FEL above 2.7 g/kW-hr. Add the applicable adjustments in one of the following tables to the otherwise applicable standards and NTE limits. You must specify during certification which add-ons, if any, will apply for your engines.

TABLE 1 TO § 1042.145—IN-USE ADJUSTMENTS FOR THE FIRST THREE MODEL YEARS OF THE TIER 4 STANDARDS

Fraction of useful life already used	In-use adjustments (g/kW-hr)	
	For Tier 4 NO _x standards	For Tier 4 PM standards
0 <hours ≤50% of useful life	0.9	0.02
50 <hours ≤75% of useful life	1.3	0.02
hours >75% of useful life	1.7	0.02

TABLE 2 TO § 1042.145—OPTIONAL IN-USE ADJUSTMENTS FOR THE FIRST THREE MODEL YEARS OF THE TIER 4 STANDARDS

Fraction of useful life already used	In-use adjustments (g/kW-hr)	
	For model year 2017 and earlier Tier 4 NO _x standards	For model year 2017 and earlier Tier 4 PM standards
0 <hours ≤50% of useful life	0.3	0.05
50 <hours ≤75% of useful life	0.4	0.05
hours >75% of useful life	0.5	0.05

(g) *Deficiencies for NTE standards.* You may ask us to accept as compliant an engine that does not fully meet specific requirements under the applicable NTE standards. Such deficiencies are intended to allow for minor deviations from the NTE standards under limited conditions. We expect your engines to have functioning emission control hardware that allows you to comply with the NTE standards.

(1) Request our approval for specific deficiencies in your application for certification, or before you submit your application. We will not approve deficiencies retroactively to cover engines already certified. In your request, identify the scope of each deficiency and describe any auxiliary emission control devices you will use to control emissions to the lowest practical level, considering the deficiency you are requesting.

(2) We will approve a deficiency only if compliance would be infeasible or unreasonable considering such factors as the technical feasibility of the given hardware and the applicable lead time and production cycles. We may consider other relevant factors.

(3) Our approval applies only for a single model year and may be limited to specific engine configurations. We may approve your request for the same deficiency in the following model year if correcting the deficiency would re-

quire unreasonable hardware or software modifications and we determine that you have demonstrated an acceptable level of effort toward complying.

(4) You may ask for any number of deficiencies in the first three model years during which NTE standards apply for your engines. For the next four model years, we may approve up to three deficiencies per engine family. Deficiencies of the same type that apply similarly to different power ratings within a family count as one deficiency per family. We may condition approval of any such additional deficiencies during these four years on any additional conditions we determine to be appropriate. We will not approve deficiencies after the seven-year period specified in this paragraph (g)(4), unless they are related to safety.

(h) *Expanded production-line testing.* Production-line testing requirements for Category 1 engine families with a projected U.S.-directed production volume below 100 engines and for all families certified by small-volume engine manufacturers start to apply in model year 2024. All manufacturers must test no more than four engine families in a single model year, and small-volume engine manufacturers must test no more than two engine families in a single model year.

(i) [Reserved]

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(j) *Installing land-based engines in marine vessels.* Vessel manufacturers and marine equipment manufacturers may apply the provisions of §§ 1042.605 and 1042.610 to land-based engines with maximum engine power at or above 37 kW and at or below 560 kW if they meet the Tier 3 emission standards in appendix I of 40 CFR part 1039 as specified in 40 CFR 1068.265. All the provisions of § 1042.605 or § 1042.610 apply as if those engines were certified to emission standards under 40 CFR part 1039. Similarly, engine manufacturers, vessel manufacturers, and marine equipment manufacturers must comply with all the provisions of 40 CFR part 1039 as if those engines were installed in land-based equipment. The following provisions apply for engine manufacturers shipping engines to vessel manufacturers or marine equipment manufacturers under this paragraph (j):

(1) You must label the engine as described in 40 CFR 1039.135, but identify the engine family name as it was last certified under 40 CFR part 1039 and include the following alternate compliance statement:

THIS ENGINE MEETS THE TIER 3 STANDARDS FOR LAND-BASED NONROAD DIESEL ENGINES UNDER 40 CFR PART 1039. THIS ENGINE MAY BE USED ONLY IN A MARINE VESSEL UNDER THE DRESSING PROVISIONS OF 40 CFR 1042.605 OR 40 CFR 1042.610.

(2) You must use the provisions of 40 CFR 1068.262 for shipping uncertified engines under this section to secondary engine manufacturers.

(k) *Adjusted implementation dates for Tier 4 standards.* Engines and vessels may qualify for delaying the Tier 4 standards specified in § 1042.101 as follows:

(1) The delay is limited to model year 2021 and earlier engines and vessels that meet all the following characteristics:

(i) Category 1 propulsion engines with specific power density above 27.0 kW/liter, up to maximum engine power of 1,400 kW.

(ii) Vessels have total propulsion power at or below 2,800 kW.

(iii) Vessel waterline length is at or below 65 feet.

(iv) Vessels have a maximum speed (in knots) at or above $3.0 \cdot L^{1/2}$, where L is the vessel's waterline length, in feet.

(2) The delay also applies through model year 2023 for engines and vessels that meet all the following characteristics:

(i) Category 1 propulsion engines with specific power density above 35.0 kW/liter, up to maximum engine power of 1,000 kW.

(ii) Vessels have total propulsion power at or below 1,000 kW.

(iii) Vessel waterline length is at or below 50 feet.

(iv) Vessels have a maximum speed (in knots) at or above $3.0 \cdot L^{1/2}$, where L is the vessel's waterline length, in feet.

(v) Vessels have fiberglass or other nonmetal hulls.

(3) Vessel manufacturers must have a contract or purchase agreement signed before the end of the relief period for each vessel produced under this paragraph (k).

(4) Affected engines must instead be certified to the appropriate Tier 3 emission standards specified in § 1042.101. Engine manufacturers may include engine configurations with maximum engine power below 600 kW in the same engine family even if the power density is below the value specified in paragraph (k)(1) or (2) of this section.

(5) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in § 1042.135, but add the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS MARINE ENGINE COMPLIES WITH U.S. EPA TIER 3 EMISSION STANDARDS UNDER 40 CFR 1042.145(k). ANY OTHER INSTALLATION OR USE OF THIS ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(1) [Reserved]

(m) *Tier 4 waiver.* Starting with model year 2024, vessel manufacturers may request an exemption from the Tier 4 standards as follows:

(1) The subject vessels and engines must meet the qualifications of paragraph (k)(2) of this section.

(2) Vessel manufacturers must send a written request for the exemption to the Designated Compliance Officer. The request must describe efforts

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taken to identify available engines certified to the Tier 4 standards, describe design efforts for installing engines in the subject vessels, identify the number of vessels needing exempt engines, demonstrate that the vessel cannot meet essential performance specifications using available Tier 4 engines, and state that engine and vessel manufacturers will meet all the terms and conditions that apply. We may approve an exemption from the Tier 4 standards based on the submitted information.

(3) Engine manufacturers may ship exempt engines under this paragraph (m) only after receiving a written request from a vessel manufacturer who has received our written approval to build a specific number of vessels. The prohibitions in 40 CFR 1068.101(a)(1) do not apply to a new engine that is subject to Tier 4 standards, subject to the following conditions:

(i) The engine meets the appropriate Tier 3 emission standards in §1042.101 consistent with the provisions specified in 40 CFR 1068.265.

(ii) The engine is installed on a vessel consistent with the conditions of this paragraph (m).

(iii) The engine meets the labeling requirements in §1042.135, with the following statement instead of the compliance statement in §1042.135(c)(10):

THIS MARINE ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.145(m). ANY OTHER INSTALLATION OR USE OF THIS ENGINE MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(n) *Assigned deterioration factors.* Engine manufacturers may use assigned deterioration factors for certifying Tier 4 engines with maximum power up to 1,400 kW, as follows:

(1) For engine families that have at least one configuration with maximum engine power at or below 1,400 kW and power density above 30.0 kW/liter, you may use assigned deterioration factors through model year 2024.

(2) For engine families that have at least one configuration with maximum engine power at or below 1,000 kW and power density above 30.0 kW/liter, you may use assigned deterioration factors through model year 2026.

(3) The assigned deterioration factors are multiplicative values of 1.1 for NO_x and 1.4 for HC and CO, and an additive value of 0.003 g/kW-hr for PM, unless we approve your request to use different values. We will approve your proposed values if we determine based on data from similar engines and supporting rationale you submit with your request that they better represent your engines.

(o) *Useful life for light-commercial engines.* You may certify commercial Category 1 engines at or above 600 kW with power density above 45.00 kW/liter to the exhaust emission standards of this part over a full useful life of 10 years or 5,000 hours of operation instead of the useful-life values specified in §1042.101(e). Engines certified to this shorter useful life must be in their own engine family.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23000, Apr. 30, 2010; 78 FR 36396, June 17, 2013; 85 FR 62231, Oct. 2, 2020; 86 FR 34509, June 29, 2021; 88 FR 4661, Jan. 24, 2023]

Subpart C—Certifying Engine Families

§1042.201 General requirements for obtaining a certificate of conformity.

(a) You must send us a separate application for a certificate of conformity for each engine family. A certificate of conformity is valid for new production from the indicated effective date until the end of the model year for which it is issued, which may not extend beyond December 31 of that year. No certificate will be issued after December 31 of the model year. You may amend your application for certification after the end of the model year in certain circumstances as described in §§1042.220 and 1042.225. You must renew your certification annually for any engines you continue to produce.

(b) The application must contain all the information required by this part and must not include false or incomplete statements or information (see §1042.255).

(c) We may ask you to include less information than we specify in this subpart, as long as you maintain all the information required by §1042.250.

(d) You must use good engineering judgment for all decisions related to your application (see 40 CFR 1068.5).

(e) An authorized representative of your company must approve and sign the application.

(f) See §1042.255 for provisions describing how we will process your application.

(g) We may require you to deliver your test engines to a facility we designate for our testing (see §1042.235(c)). Alternatively, you may choose to deliver another engine that is identical in all material respects to the test engine, or another engine that we determine can appropriately serve as an emission-data engine for the engine family.

(h) For engines that become new after being placed into service, such as engines installed on imported vessels, we may specify alternate certification provisions consistent with the intent of this part. See the definition of “new marine engine” in §1042.901.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23000, Apr. 30, 2010; 81 FR 74147, Oct. 25, 2016]

§ 1042.205 Application requirements.

This section specifies the information that must be in your application, unless we ask you to include less information under §1042.201(c). We may require you to provide additional information to evaluate your application.

(a) Describe the engine family’s specifications and other basic parameters of the engine’s design and emission controls. List the fuel type on which your engines are designed to operate (for example, ultra low-sulfur diesel fuel). List each distinguishable engine configuration in the engine family. For each engine configuration, list the maximum engine power and the range of values for maximum engine power resulting from production tolerances, as described in §1042.140.

(b) Explain how the emission control system operates. Describe in detail all system components for controlling exhaust emissions, including all auxiliary emission control devices (AECs) and all fuel-system components you will install on any production or test engine. Identify the part number of each component you describe. For this paragraph (b), treat as separate AECs any

devices that modulate or activate differently from each other. Include all the following:

(1) Give a general overview of the engine, the emission control strategies, and all AECs.

(2) Describe each AEC’s general purpose and function.

(3) Identify the parameters that each AEC senses (including measuring, estimating, calculating, or empirically deriving the values). Include vessel-based parameters and state whether you simulate them during testing with the applicable procedures.

(4) Describe the purpose for sensing each parameter.

(5) Identify the location of each sensor the AEC uses.

(6) Identify the threshold values for the sensed parameters that activate the AEC.

(7) Describe the parameters that the AEC modulates (controls) in response to any sensed parameters, including the range of modulation for each parameter, the relationship between the sensed parameters and the controlled parameters and how the modulation achieves the AEC’s stated purpose. Use graphs and tables, as necessary.

(8) Describe each AEC’s specific calibration details. This may be in the form of data tables, graphical representations, or some other description.

(9) Describe the hierarchy among the AECs when multiple AECs sense or modulate the same parameter. Describe whether the strategies interact in a comparative or additive manner and identify which AEC takes precedence in responding, if applicable.

(10) Explain the extent to which the AEC is included in the applicable test procedures specified in subpart F of this part.

(11) Do the following additional things for AECs designed to protect engines or vessels:

(i) Identify the engine and/or vessel design limits that make protection necessary and describe any damage that would occur without the AEC.

(ii) Describe how each sensed parameter relates to the protected components’ design limits or those operating conditions that cause the need for protection.

(iii) Describe the relationship between the design limits/parameters being protected and the parameters sensed or calculated as surrogates for those design limits/parameters, if applicable.

(iv) Describe how the modulation by the AECD prevents engines and/or vessels from exceeding design limits.

(v) Explain why it is necessary to estimate any parameters instead of measuring them directly and describe how the AECD calculates the estimated value, if applicable.

(vi) Describe how you calibrate the AECD modulation to activate only during conditions related to the stated need to protect components and only as needed to sufficiently protect those components in a way that minimizes the emission impact.

(12) Include any other information required by this part with respect to AECDS. For example, see §1042.115 for requirements related to on-off technologies.

(c) If your engines are equipped with an engine diagnostic system as required under §1042.110, explain how it works, describing especially the engine conditions (with the corresponding diagnostic trouble codes) that cause the warning lamp to go on. Also identify the communication protocol (SAE J1939, SAE J1979, etc.).

(d) Describe the engines you selected for testing and the reasons for selecting them.

(e) Describe the test equipment and procedures that you used, including the duty cycle(s) and the corresponding engine applications. Also describe any special or alternate test procedures you used.

(f) Describe how you operated the emission-data engine before testing, including the duty cycle and the number of engine operating hours used to stabilize emission levels. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did.

(g) List the specifications of the test fuel (or mixture of test fuels) to show that they fall within the required ranges we specify in 40 CFR part 1065.

(h) Identify the engine family's useful life.

(i) Include the maintenance and warranty instructions you will give to the ultimate purchaser of each new engine (see §§1042.120 and 1042.125). Describe your plan for meeting warranty obligations under §1042.120.

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vessel (see §1042.130).

(k) Describe your emission control information label (see §1042.135).

(l) Identify the emission standards and/or FELs to which you are certifying engines in the engine family.

(m) Identify the engine family's deterioration factors and describe how you developed them (see §1042.245). Present any emission test data you used for this.

(n) State that you operated your emission-data engines as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.

(o) Present emission data for HC, NO_x, PM, and CO on an emission-data engine to show your engines meet emission standards as specified in §§1042.101 or 1042.104. Note that you must submit PM data for all engines, whether or not a PM standard applies. Show emission figures before and after applying adjustment factors for regeneration and deterioration factors for each pollutant and for each engine. If we specify more than one grade of any fuel type (for example, high-sulfur and low-sulfur diesel fuel), you need to submit test data only for one grade, unless the regulations of this part specify otherwise for your engine. Include emission results for each mode for Category 3 engines or for other engines if you do discrete-mode testing under §1042.505. For engines using on-off controls as described in §1042.115(g), include emission data demonstrating compliance with the Tier 2 standards when the engines Tier 3 NO_x emission controls are disabled. Note that §§1042.235 and 1042.245 allows you to submit an application in certain cases without new emission data.

(p) For Category 1 and Category 2 engines, state that all the engines in the engine family comply with the applicable not-to-exceed emission standards in

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§1042.101 for all normal operation and use when tested as specified in §1042.515. Describe any relevant testing, engineering analysis, or other information in sufficient detail to support your statement.

(q) [Reserved]

(r) Report test results as follows:

(1) Report all valid test results involving measurement of pollutants for which emission standards apply. Also indicate whether there are test results from invalid tests or from any other tests of the emission-data engine, whether or not they were conducted according to the test procedures of subpart F of this part. We may require you to report these additional test results. We may ask you to send other information to confirm that your tests were valid under the requirements of this part and 40 CFR part 1065.

(2) Report measured CO₂, N₂O, and CH₄ as described in §1042.235. Small-volume engine manufacturers may omit reporting N₂O and CH₄.

(s) Describe all adjustable operating parameters (see §1042.115(d)), including production tolerances. For any operating parameters that do not qualify as adjustable parameters, include a description supporting your conclusion (see 40 CFR 1068.50(c)). Include the following in your description of each adjustable parameter:

(1) For practically adjustable parameters, include the nominal or recommended setting, the intended practically adjustable range, and the limits or stops used to establish adjustable ranges.

(i) For Category 1 engines, state that the limits, stops, or other means of inhibiting mechanical adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended practically adjustable ranges and provide information to support this statement.

(ii) For Category 2 and Category 3 engines, propose a range of mechanical adjustment for each adjustable parameter, as described in §1042.115(d). State that the limits, stops, or other means of inhibiting mechanical adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your proposed adjustable

ranges and provide information to support this statement.

(2) For programmable operating parameters, state that you have restricted access to electronic controls to prevent parameter adjustments on in-use engines that would allow operation outside the practically adjustable range. Describe how your engines are designed to prevent unauthorized adjustments.

(t) Provide the information to read, record, and interpret all the information broadcast by an engine's onboard computers and electronic control units. State that, upon request, you will give us any hardware, software, or tools we would need to do this. If you broadcast a surrogate parameter for torque values, you must provide us what we need to convert these into torque units. You may reference any appropriate publicly released standards that define conventions for these messages and parameters. Format your information consistent with publicly released standards.

(u) Confirm that your emission-related installation instructions specify how to ensure that sampling of exhaust emissions will be possible after engines are installed in vessels and placed in service. Show how to sample exhaust emissions in a way that prevents diluting the exhaust sample with ambient air.

(v) State whether your certification is limited for certain engines. If this is the case, describe how you will prevent use of these engines in applications for which they are not certified. This applies for engines such as the following:

(1) Constant-speed engines.

(2) Engines used with controllable-pitch propellers.

(3) Recreational engines.

(w) Unconditionally certify that all the engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(x) Include good-faith estimates of U.S.-directed production volumes. Include a justification for the estimated production volumes if they are substantially different than actual production volumes in earlier years for similar models.

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(y) Include the information required by other subparts of this part. For example, include the information required by §1042.725 if you participate in the ABT program.

(z) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(aa) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

(bb) The following provisions apply for imported engines:

(1) Describe your normal practice for importing engines. For example, this may include identifying the names and addresses of any agents you have authorized to import your engines.

(2) For engines below 560 kW, identify a test facility in the United States where you can test your engines if we select them for testing under a selective enforcement audit, as specified in 40 CFR part 1068.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23000, Apr. 30, 2010; 81 FR 74147, Oct. 25, 2016; 88 FR 4661, Jan. 24, 2023]

§ 1042.210 Preliminary approval.

If you send us information before you finish the application, we will review it and make any appropriate determinations, especially for questions related to engine family definitions, auxiliary emission control devices, deterioration factors, useful life, testing for service accumulation, maintenance, and compliance with not-to-exceed standards. See §1042.245 for specific provisions that apply for deterioration factors. Decisions made under this section are considered to be preliminary approval, subject to final review and approval. We will generally not reverse a decision where we have given you preliminary approval, unless we find new information supporting a different decision. If you request preliminary approval related to the upcoming model year or the model year after that, we will make best-efforts to make the appropriate determinations as soon as practicable. We will generally not pro-

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vide preliminary approval related to a future model year more than two years ahead of time.

§ 1042.220 Amending maintenance instructions.

You may amend your emission-related maintenance instructions after you submit your application for certification as long as the amended instructions remain consistent with the provisions of §1042.125. You must send the Designated Compliance Officer a written request to amend your application for certification for an engine family if you want to change the emission-related maintenance instructions in a way that could affect emissions. In your request, describe the proposed changes to the maintenance instructions. If operators follow the original maintenance instructions rather than the newly specified maintenance, this does not allow you to disqualify those engines from in-use testing or deny a warranty claim.

(a) If you are decreasing or eliminating any specified maintenance, you may distribute the new maintenance instructions to your customers 30 days after we receive your request, unless we disapprove your request. This would generally include replacing one maintenance step with another. We may approve a shorter time or waive this requirement.

(b) If your requested change would not decrease the specified maintenance, you may distribute the new maintenance instructions anytime after you send your request. For example, this paragraph (b) would cover adding instructions to increase the frequency of filter changes for engines in severe-duty applications.

(c) You need not request approval if you are making only minor corrections (such as correcting typographical mistakes), clarifying your maintenance instructions, or changing instructions for maintenance unrelated to emission control. We may ask you to send us copies of maintenance instructions revised under this paragraph (c).

[75 FR 23001, Apr. 30, 2010]

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§ 1042.225 Amending applications for certification.

Before we issue you a certificate of conformity, you may amend your application to include new or modified engine configurations, subject to the provisions of this section. After we have issued your certificate of conformity, you may send us an amended application requesting that we include new or modified engine configurations within the scope of the certificate, subject to the provisions of this section. You must amend your application if any changes occur with respect to any information that is included or should be included in your application.

(a) You must amend your application before you take any of the following actions:

(1) Add an engine configuration to an engine family. In this case, the engine configuration added must be consistent with other engine configurations in the engine family with respect to the criteria listed in § 1042.230.

(2) Change an engine configuration already included in an engine family in a way that may affect emissions, or change any of the components you described in your application for certification. This includes production and design changes that may affect emissions any time during the engine's lifetime.

(3) Modify an FEL for an engine family as described in paragraph (f) of this section.

(b) To amend your application for certification as specified in paragraph (a) of this section, send the relevant information to the Designated Compliance Officer.

(1) Describe in detail the addition or change in the engine model or configuration you intend to make.

(2) Include engineering evaluations or data showing that the amended engine family complies with all applicable requirements. You may do this by showing that the original emission-data engine is still appropriate for showing that the amended family complies with all applicable requirements.

(3) If the original emission-data engine for the engine family is not appropriate to show compliance for the new or modified engine configuration, include new test data showing that the

new or modified engine configuration meets the requirements of this part.

(4) Include any other information needed to make your application correct and complete.

(c) We may ask for more test data or engineering evaluations. You must give us these within 30 days after we request them.

(d) For engine families already covered by a certificate of conformity, we will determine whether the existing certificate of conformity covers your newly added or modified engine. You may ask for a hearing if we deny your request (see § 1042.920).

(e) For engine families already covered by a certificate of conformity, you may start producing the new or modified engine configuration anytime after you send us your amended application and before we make a decision under paragraph (d) of this section. However, if we determine that the affected engines do not meet applicable requirements, we will notify you to cease production of the engines and may require you to recall the engines at no expense to the owner. Choosing to produce engines under this paragraph (e) is deemed to be consent to recall all engines that we determine do not meet applicable emission standards or other requirements and to remedy the non-conformity at no expense to the owner. If you do not provide information required under paragraph (c) of this section within 30 days after we request it, you must stop producing the new or modified engines.

(f) You may ask us to approve a change to your FEL in certain cases after the start of production. The changed FEL may not apply to engines you have already introduced into U.S. commerce, except as described in this paragraph (f). If we approve a changed FEL after the start of production, you must include the new FEL on the emission control information label for all engines produced after the change. You may ask us to approve a change to your FEL in the following cases:

(1) You may ask to raise your FEL for your engine family at any time. In your request, you must show that you will still be able to meet the emission standards as specified in subparts B and H of this part. If you amend your

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application by submitting new test data to include a newly added or modified engine, as described in paragraph (b)(3) of this section, use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part. In all other circumstances, you must use the higher FEL for the entire family to calculate emission credits under subpart H of this part.

(2) You may ask to lower the FEL for your engine family only if you have test data from production engines showing that emissions are below the proposed lower FEL. The lower FEL applies only to engines you produce after we approve the new FEL. Use the appropriate FELs with corresponding production volumes to calculate emission credits for the model year, as described in subpart H of this part.

(g) You may produce engines as described in your amended application for certification and consider those engines to be in a certified configuration if we approve a new or modified engine configuration during the model year under paragraph (d) of this section. Similarly, you may modify in-use engines as described in your amended application for certification and consider those engines to be in a certified configuration if we approve a new or modified engine configuration at any time under paragraph (d) of this section. Modifying a new or in-use engine to be in a certified configuration does not violate the tampering prohibition of 40 CFR 1068.101(b)(1), as long as this does not involve changing to a certified configuration with a higher family emission limit.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23001, Apr. 30, 2010; 81 FR 74148, Oct. 25, 2016]

§ 1042.230 Engine families.

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life as described in this section. You may not group engines in different engine categories in the same family. Your engine family is limited to a single model year.

(b) For Category 1 engines, group engines in the same engine family if they are the same in all the following aspects:

- (1) The combustion cycle and the fuel with which the engine is intended or designed to be operated.
- (2) The cooling system (for example, raw-water vs. separate-circuit cooling).
- (3) Method of air aspiration.
- (4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).
- (5) Combustion chamber design.
- (6) Nominal bore and stroke.
- (7) Cylinder arrangement (such as inline vs. vee configurations). This applies for engines with aftertreatment devices only.
- (8) Method of control for engine operation other than governing (*i.e.*, mechanical or electronic).
- (9) Application (commercial or recreational).
- (10) Numerical level of the emission standards that apply to the engine, except as allowed under paragraphs (f) and (g) of this section.

(c) For Category 2 engines, group engines in the same engine family if they are the same in all the following aspects:

- (1) The combustion cycle (e.g., diesel cycle).
- (2) The fuel with which the engine is intended or designed to be operated and the fuel system configuration.
- (3) The cooling system (for example, air-cooled or water-cooled), and procedure(s) employed to maintain engine temperature within desired limits (thermostat, on-off radiator fans, radiator shutters, etc.).
- (4) The method of air aspiration (turbocharged, supercharged, naturally aspirated, Roots blown).
- (5) The turbocharger or supercharger general performance characteristics (e.g., approximate boost pressure, approximate response time, approximate size relative to engine displacement).
- (6) The type of air inlet cooler (air-to-air, air-to-liquid, approximate degree to which inlet air is cooled).

(7) The type of exhaust aftertreatment system (oxidation catalyst, particulate trap), and characteristics of the aftertreatment system (catalyst loading, converter size vs. engine size).

(8) The combustion chamber configuration and the surface-to-volume ratio of the combustion chamber when the piston is at top dead center position, using nominal combustion chamber dimensions.

(9) Nominal bore and stroke dimensions.

(10) The location of the piston rings on the piston.

(11) The intake manifold induction port size and configuration.

(12) The exhaust manifold port size and configuration.

(13) The location of the intake and exhaust valves (or ports).

(14) The size of the intake and exhaust valves (or ports).

(15) The approximate intake and exhaust event timing and duration (valve or port).

(16) The configuration of the fuel injectors and approximate injection pressure.

(17) The type of fuel injection system controls (i.e., mechanical or electronic).

(18) The overall injection timing characteristics, or as appropriate ignition timing characteristics (i.e., the deviation of the timing curves from the optimal fuel economy timing curve must be similar in degree).

(19) The type of smoke control system.

(d) For Category 3 engines, group engines into engine families based on the criteria specified in Section 4.3 of the NO_x Technical Code (incorporated by reference in §1042.910), except as allowed in paragraphs (e) and (f) of this section.

(e) You may subdivide a group of engines that is identical under paragraph (b) or (c) of this section into different engine families if you show the expected emission characteristics are different during the useful life. However, for the purpose of applying small-volume family provisions of this part, we will consider the otherwise applicable engine family criteria of this section.

(f) You may group engines that are not identical with respect to the things listed in paragraph (b), (c), or (d) of this section in the same engine family, as follows:

(1) In unusual circumstances, you may group such engines in the same engine family if you show that their emission characteristics during the useful life will be similar.

(2) If you are a small-volume engine manufacturer, you may group any Category 1 engines into a single engine family or you may group any Category 2 engines into a single engine family. This also applies if you are a post-manufacture marinizer modifying a base engine that has a valid certificate of conformity for any kind of nonroad or heavy-duty highway engine under this chapter.

(3) The provisions of this paragraph (f) do not exempt any engines from meeting the standards and requirements in subpart B of this part.

(g) If you combine engines that are subject to different emission standards into a single engine family under paragraph (f) of this section, you must certify the engine family to the more stringent set of standards for that model year. For Category 3 engine families that include a range of maximum in-use engine speeds, use the highest value of maximum in-use engine speed to establish the applicable NO_x emission standard.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23001, Apr. 30, 2010]

§ 1042.235 Emission testing related to certification.

This section describes the emission testing you must perform to show compliance with the emission standards in §1042.101(a) or §1042.104. See §1042.205(p) regarding emission testing related to the NTE standards. See §§1042.240 and 1042.245 and 40 CFR part 1065, subpart E, regarding service accumulation before emission testing. See §1042.655 for special testing provisions available for Category 3 engines subject to Tier 3 standards.

(a) Select an emission-data engine from each engine family for testing. For engines at or above 560 kW, you may use a development engine that is equivalent in design to the engine

being certified. For Category 3 engines, you may use a single-cylinder version of the engine. Using good engineering judgment, select the engine configuration most likely to exceed an applicable emission standard over the useful life, considering all exhaust emission constituents and the range of installation options available to vessel manufacturers.

(b) Test your emission-data engines using the procedures and equipment specified in subpart F of this part. In the case of dual-fuel engines, measure emissions when operating with each type of fuel for which you intend to certify the engine. In the case of flexible-fuel engines, measure emissions when operating with the fuel mixture that best represents in-use operation or is most likely to have the highest NO_x emissions (or NO_x+HC emissions for engines subject to NO_x+HC standards), though you may ask us to instead to perform tests with both fuels separately if you can show that intermediate mixtures are not likely to occur in use.

(c) We may perform confirmatory testing by measuring emissions from any of your emission-data engines or other engines from the engine family, as follows:

(1) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the engine to a test facility we designate. The engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.

(2) If we measure emissions from one of your engines, the results of that testing become the official emission results for the engine. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.

(3) Before we test one of your engines, we may set its adjustable parameters to any point within the specified adjustable ranges (*see* § 1042.115(d)).

(4) Before we test one of your engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter. For example, this would apply for an engine parameter that is subject to production variability because it is adjustable during production, but is not considered an adjustable parameter (as defined in § 1042.901) because it is permanently sealed. For parameters that relate to a level of performance that is itself subject to a specified range (such as maximum power output), we will generally perform any calibration under this paragraph (c)(4) in a way that keeps performance within the specified range.

(d) You may ask to use carryover emission data from a previous model year instead of doing new tests, but only if all the following are true:

(1) The engine family from the previous model year differs from the current engine family only with respect to model year, items identified in § 1042.225(a), or other characteristics unrelated to emissions. We may waive this criterion for differences we determine not to be relevant.

(2) The emission-data engine from the previous model year remains the appropriate emission-data engine under paragraph (b) of this section.

(3) The data show that the emission-data engine would meet all the requirements of this part that apply to the engine family covered by the application for certification. For engines originally tested to demonstrate compliance with Tier 1 or Tier 2 standards, you may consider those test procedures to be equivalent to the procedures we specify in subpart F of this part.

(e) We may require you to test a second engine of the same or different configuration in addition to the engine tested under paragraph (b) of this section.

(f) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures specified in subpart F of this part, we may reject data you generated using the alternate procedure.

(g) Measure CO₂ with each low-hour certification test using the procedures

specified in 40 CFR part 1065 starting in the 2011 model year. Also measure CH₄ from Category 1 and Category 2 engines with each low-hour certification test using the procedures specified in 40 CFR part 1065 starting in the 2012 model year. Measure N₂O from Category 1 and Category 2 engines with each low-hour certification test using the procedures specified in 40 CFR part 1065 for any engine family that depends on NO_x aftertreatment to meet emission standards. Small-volume engine manufacturers may omit measurement of N₂O and CH₄. These measurements are not required for NTE testing. Use the same units and modal calculations as for your other results to report a single weighted value for each constituent. Round the final values as follows:

- (1) Round CO₂ to the nearest 1 g/kW-hr.
- (2) Round N₂O to the nearest 0.001 g/kW-hr.
- (3) Round CH₄ to the nearest 0.001 g/kW-hr.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23002, Apr. 30, 2010; 81 FR 74148, Oct. 25, 2016; 86 FR 34510, June 29, 2021]

§ 1042.240 Demonstrating compliance with exhaust emission standards.

(a) For purposes of certification, your engine family is considered in compliance with the emission standards in § 1042.101(a) or § 1042.104 if all emission-data engines representing that family have test results showing official emission results and deteriorated emission levels at or below these standards. This also applies for all test points for emission-data engines within the family used to establish deterioration factors. See paragraph (f) of this section for provisions related to demonstrating compliance with non-duty-cycle standards, such as NTE standards. Note that your FELs are considered to be the applicable emission standards with which you must comply if you participate in the ABT program in subpart H of this part.

(b) Your engine family is deemed not to comply if any emission-data engine representing that family has test results showing an official emission result or a deteriorated emission level for any pollutant that is above an ap-

plicable emission standard. Similarly, your engine family is deemed not to comply if any emission-data engine representing that family has test results showing any emission level above the applicable not-to-exceed emission standard for any pollutant. This also applies for all test points for emission-data engines within the family used to establish deterioration factors.

(c) To compare emission levels from the emission-data engine with the applicable emission standards, apply deterioration factors to the measured emission levels for each pollutant. Section 1042.245 specifies how to test your Category 1 or Category 2 engine to develop deterioration factors that represent the deterioration expected in emissions over your engines' full useful life. See paragraph (e) of this section for determining deterioration factors for Category 3 engines. Your deterioration factors must take into account any available data from in-use testing with similar engines. Small-volume engine manufacturers and post-manufacture marinizers may use assigned deterioration factors that we establish. Apply deterioration factors as follows:

(1) *Additive deterioration factor for exhaust emissions.* Except as specified in paragraph (c)(2) of this section, use an additive deterioration factor for exhaust emissions. An additive deterioration factor is the difference between exhaust emissions at the end of the useful life and exhaust emissions at the low-hour test point. In these cases, adjust the official emission results for each tested engine at the selected test point by adding the factor to the measured emissions. If the deterioration factor is less than zero, use zero. Additive deterioration factors must be specified to one more decimal place than the applicable standard.

(2) *Multiplicative deterioration factor for exhaust emissions.* Use a multiplicative deterioration factor if good engineering judgment calls for the deterioration factor for a pollutant to be the ratio of exhaust emissions at the end of the useful life to exhaust emissions at the low-hour test point. For example, if you use aftertreatment technology that controls emissions of a pollutant proportionally to engine-out emissions,

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it is often appropriate to use a multiplicative deterioration factor. Adjust the official emission results for each tested engine at the selected test point by multiplying the measured emissions by the deterioration factor. If the deterioration factor is less than one, use one. A multiplicative deterioration factor may not be appropriate in cases where testing variability is significantly greater than engine-to-engine variability. Multiplicative deterioration factors must be specified to one more significant figure than the applicable standard.

(3) *Sawtooth and other nonlinear deterioration patterns.* The deterioration factors described in paragraphs (c)(1) and (2) of this section assume that the highest useful life emissions occur either at the end of useful life or at the low-hour test point. The provisions of this paragraph (c)(3) apply where good engineering judgment indicates that the highest emissions over the useful life will occur between these two points. For example, emissions may increase with service accumulation until a certain maintenance step is performed, then return to the low-hour emission levels and begin increasing again. Base deterioration factors for engines with such emission patterns on the difference between (or ratio of) the point at which the highest emissions occur and the low-hour test point. Note that this applies for maintenance-related deterioration only where we allow such critical emission-related maintenance.

(4) *Deterioration factor for crankcase emissions.* If your engine vents crankcase emissions to the exhaust or to the atmosphere, you must account for crankcase emission deterioration, using good engineering judgment. You may use separate deterioration factors for crankcase emissions of each pollutant (either multiplicative or additive) or include the effects in combined deterioration factors that include exhaust and crankcase emissions together for each pollutant.

(5) *Dual-fuel and flexible-fuel engines.* In the case of dual-fuel and flexible-fuel engines, apply deterioration factors separately for each fuel type. You may accumulate service hours on a single emission-data engine using the type

of fuel or the fuel mixture expected to have the highest combustion and exhaust temperatures; you may ask us to approve a different fuel mixture if you demonstrate that a different criterion is more appropriate.

(d) Determine the official emission result for each pollutant to at least one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, as described in paragraph (c) of this section, then round the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data engine. In the case of NO_x+HC standards, apply the deterioration factor to each pollutant and then add the results before rounding.

(e) For Category 3 engines, determine a deterioration factor based on an engineering analysis. The engineering analysis must describe how the measured emission levels from the emission-data engine show that engines comply with applicable emission standards throughout the useful life. Include this analysis in your application for certification and add a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(f) For NTE standards and mode caps, use good engineering judgment to demonstrate compliance throughout the useful life. You may, but are not required to, apply the same deterioration factors used to show compliance with the applicable duty-cycle standards. We will deny your application for certification if we determine that your test data show that your engines would exceed one or more NTE standard or mode cap during their useful lives.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23002, Apr. 30, 2010; 81 FR 74148, Oct. 25, 2016]

§ 1042.245 Deterioration factors.

This section describes how to determine deterioration factors for Category 1 and Category 2 engines, either with an engineering analysis, with pre-existing test data, or with new emission measurements. Apply these deterioration factors to determine whether your

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engines will meet the duty-cycle emission standards throughout the useful life as described in §1042.240. This section does not apply for Category 3 engines.

(a) You may ask us to approve deterioration factors for an engine family with established technology based on engineering analysis instead of testing. Engines certified to a NO_x + HC standard or FEL greater than the Tier 3 NO_x + HC standard are considered to rely on established technology for control of gaseous emissions, except that this does not include any engines that use exhaust-gas recirculation or aftertreatment. In most cases, technologies used to meet the Tier 1 and Tier 2 emission standards would qualify as established technology. We must approve your plan to establish a deterioration factor under this paragraph (a) before you submit your application for certification.

(b) You may ask us to approve deterioration factors for an engine family based on emission measurements from similar highway, stationary, or nonroad engines (including locomotive engines or other marine engines) if you have already given us these data for certifying the other engines in the same or earlier model years. Use good engineering judgment to decide whether the two engines are similar. We must approve your plan to establish a deterioration factor under this paragraph (b) before you submit your application for certification. We will approve your request if you show us that the emission measurements from other engines reasonably represent in-use deterioration for the engine family for which you have not yet determined deterioration factors.

(c) If you are unable to determine deterioration factors for an engine family under paragraph (a) or (b) of this section, first get us to approve a plan for determining deterioration factors based on service accumulation and related testing. We will respond to your proposed plan within 45 days of receiving your request. Your plan must involve measuring emissions from an emission-data engine at least three times, which are evenly spaced over the service-accumulation period unless we specify otherwise, such that the re-

sulting measurements and calculations will represent the deterioration expected from in-use engines over the full useful life. You may use extrapolation to determine deterioration factors once you have established a trend of changing emissions with age for each pollutant. You may use an engine installed in a vessel to accumulate service hours instead of running the engine only in the laboratory. You may perform maintenance on emission-data engines as described in §1042.125 and 40 CFR part 1065, subpart E.

(d) Include the following information in your application for certification:

(1) If you determine your deterioration factors based on test data from a different engine family, explain why this is appropriate and include all the emission measurements on which you base the deterioration factor.

(2) If you determine your deterioration factors based on engineering analysis, explain why this is appropriate and include a statement that all data, analyses, evaluations, and other information you used are available for our review upon request.

(3) If you do testing to determine deterioration factors, describe the form and extent of service accumulation, including a rationale for selecting the service-accumulation period and the method you use to accumulate hours.

(e) You may alternatively determine and verify deterioration factors based on bench-aged aftertreatment as described in 40 CFR 1036.245 and 1036.246, with the following exceptions:

(1) The minimum required aging as specified in 40 CFR 1036.245(c)(2) is 1,500 hours for Category 1 engines and 3,000 hours for Category 2 engines. Operate the engine for service accumulation using the same sequence of duty cycles that would apply for determining a deterioration factor under paragraph (c) of this section.

(2) Use good engineering judgment to perform verification testing using the procedures of §1042.515 rather than 40 CFR 1036.555. For PEMS testing, measure emissions as the vessel goes through its normal operation over the course of the day (or shift-day).

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(3) Apply infrequent regeneration adjustment factors as specified in § 1042.525 rather than 40 CFR 1036.580.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010; 88 FR 4661, Jan. 24, 2023]

§ 1042.250 Recordkeeping and reporting.

(a) Send the Designated Compliance Officer information related to your U.S.-directed production volumes as described in § 1042.345. In addition, within 45 days after the end of the model year, you must send us a report describing information about engines you produced during the model year as follows:

(1) State the total production volume for each engine family that is not subject to reporting under § 1042.345.

(2) State the total production volume for any engine family for which you produce engines after completing the reports required in § 1042.345.

(b) Organize and maintain the following records:

(1) A copy of all applications and any summary information you send us.

(2) Any of the information we specify in § 1042.205 that you were not required to include in your application.

(3) A detailed history of each emission-data engine. For each engine, describe all of the following:

(i) The emission-data engine's construction, including its origin and buildup, steps you took to ensure that it represents production engines, any components you built specially for it, and all the components you include in your application for certification.

(ii) How you accumulated engine operating hours (service accumulation), including the dates and the number of hours accumulated.

(iii) All maintenance, including modifications, parts changes, and other service, and the dates and reasons for the maintenance.

(iv) All your emission tests, including the date and purpose of each test and documentation of test parameters as specified in part 40 CFR part 1065.

(v) All tests to diagnose engine or emission control performance, giving the date and time of each and the reasons for the test.

(vi) Any other significant events.

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(4) Production figures for each engine family divided by assembly plant.

(5) Keep a list of engine identification numbers for all the engines you produce under each certificate of conformity.

(c) Keep required data from emission tests and all other information specified in this section for eight years after we issue your certificate. If you use the same emission data or other information for a later model year, the eight-year period restarts with each year that you continue to rely on the information.

(d) Store these records in any format and on any media, as long as you can promptly send us organized, written records in English if we ask for them. You must keep these records readily available. We may review them at any time.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23003, Apr. 30, 2010; 81 FR 74149, Oct. 25, 2016]

§ 1042.255 EPA decisions.

(a) If we determine an application is complete and shows that the engine family meets all the requirements of this part and the Clean Air Act, we will issue a certificate of conformity for the engine family for that model year. We may make the approval subject to additional conditions.

(b) We may deny an application for certification if we determine that an engine family fails to comply with emission standards or other requirements of this part or the Clean Air Act. We will base our decision on all available information. If we deny an application, we will explain why in writing.

(c) In addition, we may deny your application or suspend or revoke a certificate of conformity if you do any of the following:

(1) Refuse to comply with any testing or reporting requirements in this part.

(2) Submit false or incomplete information. This includes doing anything after submitting an application that causes submitted information to be false or incomplete.

(3) Cause any test data to become inaccurate.

(4) Deny us from completing authorized activities (see 40 CFR 1068.20). This

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includes a failure to provide reasonable assistance.

(5) Produce engines for importation into the United States at a location where local law prohibits us from carrying out authorized activities.

(6) Fail to supply requested information or amend an application to include all engines being produced.

(7) Take any action that otherwise circumvents the intent of the Clean Air Act or this part.

(d) We may void a certificate of conformity if you fail to keep records, send reports, or give us information as required under this part or the Clean Air Act. Note that these are also violations of 40 CFR 1068.101(a)(2).

(e) We may void a certificate of conformity if we find that you intentionally submitted false or incomplete information. This includes doing anything after submitting an application that causes submitted information to be false or incomplete after submission.

(f) If we deny an application or suspend, revoke, or void a certificate, you may ask for a hearing (see § 1042.920).

[86 FR 34510, June 29, 2021]

Subpart D—Testing Production-line Engines

§ 1042.301 General provisions.

(a) If you produce freshly manufactured marine engines that are subject to the requirements of this part, you must test them as described in this subpart.

(b) We may suspend or revoke your certificate of conformity for certain engine families if your production-line engines do not meet the requirements of this part or you do not fulfill your obligations under this subpart (see §§ 1042.325 and 1042.340). Similarly, we may deny applications for certification for the upcoming model year if you do not fulfill your obligations under this subpart (see § 1042.255(c)(1)).

(c) Other regulatory provisions authorize us to suspend, revoke, or void your certificate of conformity, or order recalls for engine families, without regard to whether they have passed production-line testing requirements. The requirements of this subpart do not af-

fect our ability to do selective enforcement audits, as described in 40 CFR part 1068. Individual engines in families that pass production-line testing requirements must also conform to all applicable regulations of this part and 40 CFR part 1068.

(d) You may ask to use another alternate program or measurement method for testing production-line engines. In your request, you must show us that the alternate program gives equal assurance that your engines meet the requirements of this part. We may waive some or all of this subpart's requirements if we approve your alternate program.

(e) If you certify a Category 1 or Category 2 engine family with carryover emission data, as described in § 1042.235(d), you may omit production-line testing if you fulfilled your testing requirements with a related engine family in an earlier year, except as follows:

(1) We may require that you perform additional production-line testing under this subpart in any model year for cause, such as if you file a defect report related to the engine family or if you amend your application for certification in any of the following ways:

(i) You designate a different supplier or change technical specifications for any critical emission-related components.

(ii) You add a new or modified engine configuration such that the test data from the original emission-data engine do not clearly continue to serve as worst-case testing for certification.

(iii) You change your family emission limit without submitting new emission data.

(2) If you certify an engine family with carryover emission data with no production-line testing for more than five model years, we may require that you perform production-line testing again for one of those later model years unless you demonstrate that none of the circumstances identified in paragraph (e)(1) of this section apply for the engine family.

(f) We may ask you to make a reasonable number of production-line engines available for a reasonable time so we can test or inspect them for compliance with the requirements of this

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part. For Category 3 engines, you are not required to deliver engines to us, but we may inspect and test your engines at any facility at which they are assembled or installed in vessels.

[88 FR 4661, Jan. 24, 2023]

§ 1042.302 **Applicability of this subpart for Category 3 engines.**

If you produce Tier 3 or later Category 3 engines that are subject to the requirements of this part, you must test them as described in this subpart, except as specified in this section.

(a) You must test each Category 3 engine at the sea trial of the vessel in which it is installed or within the first 300 hours of operation, whichever occurs first. This may involve testing a fully assembled production engine before it is installed in the vessel. For engines with on-off controls, you may omit testing to demonstrate compliance with Tier 2 standards if the engine does not rely on aftertreatment when Tier 3 emission controls are disabled. Since you must test each engine, the provisions of §§ 1042.310 and 1042.315(b) do not apply for Category 3 engines. If we determine that an engine failure under this subpart is caused by defective components or design deficiencies, we may revoke or suspend your certificate for the engine family as described in § 1042.340. If we determine that an engine failure under this subpart is caused only by incorrect assembly, we may suspend your certificate for the engine family as described in § 1042.325. If the engine fails, you may continue operating only to complete the sea trial and return to port. It is a violation of 40 CFR 1068.101(b)(1) to operate the vessel further until you remedy the cause of failure. Each two-hour period of such operation constitutes a separate offense. A violation lasting less than two hours constitutes a single offense.

(b) You are only required to measure NO_x emissions. You do not need to measure HC, CO or PM emissions under this subpart.

(c) If you are unable to operate the engine at the test points for the specified duty cycle, you may approximate these points consistent with the specifications of section 6 of Appendix 8 to the NO_x Technical Code (incorporated

by reference in § 1042.910) and show compliance with the alternate installed-engine standard of § 1042.104(g). You must obtain EPA approval of your test procedure prior to testing the engine. Include in your request a description of your basis for concluding that the engine cannot be tested at the actual test points of the specified duty cycle.

(d) You may measure NO_x emissions at additional test points for the purposes of the continuous NO_x monitoring requirements of § 1042.110(d). If you do, you must report these values along with your other test results. Describe in your application for certification how you plan to use these values for continuous NO_x monitoring.

(e) You may ask to measure emissions according to the Direct Measurement and Monitoring method specified in section 6.4 of the NO_x Technical Code (incorporated by reference in § 1042.910).

[75 FR 23003, Apr. 30, 2010, as amended at 81 FR 74149, Oct. 25, 2016; 86 FR 34510, June 29, 2021; 88 FR 4662, Jan. 24, 2023]

§ 1042.305 **Preparing and testing production-line engines.**

This section describes how to prepare and test production-line engines. You must assemble the test engine in a way that represents the assembly procedures for other engines in the engine family. You must ask us to approve any deviations from your normal assembly procedures for other production engines in the engine family.

(a) *Test procedures.* Test your production-line engines using the applicable testing procedures in subpart F of this part to show you meet the duty-cycle emission standards in subpart B of this part. For Category 1 and Category 2 engines, the not-to-exceed standards apply for this testing of Category 1 and Category 2 engines, but you need not do additional testing to show that production-line engines meet the not-to-exceed standards. The mode cap standards apply for testing Category 3 engines subject to Tier 3 standards (or for engines subject to the Annex VI Tier III NO_x standards under § 1042.650(d)).

(b) *Modifying a test engine.* Once an engine is selected for testing (see

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§1042.310), you may adjust, repair, prepare, or modify it or check its emissions only if one of the following is true:

(1) You document the need for doing so in your procedures for assembling and inspecting all your production engines and make the action routine for all the engines in the engine family.

(2) This subpart otherwise specifically allows your action.

(3) We approve your action in advance.

(c) *Engine malfunction.* If an engine malfunction prevents further emission testing, ask us to approve your decision to either repair the engine or delete it from the test sequence.

(d) *Setting adjustable parameters.* Before any test, we may require you to adjust any adjustable parameter on a Category 1 engine to any setting within its physically adjustable range. We may adjust or require you to adjust any adjustable parameter on a Category 2 or Category 3 engine to any setting within its specified adjustable range.

(1) We may require you to adjust idle speed outside the physically adjustable range as needed, but only until the engine has stabilized emission levels (see paragraph (e) of this section). We may ask you for information needed to establish an alternate minimum idle speed.

(2) We may specify adjustments within the physically adjustable range or the specified adjustable range by considering their effect on emission levels. We may also consider how likely it is that someone will make such an adjustment with in-use engines.

(e) *Stabilizing emission levels.* You may stabilize emission levels (or establish a Green Engine Factor for Category 2 engines) before you test production-line engines, as follows:

(1) You may stabilize emission levels by operating the engine in a way that represents the way production engines will be used, using good engineering judgment, for no more than the greater of two periods:

(i) 300 hours.

(ii) The number of hours you operated your emission-data engine for certifying the engine family (see 40 CFR part 1065, subpart E, or the applicable

regulations governing how you should prepare your test engine).

(2) For Category 2 or Category 3 engines, you may ask us to approve a Green Engine Factor for each regulated pollutant for each engine family. Use the Green Engine Factor to adjust measured emission levels to establish a stabilized low-hour emission level.

(f) *Damage during shipment.* If shipping an engine to a remote facility for production-line testing makes necessary an adjustment or repair, you must wait until after the initial emission test to do this work. We may waive this requirement if the test would be impossible or unsafe, or if it would permanently damage the engine. Report to us in your written report under §1042.345 all adjustments or repairs you make on test engines before each test.

(g) *Retesting after invalid tests.* You may retest an engine if you determine an emission test is invalid under subpart F of this part. Explain in your written report reasons for invalidating any test and the emission results from all tests. If we determine that you improperly invalidated a test, we may require you to ask for our approval for future testing before substituting results of the new tests for invalid ones.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010; 88 FR 4662, Jan. 24, 2023]

§1042.310 Engine selection for Category 1 and Category 2 engines.

(a) For Category 1 and Category 2 engine families, the minimum sample size is one engine. You may ask us to approve treating commercial and recreational engines as being from the same engine family for purposes of production-line testing if you certify them using the same emission-data engine.

(b) Select engines for testing as follows:

(1) For Category 1 engines, randomly select one engine within the first 60 days of the start of production for each engine family.

(2) For Category 2 engines, randomly select one engine within 60 days after you produce the fifth engine from an engine family (or from successive families that are related based on your use of carryover data under §1042.230(d)).

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(3) If you do not produce an engine from the engine family in the specified time frame, test the next engine you produce.

(4) Test engines promptly after selecting them. You may preferentially select and test engines earlier than we specify.

(5) You meet the requirement to randomly select engines under this section if you assemble the engine in a way that fully represents your normal production and quality procedures.

(c) For each engine that fails to meet emission standards, select two engines from the same engine family from the next fifteen engines produced or within seven days, whichever is later. If you do not produce fifteen additional engines within 90 days, select two additional engines within 90 days or as soon as practicable. Test engines promptly after selecting them. If an engine fails to meet emission standards for any pollutant, count it as a failing engine under this paragraph (c).

(d) Continue testing until one of the following things happens:

(1) You test the number of engines required under paragraphs (b) and (c) of this section. For example, if the initial engine fails and then two engines pass, testing is complete for that engine family.

(2) The engine family does not comply according to §1042.315 or you choose to declare that the engine family does not comply with the requirements of this subpart.

(e) You may elect to test more randomly chosen engines than we require under this section.

[88 FR 4662, Jan. 24, 2023]

§ 1042.315 Determining compliance.

This section describes the pass-fail criteria for the production-line testing requirements. We apply these criteria on an engine-family basis. See §1042.320 for the requirements that apply to individual engines that fail a production-line test.

(a) Calculate your test results as follows:

(1) *Initial and final test results.* Calculate and round the test results for each engine. If you do multiple tests on an engine in a given configuration (without modifying the engine), cal-

culate the initial results for each test, then add all the test results together and divide by the number of tests. Round this final calculated value for the final test results on that engine. Include the Green Engine Factor to determine low-hour emission results, if applicable.

(2) *Final deteriorated test results.* Apply the deterioration factor for the engine family to the final test results (see §1042.240(c)).

(3) *Round deteriorated test results.* Round the results to the number of decimal places in the emission standard expressed to one more decimal place.

(b) For Category 1 and Category 2 engines, if a production-line engine fails to meet emission standards and you test additional engines as described in §1042.310, calculate the average emission level for each pollutant for all the engines. If the calculated average emission level for any pollutant exceeds the applicable emission standard, the engine family fails the production-line testing requirements of this subpart. Tell us within ten working days if an engine fails. You may request to amend the application for certification to raise the FEL of the engine family as described in §1042.225(f).

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010; 88 FR 4662, Jan. 24, 2023]

§ 1042.320 What happens if one of my production-line engines fails to meet emission standards?

(a) If you have a production-line engine with final deteriorated test results exceeding one or more emission standards (see §1042.315(a)), the certificate of conformity is automatically suspended for that failing engine. You must take the following actions before your certificate of conformity can cover that engine:

(1) Correct the problem and retest the engine to show it complies with all emission standards.

(2) Include the test results and describe the remedy for each engine in the written report required under §1042.345.

(b) You may request to amend the application for certification to raise the

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FEL of the entire engine family at this point (see §1042.225).

(c) Use test data from a failing engine for the compliance demonstration under §1042.315 as follows:

(1) Use the original, failing test results as described in §1042.315, whether or not you modify the engine or destroy it. However, for catalyst-equipped engines, you may ask us to allow you to exclude an initial failed test if all the following are true:

(i) The catalyst was in a green condition when tested initially.

(ii) The engine met all emission standards when retested after degreening the catalyst.

(iii) No additional emission-related maintenance or repair was performed between the initial failed test and the subsequent passing test.

(2) Do not use test results from a modified engine as final test results under §1042.315, unless you change your production process for all engines to match the adjustments you made to the failing engine. If you change production processes and use the test results from a modified engine, count the modified engine as the next engine in the sequence, rather than averaging the results with the testing that occurred before modifying the engine.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010; 88 FR 4662, Jan. 24, 2023]

§ 1042.325 What happens if an engine family fails the production-line test- ing requirements?

(a) We may suspend your certificate of conformity for an engine family if it fails under §1042.315. The suspension may apply to all facilities producing engines from an engine family, even if you find noncompliant engines only at one facility.

(b) We will tell you in writing if we suspend your certificate in whole or in part. We will not suspend a certificate until at least 15 days after the engine family fails as described in §1042.315(b). The suspension is effective when you receive our notice.

(c) Up to 15 days after we suspend the certificate for an engine family, you may ask for a hearing (see §1042.920). If we agree before a hearing occurs that we used erroneous information in de-

termining to suspend the certificate, we will reinstate the certificate.

(d) Section 1042.335 specifies steps you must take to remedy the cause of the engine family's production-line failure. All the engines you have produced since the end of the last test period are presumed noncompliant and should be addressed in your proposed remedy. We may require you to apply the remedy to engines produced earlier if we determine that the cause of the failure is likely to have affected the earlier engines.

(e) You may request to amend the application for certification to raise the FEL of the entire engine family before or after we suspend your certificate as described in §1042.225(f). We will approve your request if the failure is not caused by a defect and it is clear that you used good engineering judgment in establishing the original FEL.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010; 88 FR 4662, Jan. 24, 2023]

§ 1042.330 Selling engines from an engine family with a suspended certificate of conformity.

You may sell engines that you produce after we suspend the engine family's certificate of conformity under §1042.315 only if one of the following occurs:

(a) You test each engine you produce and show it complies with emission standards that apply.

(b) We conditionally reinstate the certificate for the engine family. We may do so if you agree to recall all the affected engines and remedy any non-compliance at no expense to the owner if later testing shows that the engine family still does not comply.

§ 1042.335 Reinstating suspended certificates.

(a) Send us a written report asking us to reinstate your suspended certificate. In your report, identify the reason for noncompliance, propose a remedy for the engine family, and commit to a date for carrying it out. In your proposed remedy include any quality control measures you propose to keep the problem from happening again.

(b) Give us data from production-line testing that shows the remedied engine

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family complies with all the emission standards that apply.

§ 1042.340 When may EPA revoke my certificate under this subpart and how may I sell these engines again?

(a) We may revoke your certificate for an engine family in the following cases:

(1) You do not meet the reporting requirements.

(2) Your engine family fails to comply with the requirements of this subpart and your proposed remedy to address a suspended certificate under § 1042.325 is inadequate to solve the problem or requires you to change the engine's design or emission control system.

(b) To sell engines from an engine family with a revoked certificate of conformity, you must modify the engine family and then show it complies with the requirements of this part.

(1) If we determine your proposed design change may not control emissions for the engine's full useful life, we will tell you within five working days after receiving your report. In this case we will decide whether production-line testing will be enough for us to evaluate the change or whether you need to do more testing.

(2) Unless we require more testing, you may show compliance by testing production-line engines as described in this subpart.

(3) We will issue a new or updated certificate of conformity when you have met these requirements.

§ 1042.345 Reporting.

(a) Send us a test report within 45 days after you complete production-line testing for a Category 1 or Category 2 engine family, and within 45 days after you finish testing each Category 3 engine. We may approve a later submission for Category 3 engines if it allows you to combine test reports for multiple engines.

(b) Include the following information in the report:

(1) Describe any facility used to test production-line engines and state its location.

(2) For Category 1 and Category 2 engines, describe how you randomly selected engines.

(3) Describe each test engine, including the engine family's identification and the engine's model year, build date, model number, identification number, and number of hours of operation before testing. Also describe how you developed and applied the Green Engine Factor, if applicable.

(4) Identify how you accumulated hours of operation on the engines and describe the procedure and schedule you used.

(5) Provide the test number; the date, time and duration of testing; test procedure; all initial test results; final test results; and final deteriorated test results for all tests. Provide the emission results for all measured pollutants. Include information for both valid and invalid tests and the reason for any invalidation.

(6) Describe completely and justify any nonroutine adjustment, modification, repair, preparation, maintenance, or test for the test engine if you did not report it separately under this subpart. Include the results of any emission measurements, regardless of the procedure or type of engine.

(c) We may ask you to add information to your written report so we can determine whether your new engines conform with the requirements of this subpart. We may also ask you to send less information.

(d) An authorized representative of your company must sign the following statement:

We submit this report under sections 208 and 213 of the Clean Air Act. Our production-line testing conformed completely with the requirements of 40 CFR part 1042. We have not changed production processes or quality-control procedures for test engines in a way that might affect emission controls. All the information in this report is true and accurate to the best of my knowledge. I know of the penalties for violating the Clean Air Act and the regulations. (Authorized Company Representative)

(e) Send electronic reports of production-line testing to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver. You may combine reports from multiple engines and engine families into a single report.

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(f) We will send copies of your reports to anyone from the public who asks for them. See §1042.915 for information on how we treat information you consider confidential.

[88 FR 4663, Jan. 24, 2023]

§ 1042.350 Recordkeeping.

(a) Organize and maintain your records as described in this section. We may review your records at any time.

(b) Keep paper or electronic records of your production-line testing for eight years after you complete all the testing required for an engine family in a model year.

(c) Keep a copy of the written reports described in §1042.345.

(d) Keep the following additional records:

(1) A description of all test equipment for each test cell that you can use to test production-line engines.

(2) The names of supervisors involved in each test.

(3) The name of anyone who authorizes adjusting, repairing, preparing, or modifying a test engine and the names of all supervisors who oversee this work.

(4) If you shipped the engine for testing, the date you shipped it, the associated storage or port facility, and the date the engine arrived at the testing facility.

(5) Any records related to your production-line tests that are not in the written report.

(6) A brief description of any significant events during testing not otherwise described in the written report or in this section.

(7) Any information specified in §1042.345 that you do not include in your written reports.

(e) If we ask, you must give us a more detailed description of projected or actual production figures for an engine family. We may ask you to divide your production figures by maximum engine power, displacement, fuel type, or assembly plant (if you produce engines at more than one plant).

(f) Keep records of the engine identification number for each engine you produce under each certificate of conformity. You may identify these numbers as a range. Give us these records within 30 days if we ask for them.

(g) We may ask you to keep or send other information necessary to implement this subpart.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23004, Apr. 30, 2010]

Subpart E—In-use Testing

§ 1042.401 General Provisions.

We may perform in-use testing of any engine subject to the standards of this part.

Subpart F—Test Procedures

§ 1042.501 How do I run a valid emission test?

(a) Use the equipment and procedures for compression-ignition engines in 40 CFR part 1065 to determine whether engines meet the duty-cycle emission standards in §§1042.101 or 1042.104. Measure the emissions of all regulated pollutants as specified in 40 CFR part 1065. Use the applicable duty cycles specified in §1042.505. The following exceptions from the 40 CFR part 1065 procedures apply:

(1) If you perform discrete-mode testing and use only one batch fuel measurement to determine your mean raw exhaust flow rate, you must target a constant sample flow rate over the mode. Verify proportional sampling as described in 40 CFR 1065.545 using the mean raw exhaust molar flow rate paired with each recorded sample flow rate.

(2) If you perform discrete-mode testing, you may verify proportional sampling over the whole duty cycle instead of verifying proportional sampling for each discrete mode.

(b) Section 1042.515 describes the supplemental test procedures for evaluating whether engines meet the not-to-exceed emission standards in §1042.101(c).

(c) Use the fuels and lubricants specified in 40 CFR part 1065, subpart H, for all the testing we require in this part, except as specified in this section and §1042.515.

(1) For service accumulation, use the test fuel or any commercially available fuel that is representative of the fuel that in-use engines will use.

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(2) For diesel-fueled engines, use the appropriate diesel fuel specified in 40 CFR part 1065, subpart H, for emission testing. Unless we specify otherwise, the appropriate diesel test fuel for Category 1 and Category 2 engines is the ultra low-sulfur diesel fuel. If we allow you to use a test fuel with higher sulfur levels, identify the test fuel in your application for certification. Unless we specify otherwise, the appropriate diesel test fuel for Category 3 engines is the high-sulfur diesel fuel. For Category 2 and Category 3 engines, you may ask to use commercially available diesel fuel similar but not necessarily identical to the applicable fuel specified in 40 CFR part 1065, subpart H; we will approve your request if you show us that it does not affect your ability to demonstrate compliance with the applicable emission standards.

(3) For Category 1 and Category 2 engines that are expected to use a type of fuel (or mixed fuel) other than diesel fuel (such as natural gas, methanol, or residual fuel), use a commercially available fuel of that type for emission testing. If a given engine is designed to operate on different fuels, we may (at our discretion) require testing on each fuel. Propose test fuel specifications that take into account the engine design and the properties of commercially available fuels. Describe these test fuel specifications in the application for certification.

(d) Adjust measured emissions to account for aftertreatment technology with infrequent regeneration as described in §1042.525.

(e) Duty-cycle testing is limited to atmospheric pressures between 91.000 and 103.325 kPa.

(f) You may use special or alternate procedures to the extent we allow them under 40 CFR 1065.10.

(g) For Category 3 engines, instead of test data collected as specified in 40 CFR part 1065, you may submit test data for NO_x, HC, and CO emissions that were collected as specified in the NO_x Technical Code (incorporated by reference in §1042.910). For example, this allowance includes the allowance to perform the testing using test fuels allowed under the NO_x Technical Code that do not meet the sulfur specifications of this section. We may require

you to include a brief engineering analysis showing how these data demonstrate that your engines would meet the applicable emission standards if you had used the test procedures specified in 40 CFR part 1065.

(h) This subpart is addressed to you as a manufacturer, but it applies equally to anyone who does testing for you, and to us when we perform testing to determine if your engines meet emission standards.

[73 FR 37243, June 30, 2008, as amended at 74 FR 56509, Oct. 30, 2009; 75 FR 23005, Apr. 30, 2010; 81 FR 74149, Oct. 25, 2016]

§ 1042.505 Testing engines using discrete-mode or ramped-modal duty cycles.

This section describes how to test engines under steady-state conditions. In some cases, we allow you to choose the appropriate steady-state duty cycle for an engine; you may also choose between discrete-mode and ramped-modal testing. In all cases, you must use the duty cycle you select in your application for certification for all testing you perform for that engine family. If we test your engines to confirm that they meet emission standards, we will use the duty cycles you select for your own testing. If you submit certification test data using more than one duty cycle, any of the selected duty cycles may be used for any subsequent testing. We may also perform other testing as allowed by the Clean Air Act.

(a) You may perform steady-state testing with either discrete-mode or ramped-modal cycles as described in 40 CFR Part 1065.

(b) Measure emissions by testing the engine on a dynamometer with the following duty cycles (as specified) to determine whether it meets the emission standards in §1042.101 or §1042.104:

(1) *General cycle.* Use the 4-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (a) of Appendix II of this part for commercial propulsion marine engines that are used with (or intended to be used with) fixed-pitch propellers, propeller-law auxiliary engines, and any other engines for which the other duty cycles of this section do not apply. Use this duty cycle also for commercial variable-speed propulsion marine engines that

are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers, unless these engines are not intended for sustained operation (e.g., for at least 30 minutes) at all four modes when installed in the vessel.

(2) *Duty cycle for engines with high power density.* Except as specified in paragraph (b)(3) of this section, use the 5-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (b) of Appendix II of this part for light-commercial engines and recreational marine engines with maximum engine power at or above 37 kW. You may also use this duty cycle for other commercial engines instead of the duty cycle specified in paragraph (b)(1) of this section if the power density for every configuration in an engine family is above 30.0 kW/liter.

(3) *Controllable-pitch and electrically coupled propellers.* Use the 4-mode duty cycle or the corresponding ramped-modal cycle described in paragraph (c) of Appendix II of this part for constant-speed propulsion marine engines that are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers. Use this duty cycle also for variable-speed propulsion marine engines that are used with (or intended to be used with) controllable-pitch propellers or with electrically coupled propellers if the duty cycles in paragraph (b)(1) and (b)(2) of this section do not apply.

(4) *Constant-speed auxiliary engines.* Use the 5-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR Part 1039, Appendix II, paragraph (a) for constant-speed auxiliary engines.

(5) *Variable-speed auxiliary engines.* (i) Use the duty cycle specified in paragraph (b)(1) of this section for propeller-law auxiliary engines.

(ii) Use the 6-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR Part 1039, Appendix II, paragraph (b) for variable-speed auxiliary engines with maximum engine power below 19 kW that are not propeller-law engines.

(iii) Use the 8-mode duty cycle or the corresponding ramped-modal cycle described in 40 CFR part 1039, Appendix II, paragraph (c) for variable-speed aux-

iliary engines with maximum engine power at or above 19 kW that are not propeller-law engines.

(c) For constant-speed engines whose design prevents full-load operation for extended periods, you may ask for approval under 40 CFR 1065.10(c) to replace full-load operation with the maximum load for which the engine is designed to operate for extended periods.

[79 FR 23751, Apr. 28, 2014, as amended at 81 FR 74149, Oct. 25, 2016; 85 FR 62232, Oct. 2, 2020]

§ 1042.515 Test procedures related to not-to-exceed standards.

(a) This section describes the procedures to determine whether your engines meet the not-to-exceed emission standards in §1042.101(c). These procedures may include any normal engine operation and ambient conditions that the engines may experience in use. Paragraphs (c) through (e) of this section define the limits of what we will consider normal engine operation and ambient conditions.

(b) Measure emissions with one of the following procedures:

(1) Remove the selected engines for testing in a laboratory. You may use an engine dynamometer to simulate normal operation, as described in this section. Use the equipment and procedures specified in 40 CFR part 1065 to conduct laboratory testing.

(2) Test the selected engines while they remain installed in a vessel. Use the equipment and procedures specified in 40 CFR part 1065 subpart J, to conduct field testing. Use fuel meeting the specifications of 40 CFR part 1065, subpart H, or a fuel typical of what you would expect the engine to use in service.

(c) Engine testing may occur under the following ranges of ambient conditions without correcting measured emission levels:

(1) Atmospheric pressure must be between 96.000 and 103.325 kPa, except that manufacturers may test at lower atmospheric pressures if their test facility is located at an altitude that makes it impractical to stay within this range. This pressure range is intended to allow testing under most weather conditions at all altitudes up to 1,100 feet above sea level.

(2) Ambient air temperature must be between 13 and 35 °C (or between 13 °C and 30 °C for engines not drawing intake air directly from a space that could be heated by the engine).

(3) Ambient water temperature must be between 5 and 27 °C.

(4) Ambient humidity must be between 7.1 and 10.7 grams of moisture per kilogram of dry air.

(d) Engine testing may occur at any conditions expected during normal operation but that are outside the conditions described in paragraph (c) of this section, as long as measured values are corrected to be equivalent to the nearest end of the specified range, using good engineering judgment. Correct NO_x emissions for humidity as specified in 40 CFR part 1065, subpart G.

(e) The sampling period may not begin until the engine has reached stable operating temperatures. For example, this would include only engine operation after starting and after the engine thermostat starts modulating the engine's coolant temperature. The sampling period may not include engine starting.

(f) Apply the NTE standards specified in §1042.101(c) to an engine family based on the zones and subzones corresponding to specific duty cycles and engine types as defined in Appendix III of this part. For an engine family certified to multiple duty cycles, the broadest applicable NTE zone applies for that family at the time of certification. Whenever an engine family is certified to multiple duty cycles and a specific engine from that family is tested for NTE compliance in use, determine the applicable NTE zone for that engine according to its in-use application. An engine family's NTE zone may be modified as follows:

(1) You may ask us to approve a narrower NTE zone for an engine family at the time of certification, based on information such as how that engine family is expected to normally operate in use. For example, if an engine family is always coupled to a pump or jet drive, the engine might be able to operate only within a narrow range of engine speed and power.

(2) You may ask us to approve a Limited Testing Region (LTR). An LTR is a region of engine operation, within

the applicable NTE zone, where you have demonstrated that your engine family operates for no more than 5.0 percent of its normal in-use operation, on a time-weighted basis. You must specify an LTR using boundaries based on engine speed and power (or torque), where the LTR boundaries must coincide with some portion of the boundary defining the overall NTE zone. Any emission data collected within an LTR for a time duration that exceeds 5.0 percent of the duration of its respective NTE sampling period will be excluded when determining compliance with the applicable NTE standards. Any emission data collected within an LTR for a time duration of 5.0 percent or less of the duration of the respective NTE sampling period will be included when determining compliance with the NTE standards.

(3) You must notify us if you design your engines for normal in-use operation outside the applicable NTE zone. If we learn that normal in-use operation for your engines includes other speeds and loads, we may specify a broader NTE zone, as long as the modified zone is limited to normal in-use operation for speeds greater than 70 percent of maximum test speed and loads greater than 30 percent of maximum power at maximum test speed (or 30 percent of maximum test torque for constant-speed engines).

(4) You may exclude emission data based on catalytic aftertreatment temperatures as follows:

(i) For an engine equipped with a catalytic NO_x aftertreatment system, exclude NO_x emission data that is collected when the exhaust temperature at any time during the NTE event is less than 250 °C.

(ii) For an engine equipped with an oxidizing catalytic aftertreatment system, exclude HC and CO emission data that is collected when the exhaust temperature at any time during the NTE event is less than 250 °C. Similarly, exclude PM emission data during operation involving exhaust temperature below 250 °C for an engine equipped with an oxidizing flow-through catalyst.

(iii) Measure exhaust temperature within 30 cm downstream of the last

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applicable catalytic aftertreatment device. Where there are parallel paths, use good engineering judgment to measure the temperature within 30 cm downstream of the last applicable catalytic aftertreatment device in the path with the greatest exhaust flow.

(g) Emission sampling is not valid for NTE testing if it includes any active regeneration, unless the emission averaging period includes the complete regeneration event(s) and the full period of engine operation until the start of the next regeneration event. This provision applies only for engines that send an electronic signal indicating the start of the regeneration event.

[73 FR 37243, June 30, 2008, as amended at 81 FR 74149, Oct. 25, 2016; 88 FR 4663, Jan. 24, 2023]

§ 1042.520 What testing must I perform to establish deterioration factors?

Sections 1042.240 and 1042.245 describe the required methods for testing to establish deterioration factors for an engine family.

§ 1042.525 How do I adjust emission levels to account for infrequently regenerating aftertreatment devices?

For engines using aftertreatment technology with infrequent regeneration events that may occur during testing, take one of the following approaches to account for the emission impact of regeneration, or use an alternate methodology that we approve for Category 3 engines:

(a) You may use the calculation methodology described in 40 CFR 1065.680 to adjust measured emission results. Do this by developing an upward adjustment factor and a downward adjustment factor for each pollutant based on measured emission data and observed regeneration frequency as follows:

(1) Adjustment factors should generally apply to an entire engine family, but you may develop separate adjustment factors for different configurations within an engine family. Use the adjustment factors from this section in all testing for the engine family.

(2) You may use carryover or carry-across data to establish adjustment factors for an engine family as de-

scribed in §1042.235, consistent with good engineering judgment.

(3) Determine the frequency of regeneration, F , as described in 40 CFR 1065.680 from in-use operating data or from running repetitive tests in a laboratory. If the engine is designed for regeneration at fixed time intervals, you may apply good engineering judgment to determine F based on those design parameters.

(4) Identify the value of F in each application for certification for which it applies.

(b) You may ask us to approve an alternate methodology to account for regeneration events. We will generally limit approval to cases where your engines use aftertreatment technology with extremely infrequent regeneration and you are unable to apply the provisions of this section.

(c) You may choose to make no adjustments to measured emission results if you determine that regeneration does not significantly affect emission levels for an engine family (or configuration) or if it is not practical to identify when regeneration occurs. If you choose not to make adjustments under paragraph (a) or (b) of this section, your engines must meet emission standards for all testing, without regard to regeneration.

[81 FR 74150, Oct. 25, 2016]

Subpart G—Special Compliance Provisions

§ 1042.601 General compliance provisions for marine engines and vessels.

Engine and vessel manufacturers, as well as owners, operators, and rebuilders of engines and vessels subject to the requirements of this part, and all other persons, must observe the provisions of this part, the requirements and prohibitions in 40 CFR part 1068, and the provisions of the Clean Air Act. The provisions of 40 CFR part 1068 apply for compression-ignition marine engines as specified in that part, subject to the following provisions:

(a) The following prohibitions apply with respect to recreational marine engines and recreational vessels:

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(1) Installing a recreational marine engine in a vessel that is not a recreational vessel is a violation of 40 CFR 1068.101(a)(1).

(2) For a vessel with an engine that is certified and labeled as a recreational marine engine, using it in a manner inconsistent with its intended use as a recreational vessel violates 40 CFR 1068.101(a)(1), except as allowed by this chapter.

(b) Subpart I of this part describes how the prohibitions of 40 CFR 1068.101(a)(1) apply for certain remanufactured engines. The provisions of 40 CFR 1068.105 do not allow the installation of a new remanufactured engine in a vessel that is defined as a new vessel unless the remanufactured engine is subject to the same standards as the standards applicable to freshly manufactured engines of the required model year.

(c) The provisions of 40 CFR 1068.120 apply when rebuilding marine engines, except as specified in subpart I of this part. The following additional requirements also apply when rebuilding marine engines equipped with exhaust aftertreatment:

(1) Follow all instructions from the engine manufacturer and aftertreatment manufacturer for checking, repairing, and replacing aftertreatment components. For example, you must replace the catalyst if the catalyst assembly is stamped with a build date more than ten years ago and the manufacturer's instructions state that catalysts over ten years old must be replaced when the engine is rebuilt.

(2) Measure pressure drop across the catalyst assembly to ensure that it is neither higher nor lower than the manufacturer's specifications and repair or replace exhaust-system components as needed to bring the pressure drop within the manufacturer's specifications.

(3) For engines equipped with exhaust sensors, verify that sensor outputs are within the manufacturer's recommended range and repair or replace any malfunctioning components (sensors, catalysts, or other components).

(d) The provisions of §1042.635 for the national security exemption apply in addition to the provisions of 40 CFR 1068.225.

(e) For replacement engines, apply the provisions of 40 CFR 1068.240 as described in §1042.615.

(f) For the purpose of meeting the defect-reporting requirements in 40 CFR 1068.501, if you manufacture other nonroad engines that are substantially similar to your marine engines, you may consider defects using combined marine and non-marine families.

(g) The selective enforcement audit provisions of 40 CFR part 1068 do not apply for Category 3 engines.

(h) The defect reporting requirements of 40 CFR 1068.501 apply for Category 3 engines, except the threshold for filing a defect report is two engines.

(i) You may not circumvent the requirements of this part or the Clean Air Act by manufacturing a vessel outside the United States or initially flagging a vessel in another country. The definition of "new marine engine" in §1042.901 includes provisions for U.S.-flagged vessels that are manufactured or reflagged outside of U.S. waters. These provisions have the effect of applying the prohibitions of 40 CFR 1068.101(a)(1) to such vessels no later than when they first enter U.S. waters. The inclusion of these provisions does not affect requirements or prohibitions of the Clean Air Act or other statutes that may apply to the vessel before it first enters U.S. waters.

(j) Subpart C of this part describes how to test and certify dual-fuel and flexible-fuel engines. Some multi-fuel engines may not fit either of those defined terms. For such engines, we will determine whether it is most appropriate to treat them as single-fuel engines, dual-fuel engines, or flexible-fuel engines based on the range of possible and expected fuel mixtures. For example, an engine might burn natural gas but initiate combustion with a pilot injection of diesel fuel. If the engine is designed to operate with a single fueling algorithm (*i.e.*, fueling rates are fixed at a given engine speed and load condition), we would generally treat it as a single-fuel engine. In this context, the combination of diesel fuel and natural gas would be its own fuel type. If the engine is designed to also operate on diesel fuel alone, we would generally treat it as a dual-fuel engine. If the engine is designed to operate on varying

mixtures of the two fuels, we would generally treat it as a flexible-fuel engine. To the extent that requirements vary for the different fuels or fuel mixtures, we may apply the more stringent requirements.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23005, Apr. 30, 2010; 81 FR 74150, Oct. 25, 2016]

§ 1042.605 Dressing engines already certified to other standards for nonroad or heavy-duty highway engines for marine use.

(a) *General provisions.* If you are an engine manufacturer (including someone who marinizes a land-based engine), this section allows you to introduce new marine engines into U.S. commerce if they are already certified to the requirements that apply to compression-ignition engines under 40 CFR parts 85 and 86 or 40 CFR part 1033 or 1039 for the appropriate model year. If you comply with all the provisions of this section, we consider the certificate issued under 40 CFR part 86, 1033, or 1039 for each engine to also be a valid certificate of conformity under this part for its model year, without a separate application for certification under the requirements of this part. This section does not apply for Category 3 engines.

(b) *Vessel-manufacturer provisions.* If you are not an engine manufacturer, you may install an engine certified for the appropriate model year under 40 CFR part 86, 1033, or 1039 in a marine vessel as long as you do not make any of the changes described in paragraph (d)(3) of this section and you meet the requirements of paragraph (e) of this section. If you modify the non-marine engine in any of the ways described in paragraph (d)(3) of this section, we will consider you a manufacturer of a new marine engine. Such engine modifications prevent you from using the provisions of this section.

(c) *Liability.* Engines for which you meet the requirements of this section are exempt from all the requirements and prohibitions of this part, except for those specified in this section. Engines exempted under this section must meet all the applicable requirements from 40 CFR parts 85 and 86 or 40 CFR part 1033 or 1039. This paragraph (c) applies to

engine manufacturers, vessel manufacturers that use such an engine, and all other persons as if the engine were used in its originally intended application. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new engines and vessels; however, we consider the certificate issued under 40 CFR part 86, 1033, or 1039 for each engine to also be a valid certificate of conformity under this part for its model year. If we make a determination that these engines do not conform to the regulations in this chapter during their useful life, we may require you to recall them under 40 CFR part 85 or 1068.

(d) *Specific criteria and requirements.* If you are an engine manufacturer and meet all the following criteria and requirements regarding your new marine engine, the engine is eligible for an exemption under this section:

(1) You must produce it by marinizing an engine covered by a valid certificate of conformity from one of the following programs:

(i) Heavy-duty highway engines (40 CFR part 86).

(ii) Land-based compression-ignition nonroad engines (40 CFR part 1039).

(iii) Locomotives (40 CFR part 92 or 1033). To be eligible for dressing under this section, the engine must be from a locomotive certified to standards that are at least as stringent as either the standards applicable to new marine engines or freshly manufactured locomotives in the model year that the engine is being dressed.

(2) The engine must have the label required under 40 CFR part 86, 1033, or 1039.

(3) You must not make any changes to the certified engine that could reasonably be expected to increase its emissions. For example, if you make any of the following changes to one of these engines, you do not qualify for the engine dressing exemption:

(i) Change any fuel system parameters from the certified configuration, or change, remove, or fail to properly install any other component, element of design, or calibration specified in the engine manufacturer's application for certification. This includes aftertreatment devices and all related components.

(ii) Replacing an original turbocharger, except that small-volume engine manufacturers may replace an original turbocharger on a recreational engine with one that matches the performance of the original turbocharger.

(iii) Modify or design the marine engine cooling or aftercooling system so that temperatures or heat rejection rates are outside the original engine manufacturer's specified ranges.

(4) You must show that fewer than 10 percent of the engine family's total sales in the United States are used in marine applications. This includes engines used in any application, without regard to which company manufactures the vessel or equipment. Show this as follows:

(i) If you are the original manufacturer of the engine, base this showing on your sales information.

(ii) In all other cases, you must confirm this based on your best estimate of the original manufacturer's sales information.

(e) *Labeling and documentation.* If you are an engine manufacturer or vessel manufacturer using this exemption, you must do all of the following:

(1) Make sure the original engine label will remain clearly visible after installation in the vessel.

(2) Add a permanent supplemental label to the engine in a position where it will remain clearly visible after installation in the vessel. In your engine label, do the following:

(i) Include the heading: "Marine Engine Emission Control Information".

(ii) Include your full corporate name and trademark.

(iii) State: "This engine was marinized without affecting its emission controls."

(iv) State the date you finished marinizing the engine (month and year).

(3) Send the Designated Compliance Officer written notification describing your plans before using the provisions of this section. In addition, by February 28 of each calendar year (or less often if we tell you), send the Designated Compliance Officer a signed letter with all the following information:

(i) Identify your full corporate name, address, and telephone number.

(ii) List the engine models for which you used this exemption in the previous year and describe your basis for meeting the sales restrictions of paragraph (d)(4) of this section.

(iii) State: "We prepared each listed engine model for marine application without making any changes that could increase its certified emission levels, as described in 40 CFR 1042.605."

(f) *Failure to comply.* If your engines do not meet the criteria listed in paragraph (d) of this section, they will be subject to the standards, requirements, and prohibitions of this part and the certificate issued under 40 CFR part 86, 1033, or 1039 will not be deemed to also be a certificate issued under this part. Introducing these engines into U.S. commerce as marine engines without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).

(g) *Data submission.* (1) If you are both the original manufacturer and marinizer of an exempted engine, you must send us emission test data on the appropriate marine duty cycles. You can include the data in your application for certification or in the letter described in paragraph (e)(3) of this section.

(2) If you are the original manufacturer of an exempted engine that is marinized by a post-manufacture marinizer, you may be required to send us emission test data on the appropriate marine duty cycles. If such data are requested you will be allowed a reasonable amount of time to collect the data.

(h) *Participation in averaging, banking and trading.* Engines adapted for marine use under this section may not generate or use emission credits under this part. These engines may generate credits under the ABT provisions in 40 CFR part 86, 1033, or 1039, as applicable. These engines must use emission credits under 40 CFR part 86, 1033, or 1039 as applicable if they are certified to an FEL that exceeds an emission standard.

(i) *Operator requirements.* The requirements specified for vessel manufacturers, owners, and operators in this subpart (including requirements in 40 CFR part 1068) apply to these engines whether they are certified under this

part 1042 or another part as allowed by this section.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23005, Apr. 30, 2010; 81 FR 74150, Oct. 25, 2016; 86 FR 34510, June 29, 2021]

§ 1042.610 Certifying auxiliary marine engines to land-based standards.

This section applies to auxiliary marine engines that are identical to certified land-based engines. See § 1042.605 for provisions that apply to propulsion marine engines or auxiliary marine engines that are modified for marine applications. This section does not apply for Category 3 engines.

(a) *General provisions.* If you are an engine manufacturer, this section allows you to introduce new marine engines into U.S. commerce if they are already certified to the requirements that apply to compression-ignition engines under 40 CFR part 1039 for the appropriate model year. If you comply with all the provisions of this section, we consider the certificate issued under 40 CFR part 1039 for each engine to also be a valid certificate of conformity under this part for its model year, without a separate application for certification under the requirements of this part.

(b) *Vessel-manufacturer provisions.* If you are not an engine manufacturer, you may install an engine certified for land-based applications in a marine vessel as long as you meet all the qualifying criteria and requirements specified in paragraphs (d) and (e) of this section. If you modify the non-marine engine, we will consider you a manufacturer of a new marine engine. Such engine modifications prevent you from using the provisions of this section.

(c) *Liability.* Engines for which you meet the requirements of this section are exempt from all the requirements and prohibitions of this part, except for those specified in this section. Engines exempted under this section must meet all the applicable requirements from 40 CFR part 1039. This paragraph (c) applies to engine manufacturers, vessel manufacturers that use such an engine, and all other persons as if the engine were used in its originally intended application. The prohibited acts of 40 CFR 1068.101(a)(1) apply to these new

engines and vessels; however, we consider the certificate issued under 40 CFR part 1039 for each engine to also be a valid certificate of conformity under this part for its model year. If we make a determination that these engines do not conform to the regulations in this chapter during their useful life, we may require you to recall them under 40 CFR part 1068.

(d) *Qualifying criteria.* If you are an engine manufacturer and meet all the following criteria and requirements regarding your new marine engine, the engine is eligible for an exemption under this section:

(1) The marine engine must be identical in all material respects to a land-based engine covered by a valid certificate of conformity for the appropriate model year showing that it meets emission standards for engines of that power rating under 40 CFR part 1039.

(2) The engines may not be used as propulsion marine engines.

(3) You must show that the number of auxiliary marine engines from the engine family must be smaller than the number of land-based engines from the engine family sold in the United States, as follows:

(i) If you are the original manufacturer of the engine, base this showing on your sales information.

(ii) In all other cases, you must get the original manufacturer of the engine to confirm this based on its sales information.

(e) *Specific requirements.* If you are an engine manufacturer or vessel manufacturer using this exemption, you must do all of the following:

(1) Make sure the original engine label will remain clearly visible after installation in the vessel. This label or a supplemental label must identify that the original certification is valid for auxiliary marine applications.

(2) Send the Designated Compliance Officer written notification describing your plans before using the provisions of this section. In addition, by February 28 of each calendar year (or less often if we tell you), send the Designated Compliance Officer a signed letter with all the following information:

(i) Identify your full corporate name, address, and telephone number.

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(ii) List the engine models for which you used this exemption in the previous year and describe your basis for meeting the sales restrictions of paragraph (d)(3) of this section.

(iii) State: "We prepared each listed engine model for marine application without making any changes that could increase its certified emission levels, as described in 40 CFR 1042.610."

(3) If you are the certificate holder, you must describe in your application for certification how you plan to produce engines for both land-based and auxiliary marine applications, including projected sales of auxiliary marine engines to the extent this can be determined. If the projected marine sales are substantial, we may ask for the year-end report of production volumes to include actual auxiliary marine engine sales.

(f) *Failure to comply.* If your engines do not meet the criteria listed in paragraph (d) of this section, they will be subject to the standards, requirements, and prohibitions of this part and the certificate issued under 40 CFR part 1039 will not be deemed to also be a certificate issued under this part. Introducing these engines into U.S. commerce as marine engines without a valid exemption or certificate of conformity under this part violates the prohibitions in 40 CFR 1068.101(a)(1).

(g) *Participation in averaging, banking, and trading.* Engines using the exemption in this section may not generate or use emission credits under this part. These engines may generate credits under the ABT provisions in 40 CFR part 1039, as applicable. These engines must use emission credits under 40 CFR part 1039 as applicable if they are certified to an FEL that exceeds an emission standard.

(h) *Operator requirements.* The requirements specified for vessel manufacturers, owners, and operators in this subpart (including requirements in 40 CFR part 1068) apply to these engines whether they are certified under this part 1042 or another part as allowed by this section.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010; 81 FR 74150, Oct. 25, 2016; 86 FR 34511, June 29, 2021]

§ 1042.615 Replacement engine exemption.

For Category 1 and Category 2 replacement engines, the provisions of 40 CFR 1068.240 apply except as described in this section. In unusual circumstances, you may ask us to allow you to apply these provisions for a new Category 3 engine.

(a) This paragraph (a) applies instead of the provisions of 40 CFR 1068.240(b)(2) for installing new marine engines in vessels that are not "new vessels". The prohibitions in 40 CFR 1068.101(a)(1) do not apply to a new replacement engine if all the following conditions are met:

(1) You use good engineering judgment to determine that no engine certified to the current requirements of this part is produced by any manufacturer with the appropriate physical or performance characteristics to repower the vessel. We have determined that Tier 4 engines with aftertreatment technology do not have the appropriate physical or performance characteristics to replace uncertified engines or engines certified to emission standards that are less stringent than the Tier 4 standards.

(2) You make a record of your determination for each replacement engine with the following information and keep these records for eight years:

(i) If you determine that no engine certified to the current requirements of this part is available with the appropriate performance characteristics, explain why certified engines produced by you and other manufacturers cannot be used as a replacement because they are not similar to the engine being replaced in terms of power or speed.

(ii) You may determine that all engines certified to the current requirements of this part that have appropriate performance characteristics are not available because they do not have the appropriate physical characteristics. If this is the case, explain why these certified engines produced by you and other manufacturers cannot be used as a replacement because their weight or dimensions are substantially different than those of the engine being replaced, or because they will not fit within the vessel's engine compartment or engine room.

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(iii) In evaluating appropriate physical or performance characteristics, you may account for compatibility with vessel components you would not otherwise replace when installing a new engine, including transmissions or reduction gears, drive shafts or propeller shafts, propellers, cooling systems, operator controls, or electrical systems for generators or indirect-drive configurations. If you make your determination on this basis, you must identify the vessel components that are incompatible with engines certified to current standards and explain how they are incompatible and why it would be unreasonable to replace them.

(iv) In evaluating appropriate physical or performance characteristics, you may account for compatibility in a set of two or more propulsion engines on a vessel where only one of the engines needs replacement, but only if each engine not needing replacement has operated for less than 75 percent of its applicable useful life in hours or years (see §1042.101). If any engine not otherwise needing replacement exceeds this 75 percent threshold, your determination must consider replacement of all the propulsion engines.

(v) In addition to the determination specified in paragraph (a)(1) of this section, you must make a separate determination for your own product line addressing every tier of emission standards that is more stringent than the emission standards for the engine being replaced. For example, if the engine being replaced was built before the Tier 1 standards started to apply and engines of that size are currently subject to Tier 3 standards, you must consider whether any Tier 1 or Tier 2 engines that you produce have the appropriate physical and performance characteristics for replacing the old engine; if you can produce a Tier 2 engine with the appropriate physical and performance characteristics, you must use it as the replacement engine.

(3) Send us a report by September 30 of each year describing your engine shipments under this section from the preceding calendar year. Your report must include all the following things and be signed by an authorized representative of your company:

(i) Identify the number of Category 1 and Category 2 exempt replacement engines that meet Tier 1, Tier 2, or Tier 3 standards, or that meet no EPA standards. Count engines separately for each tier of standards. Identify the number of those engines that have been shipped (directly or indirectly) to a vessel owner. This includes engines shipped to anyone intending to install engines on behalf of a specific engine owner. Also include commercial Tier 3 engines with maximum engine power at or above 600 kW even if they have not been shipped to or designated for a specific vessel owner in the specified time frame.

(ii) Describe how you made the determinations described in paragraph (a)(1) of this section for each Category 1 and Category 2 exempt replacement engine for each vessel during the preceding year. For Tier 3 replacement engines at or above 600 kW, describe why any engines certified to Tier 4 standards without aftertreatment are not suitable.

(iii) Identify the number of Category 3 exempt replacement engines. We may require you to describe how you made the determinations described in paragraph (a)(1) of this section for each engine.

(iv) Include the following statement:

I certify that the statements and information in the enclosed document are true, accurate, and complete to the best of my knowledge. I am aware that there are significant civil and criminal penalties for submitting false statements and information, or omitting required statements and information.

(4) The replacement engine must conform to the applicable requirements of 40 CFR part 1043. Note that 40 CFR 1043.10 specifies allowances for vessels that operate only domestically.

(b) The 40-year limit specified in 40 CFR 1068.240(a) does not apply for engines subject to this part 1042. You may accordingly omit the statement on the permanent labels specified in 40 CFR 1068.240 describing this limitation.

(c) Modifying a vessel to significantly increase its value within six months after installing a replacement engine produced under this section is a violation of 40 CFR 1068.101(a)(1).

(d) We may void an exemption for an engine if we determine that any of the

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conditions described in paragraph (a) of this section are not met.

(e) We may reduce the reporting and recordkeeping requirements in this section.

(f) The provisions of 40 CFR 1068.240(c) allow you to ship a limited number of exempt replacement engines to vessel owners or distributors without making the determinations described in paragraph (a) of this section. Note that such engines do not count toward the production limits of 40 CFR 1068.240(c) if you meet all the requirements of this section by the due date for the annual report. You may count Tier 3 commercial marine replacement engines at or above 600 kW as tracked engines under 40 CFR 1068.240(b) even if they have not been shipped to or designated for a specific vessel owner in the specified time frame.

(g) In unusual circumstances, you may ask us to allow you to apply the replacement engine exemption of this section for repowering a steamship or a vessel that becomes a “new vessel” under §1042.901 as a result of modifications, as follows:

(1) You must demonstrate that no manufacturer produces an engine certified to Tier 4 standards with the appropriate physical or performance characteristics to repower the vessel. We will consider concerns about the size of the replacement engine and its compatibility with vessel components relative to the overall scope of the project.

(2) Exempt replacement engines under this paragraph (g) must meet the Tier 3 standards specified in §1042.101 (or the Tier 2 standards if there are no Tier 3 standards).

(3) We will not approve a request for an exemption from the Tier 3 standards for any engines.

(4) You may not use the exemption provisions for untracked replacement engines under 40 CFR 1068.240(c) for repowering a vessel that becomes a “new vessel” under §1042.901 as a result of modifications.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23006, Apr. 30, 2010; 79 FR 7084, Feb. 6, 2014; 86 FR 34511, June 29, 2021; 88 FR 4663, Jan. 24, 2023]

§ 1042.620 Engines used solely for competition.

The provisions of this section apply for new Category 1 engines and vessels built on or after January 1, 2009.

(a) We may grant you an exemption from the standards and requirements of this part for a new engine on the grounds that it is to be used solely for competition. The requirements of this part, other than those in this section, do not apply to engines that we exempt for use solely for competition.

(b) We will exempt engines that we determine will be used solely for competition. The basis of our determination is described in paragraphs (c) and (d) of this section. Exemptions granted under this section are good for only one model year and you must request renewal for each subsequent model year. We will not approve your renewal request if we determine the engine will not be used solely for competition.

(c) Engines meeting all the following criteria are considered to be used solely for competition:

(1) Neither the engine nor any vessels containing the engine may be displayed for sale in any public dealership or otherwise offered for sale to the general public. Note that this does not preclude display of these engines as long as they are not available for sale to the general public.

(2) Sale of the vessel in which the engine is installed must be limited to professional racing teams, professional racers, or other qualified racers. For replacement engines, the sale of the engine itself must be limited to professional racing teams, professional racers, other qualified racers, or to the original vessel manufacturer.

(3) The engine and the vessel in which it is installed must have performance characteristics that are substantially superior to noncompetitive models.

(4) The engines are intended for use only as specified in paragraph (e) of this section.

(d) You may ask us to approve an exemption for engines not meeting the criteria listed in paragraph (c) of this section as long as you have clear and convincing evidence that the engines will be used solely for competition.

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(e) Engines are considered to be used solely for competition only if their use is limited to competition events sanctioned by the U.S. Coast Guard or another public organization with authorizing permits for participating competitors. Operation of such engines may include only racing events, trials to qualify for racing events, and practice associated with racing events. Authorized attempts to set speed records are also considered racing events. Engines will not be considered to be used solely for competition if they are ever used for any recreational or other non-competitive purpose. Use of exempt engines in any recreational events, such as poker runs and lobsterboat races, is a violation of 40 CFR 1068.101(b)(4).

(f) You must permanently label engines exempted under this section to clearly indicate that they are to be used only for competition. Failure to properly label an engine will void the exemption for that engine.

(g) If we request it, you must provide us any information we need to determine whether the engines are used solely for competition. This would include documentation regarding the number of engines and the ultimate purchaser of each engine as well as any documentation showing a vessel manufacturer's request for an exempted engine. Keep these records for five years.

[75 FR 23006, Apr. 30, 2010]

§ 1042.625 Special provisions for engines used in emergency applications.

This section describes an exemption that is available for certain Category 1 and Category 2 engines. This exemption is not available for Category 3 engines.

(a) Except as specified in paragraph (d) of this section, the prohibitions in § 1068.101(a)(1) do not apply to a new engine that is subject to Tier 4 standards if the following conditions are met:

(1) The engine is intended for installation in one of the following vessels or applications:

(i) A lifeboat approved by the U.S. Coast Guard under approval series 160.135 (see for example 46 CFR 199.201(a)(1)), as long as such a vessel is not also used as a launch or tender.

(ii) A rescue boat approved by the U.S. Coast Guard under approval series 160.156 (see for example 46 CFR 199.202(a)).

(iii) Generator sets or other auxiliary equipment that qualify as final emergency power sources under 46 CFR part 112.

(2) The engine meets the Tier 3 emission standards specified in § 1042.101 as specified in 40 CFR 1068.265.

(3) The engine is used only for its intended purpose, as specified on the emission control information label.

(b) Except as specified in paragraph (d) of this section, the prohibitions in § 1068.101(a)(1) do not apply to a new engine that is subject to Tier 3 standards according to the following provisions:

(1) The engine must be intended for installation in a lifeboat or a rescue boat as specified in paragraph (a)(1)(i) or (ii) of this section.

(2) This exemption is available from the initial effective date for the Tier 3 standards until the engine model (or one of comparable size, weight, and performance) has been certified as complying with the Tier 3 standards and Coast Guard requirements.

(3) The engine must meet the Tier 2 emission standards specified in Appendix I of this part as specified in 40 CFR 1068.265.

(c) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in § 1042.135, but add one of the following statements instead of the compliance statement in § 1042.135(c)(10):

(1) For lifeboats and rescue boats, add the following statement:

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.625 AND IS FOR USE SOLELY IN LIFEBOATS OR RESCUE BOATS (COAST GUARD APPROVAL SERIES 160.135 OR 160.156). INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(2) For engines serving as final emergency power sources, add the following statement:

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.625 AND IS FOR

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USE SOLELY IN EMERGENCY EQUIPMENT REGULATED BY 46 CFR 112. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(d) Introducing into commerce a vessel containing an engine exempted under this section violates the prohibitions in 40 CFR 1068.101(a)(1) where the vessel is not covered by paragraph (a) or (b) of this section, unless it is exempt under a different provision. Similarly, using such an engine or vessel as something other than a lifeboat, rescue boat, or emergency engine as specified in paragraph (a)(1) of this section violates the prohibitions in 40 CFR 1068.101(a)(1), unless it is exempt under a different provision.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010]

§ 1042.630 Personal-use exemption.

This section applies to individuals who manufacture vessels for personal use with used Category 1 engines. If you and your vessel meet all the conditions of this section, the vessel and its engine are considered to be exempt from the standards and requirements of this part that apply to new engines and new vessels. The prohibitions in §1068.101(a)(1) do not apply to engines exempted under this section. For example, you may install an engine that was not certified as a marine engine.

(a) The vessel may not be manufactured from a previously certified vessel, nor may it be manufactured from a partially complete vessel that is equivalent to a certified vessel. The vessel must be manufactured primarily from unassembled components, but may incorporate some preassembled components. For example, fully preassembled steering assemblies may be used. You may also power the vessel with an engine that was previously used in a highway or land-based nonroad application.

(b) The vessel may not be sold within five years after the date of final assembly.

(c) No individual may manufacture more than one vessel in any ten-year period under this exemption.

(d) You may not use the vessel in any revenue-generating service or for any

other commercial purpose, except that you may use a vessel exempt under this section for commercial fishing that you personally do.

(e) This exemption may not be used to circumvent the requirements of this part or the requirements of the Clean Air Act. For example, this exemption would not cover a case in which a person sells an almost completely assembled vessel to another person, who would then complete the assembly. This would be considered equivalent to the sale of the complete new vessel. This section also does not allow engine manufacturers to produce new engines that are exempt from emission standards and it does not provide an exemption from the prohibition against tampering with certified engines.

(f) The vessel must be a vessel that is not classed or subject to Coast Guard inspections or surveys. Note that dockside examinations performed by the Coast Guard are not considered inspections (see 46 U.S.C. 3301 and 46 U.S.C. 4502).

[73 FR 37243, June 30, 2008, as amended at 75 FR 23006, Apr. 30, 2010; 81 FR 74151, Oct. 25, 2016]

§ 1042.635 National security exemption.

Engines qualify for a national security exemption as described in 40 CFR 1068.225. This applies to both freshly manufactured and remanufactured engines.

[81 FR 74151, Oct. 25, 2016]

§ 1042.650 Exemptions for migratory vessels and auxiliary engines on Category 3 vessels.

The provisions of paragraphs (a) through (c) of this section apply for Category 1 and Category 2 engines, including auxiliary engines installed on vessels with Category 3 propulsion engines. Paragraphs (a) through (c) do not apply for any Category 3 engines. All engines exempted under this section must comply with the applicable requirements of 40 CFR part 1043.

(a) *Temporary exemption.* A vessel owner may ask us for a temporary exemption from the tampering prohibition in 40 CFR 1068.101(b)(1) for a vessel if it will operate for an extended period outside the United States where ULSD

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is not available. In your request, describe where the vessel will operate, how long it will operate there, why ULSD will be unavailable, and how you will modify the engine, including its emission controls. If we approve your request, you may modify the engine, but only as needed to disable or remove the emission controls needed for meeting the Tier 4 standards. You must return the engine to its original certified configuration before the vessel returns to the United States to avoid violating the tampering prohibition in 40 CFR 1068.101(b)(1). We may set additional conditions to prevent circumvention of the provisions of this part.

(b) *SOLAS exemption.* We may approve a permanent exemption from the prohibitions in 40 CFR 1068.101(a)(1) for an engine that is subject to Tier 4 standards as described in this paragraph (b).

(1) Vessel owners may ask for a permanent exemption from the Tier 4 standards for an engine that will be installed on vessels that will operate for extended periods outside the United States, provided they demonstrate all of the following are true:

(i) Prior to introduction into service, the vessel will comply with applicable certification requirements for international safety pursuant to the U.S. Coast Guard and the International Convention for the Protection of Life at Sea (SOLAS). The vessel owner must maintain compliance with these requirements for the life of the exempted engine.

(ii) The vessel will be used in areas outside of the United States where ULSD will not be available.

(iii) The mix of vessels with engines certified to Tier 3 or earlier standards in the owner's current fleet and the owner's current business operation of those vessels makes the exemption necessary. Note that because of the large fraction of pre-Tier 4 engines in the fleet prior to 2021, a request for a Tier 4 exemption prior to that year must clearly demonstrate that unusual circumstances apply.

(2) An engine exempted under this paragraph (b) must meet the Tier 3 emission standards described in §1402.101, subject to the procedural requirements of 40 CFR 1068.265.

(3) If you introduce an engine into U.S. commerce under this section, you must meet the labeling requirements in §1042.135, but add the following statement instead of the compliance statement in §1042.135(c)(10):

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.650 AND IS FOR USE SOLELY IN SOLAS VESSELS. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(4) Operating a vessel containing an engine exempted under this paragraph (b) violates the prohibitions in 40 CFR 1068.101(a)(1) if the vessel is not in full compliance with applicable requirements for international safety specified in paragraph (b)(1)(i) of this section.

(c) *Vessels less than 500 gross tons.* In unusual circumstances for vessels less than 500 gross tons, we may approve a vessel owner's request for a permanent exemption from the prohibitions in 40 CFR 1068.101(a)(1) for an engine that is subject to Tier 4 standards that will operate for extended periods outside the United States without it being in compliance with applicable certification requirements for international safety. We may set appropriate additional conditions on such exemptions, and may void the exemption if those conditions are not met.

(d) *Auxiliary engines on Category 3 vessels.* Auxiliary engines that will be installed on vessels with Category 3 propulsion engines qualify for an exemption from the standards of this part provided all the following conditions are met:

(1) To be eligible for this exemption, the engine must meet all the following criteria.

(i) The engine must have an EIAPP certificate demonstrating compliance with the applicable NO_x standards of Annex VI and meet all other applicable requirements of 40 CFR part 1043. Engines installed on vessels constructed on or after January 1, 2016 must conform fully to the Annex VI Tier III NO_x standards as described in 40 CFR part 1043 and meet all other applicable requirements in 40 CFR part 1043. Engines that would otherwise be subject

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to the Tier 4 standards of this part must also conform fully to the Annex VI Tier III NO_x standards as described in 40 CFR part 1043.

(ii) The engine may not be used for propulsion (except for emergency engines).

(iii) Engines certified to the Annex VI Tier III standards may be equipped with on-off NO_x controls, as long as they conform to the requirements of §§ 1042.110(d) and 1042.115(g); however, the engines must comply fully with the Annex VI Tier II standards when the emission controls are disabled, and meet any other requirements that apply under Annex VI.

(2) You must notify the Designated Compliance Officer of your intent to use this exemption before you introduce engines into U.S. commerce, not later than the time that you apply for an EIAPP certificate for the engine under 40 CFR part 1043.

(3) The remanufactured engine requirements of subpart I of this part do not apply.

(4) If you introduce an engine into U.S. commerce under this paragraph (d), you must meet the labeling requirements in § 1042.135, but add the following statement instead of the compliance statement in § 1042.135(c)(10):

THIS ENGINE DOES NOT COMPLY WITH CURRENT U.S. EPA EMISSION STANDARDS UNDER 40 CFR 1042.650 AND IS FOR USE SOLELY IN VESSELS WITH CATEGORY 3 PROPULSION ENGINES. INSTALLATION OR USE OF THIS ENGINE IN ANY OTHER APPLICATION MAY BE A VIOLATION OF FEDERAL LAW SUBJECT TO CIVIL PENALTY.

(5) The reporting requirements of § 1042.660 apply for engines exempted under this paragraph (d).

[73 FR 37243, June 30, 2008, as amended at 75 FR 23007, Apr. 30, 2010; 81 FR 74151, Oct. 25, 2016; 86 FR 34512, June 29, 2021]

§ 1042.655 Special certification provisions for Category 3 engines with aftertreatment.

This section describes an optional approach for demonstrating for certification that catalyst-equipped engines (or engines equipped with other aftertreatment devices) comply with applicable emission standards. You

must use good engineering judgment for all aspects of this allowance.

(a) *Eligibility.* You may use the provisions of this section without our prior approval to demonstrate that aftertreatment-equipped Category 3 engines meet the Tier 3 standards. In unusual circumstances, we may also allow you to use this approach to demonstrate that aftertreatment-equipped Category 2 engines meet the Tier 4 standards. We will generally approve this for Category 2 engines only if the engines are too large to be practically tested in a laboratory with a fully assembled aftertreatment system. If we approve this approach for a Category 2 engine, interpret references to Tier 3 in this section to mean Tier 4, and interpret references to Tier 2 in this section to mean Tier 3.

(b) *Required testing.* The emission-data engine must be tested as specified in subpart F of this part. Testing engine-out emissions to simulate operation with disabled Tier 3 emission controls must simulate backpressure and other parameters as needed to represent in-use operation with an SCR catalyst. The catalyst material or other aftertreatment device must be tested under conditions that accurately represent actual engine conditions for the test points. This catalyst or aftertreatment testing may be performed on a bench scale.

(c) *Engineering analysis.* Include with your application a detailed engineering analysis describing how the test data collected for the engine and aftertreatment demonstrate that all engines in the family will meet all applicable emission standards. We may require that you submit this analysis separately from your application, or that you obtain preliminary approval under § 1042.210.

(d) *Verification.* You must verify your design by testing a complete production engine with installed aftertreatment in the final assembled configuration. Unless we specify otherwise, do this by complying with production-line testing requirements of subpart D of this part.

(e) *Other requirements.* All other requirements of this part, including the

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non-testing requirements for certification, apply for these engines. Nothing in this section affects requirements in other regulatory parts, such as Coast Guard safety requirements.

[75 FR 23007, Apr. 30, 2010, as amended at 81 FR 74151, Oct. 25, 2016; 86 FR 34512, June 29, 2021]

§ 1042.660 Requirements for vessel manufacturers, owners, and operators.

(a) For vessels equipped with emission controls requiring the use of specific fuels, lubricants, or other fluids, owners and operators must comply with the manufacturer/remanufacturer's specifications for such fluids when operating the vessels. Failure to comply with the requirements of this paragraph is a violation of 40 CFR 1068.101(b)(1). For marine vessels that are excluded from the requirements of 40 CFR part 1043 because they operate only domestically, it is also a violation of 40 CFR 1068.101(b)(1) to operate the vessel using residual fuel on or after January 1, 2015. Note that 40 CFR part 1090 also includes provisions that restrict the use of certain fuels by certain marine engines.

(b) For vessels equipped with SCR systems requiring the use of urea or other reductants, owners and operators must report to the Designated Compliance Officer within 30 days any operation of such vessels without the appropriate reductant. For each reportable incident, include the cause of the noncompliant operation, the remedy, and an estimate of the extent of operation without reductant. You must remedy the problem as soon as practicable to avoid violating the tampering prohibition in 40 CFR 1068.101(b)(1). If the remedy is not complete within 30 days of the incident, notify the Designated Compliance Officer when the issue is resolved, along with any relevant additional information related to the repair. This reporting requirement applies for all engines on covered vessels even if the engines are certified to Annex VI standards instead of or in addition to EPA standards under this part. Failure to comply with the reporting requirements of this paragraph (b) is a violation of 40 CFR 1068.101(a)(2). Note that operating such

engines without reductant is a violation of 40 CFR 1068.101(b)(1).

(c) The provisions of this paragraph (c) apply for marine vessels containing Category 3 engines.

(1) The requirements of this paragraph (c)(1) apply only for Category 3 engines. All maintenance, repair, adjustment, and alteration of Category 3 engines subject to the provisions of this part performed by any owner, operator or other maintenance provider must be performed using good engineering judgment, in such a manner that the engine continues (after the maintenance, repair, adjustment or alteration) to meet the emission standards it was certified as meeting prior to the need for service. This includes but is not limited to complying with the maintenance instructions described in § 1042.125. Adjustments are limited to the range specified by the engine manufacturer in the approved application for certification. Note that where a repair (or other maintenance) cannot be completed while at sea, it is not a violation to continue operating the engine to reach your destination.

(2) It is a violation of 40 CFR 1068.101(b)(1) to operate the vessel with the engine adjusted outside of the specified adjustable range. Each two-hour period of such operation constitutes a separate offense. A violation lasting less than two hours constitutes a single offense.

(3) The owner and operator of the engine must maintain on board the vessel records of all maintenance, repair, and adjustment that could reasonably affect the emission performance of any engine subject to the provision of this part. Owners and operators must also maintain, on board the vessel, records regarding certification, parameter adjustment, and fuels used. For engines that are automatically adjusted electronically, all adjustments must be logged automatically. Owners and operators must make these records available to EPA upon request. These records must include the following:

(i) The Technical File, Record Book of Engine Parameters, and bunker delivery notes as specified in 40 CFR 1043.70. The Technical File must be transferred to subsequent purchasers in

the event of a sale of the engine or vessel. (ii) Specific descriptions of engine maintenance, repair, adjustment, and alteration (including rebuilding). The descriptions must include at least the date, time, and nature of the maintenance, repair, adjustment, or alteration and the position of the vessel when the maintenance, repair, adjustment, or alteration was made.

(iii) Emission-related maintenance instructions provided by the manufacturer. These instructions must be transferred to subsequent purchasers in the event of a sale of the engine or vessel.

(4) Owners and operators of engines equipped with on-off emission controls must comply with the requirements of this paragraph (c)(4) whenever a malfunction of the emission controls is indicated as specified in §1042.110(d). You must determine the cause of the malfunction and remedy it consistent with paragraph (c)(1) of this section. See paragraph (b) of this section if the malfunction is due to either a lack of reductant or inadequate reductant quality. If the malfunction occurs during the useful life, report the malfunction to the certificate holder for investigation and compliance with defect reporting requirements of 40 CFR 1068.501 (unless the malfunction is due to operation without adequate urea or other malmaintenance).

(d) For each marine vessel containing a Category 3 engine, the owner must annually review the vessel's records and submit to EPA a signed statement certifying compliance during the preceding year with the requirements of this part that are applicable to owners and operators of such vessels. Alternately, if review of the vessel's records indicates that there has been one or more violations of the requirements of this part, the owner must submit to EPA a signed statement specifying the noncompliance, including the nature of the noncompliance, the time of the noncompliance, and any efforts made to remedy the noncompliance. The statement of compliance (or non-compliance) required by this paragraph must be signed by the executive with responsibility for marine activities of the owner. If the vessel is operated by a different business entity than the

vessel owner, the reporting requirements of this paragraph (e) apply to both the owner and the operator. Compliance with these review and certification requirements by either the vessel owner or the vessel operator with respect to a compliance statement will be considered compliance with these requirements by both of these parties for that compliance statement. The executive(s) may authorize a captain or other primary operator to conduct this review and submit the certification, provided that the certification statement is accompanied by written authorization for that individual to submit such statements. The Administrator may waive the requirements of this paragraph when equivalent assurance of compliance is otherwise available.

(e) Manufacturers, owners and operators must allow emission tests and inspections required by this part to be conducted and must provide reasonable assistance to perform such tests or inspections.

[75 FR 23007, Apr. 30, 2010, as amended at 81 FR 74151, Oct. 25, 2016; 85 FR 78468, Dec. 4, 2020; 88 FR 4663, Jan. 24, 2023]

§ 1042.670 Special provisions for gas turbine engines.

The provisions of this section apply for gas turbine engines.

(a) *Implementation schedule.* The requirements of this part do not apply for gas turbine engines below 600 kW before the 2014 model year. The requirements of this part do not apply for Tier 3 or earlier gas turbine engines at or above 600 kW. The provisions of 40 CFR part 1068 also do not apply for gas turbine engines produced in these earlier model years.

(b) *Special test procedures.* Manufacturers seeking certification of gas turbine engines must obtain preliminary approval of the test procedures to be used, consistent with §1042.210 and 40 CFR 1065.10.

(c) *Remanufacturing.* The requirements of subpart I of this part do not apply for gas turbine engines.

(d) *Equivalent displacement.* Apply displacement-based provisions of this part by calculating an equivalent displacement from maximum engine power.

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The equivalent per-cylinder displacement (in liters) equals maximum engine power in kW multiplied by 0.00311, except that all gas turbines with maximum engine power above 9,300 kW are considered to have an equivalent per-cylinder displacement of 29.0 liters. Also, determine the appropriate Tier 3 standards for Category 1 engines based on the engine having an equivalent power density below 35 kW per liter.

(e) *Emission-related components.* All components meeting the criteria of 40 CFR 1068.501(a)(1) are considered to be emission-related components with respect to maintenance, warranty, and defect reporting for gas turbine engines.

(f) *Engines used for national defense.* See §1042.635 for provisions related to exempting gas turbine engines used for national defense.

[75 FR 23008, Apr. 30, 2010, as amended at 81 FR 74152, Oct. 25, 2016]

Subpart H—Averaging, Banking, and Trading for Certification

§ 1042.701 General provisions.

This subpart describes how you may use emission credits to demonstrate that Category 1 and Category 2 engines comply with emission standards under this part. The provisions of this subpart do not apply for Category 3 engines.

(a) You may average, bank, and trade (ABT) emission credits for purposes of certification as described in this subpart to show compliance with the standards of this part. Participation in this program is voluntary.

(b) The definitions of subpart J of this part apply to this subpart. The following definitions also apply:

(1) *Actual emission credits* means emission credits you have generated that we have verified by reviewing your final report.

(2) *Applicable emission standard* means an emission standard that is specified in subpart B of this part. Note that for other subparts, “applicable emission standard” is defined to also include FELs.

(3) *Averaging set* means a set of engines in which emission credits may be

exchanged only with other engines in the same averaging set.

(4) *Broker* means any entity that facilitates a trade of emission credits between a buyer and seller.

(5) *Buyer* means the entity that receives emission credits as a result of a trade.

(6) *Reserved emission credits* means emission credits you have generated that we have not yet verified by reviewing your final report.

(7) *Seller* means the entity that provides emission credits during a trade.

(8) *Standard* means the emission standard that applies under subpart B of this part for engines not participating in the ABT program of this subpart.

(9) *Trade* means to exchange emission credits, either as a buyer or seller.

(c) Emission credits may be exchanged only within an averaging set. Except as specified in paragraph (d) of this section, the following criteria define the applicable averaging sets:

(1) Recreational engines.

(2) Commercial Category 1 engines.

(3) Category 2 engines.

(d) Emission credits generated by commercial Category 1 engine families may be used for compliance by Category 2 engine families. Such credits must be discounted by 25 percent.

(e) You may not use emission credits generated under this subpart to offset any emissions that exceed an FEL or standard. This applies for all testing, including certification testing, in-use testing, selective enforcement audits, and other production-line testing. However, if emissions from an engine exceed an FEL or standard (for example, during a selective enforcement audit), you may use emission credits to recertify the engine family with a higher FEL that applies only to future production.

(f) Engine families that use emission credits for one or more pollutants may not generate positive emission credits for another pollutant.

(g) Emission credits may be used in the model year they are generated or in future model years. Emission credits may not be used for past model years.

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(h) You may increase or decrease an FEL during the model year by amending your application for certification under § 1042.225.

(i) You may use NO_x + HC credits to show compliance with a NO_x emission standard or use NO_x credits to show compliance with a NO_x + HC emission standard.

(j) [Reserved]

(k) You may use either of the following approaches to retire or forego emission credits:

(1) You may retire emission credits generated from any number of your engines. This may be considered donating emission credits to the environment. Identify any such credits in the reports described in § 1042.730. Engines must comply with the applicable FELs even if you donate or sell the corresponding emission credits under this paragraph (k). Those credits may no longer be used by anyone to demonstrate compliance with any EPA emission standards.

(2) You may certify a family using an FEL below the emission standard as described in this part and choose not to generate emission credits for that family. If you do this, you do not need to calculate emission credits for those families and you do not need to submit or keep the associated records described in this subpart for that family.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23008, Apr. 30, 2010; 81 FR 74152, Oct. 25, 2016; 86 FR 34512, June 29, 2021]

§ 1042.705 Generating and calculating emission credits.

The provisions of this section apply separately for calculating emission credits for NO_x, NO_x + HC, or PM.

(a) For each participating family, calculate positive or negative emission credits relative to the otherwise applicable emission standard. Calculate positive emission credits for a family that has an FEL below the standard. Calculate negative emission credits for a family that has an FEL above the standard. Sum your positive and negative credits for the model year before rounding. Round the sum of emission credits to the nearest kilogram (kg) using consistent units throughout the following equation:

Emission credits (kg) = (Std - FEL) × (Volume) × (Power) × (LF) × (UL) × (10⁻³)

Where:

Std = The emission standard, in g/kW-hr.

FEL = The family emission limit for the engine family, in g/kW-hr.

Volume = The number of engines eligible to participate in the averaging, banking, and trading program within the given engine family during the model year, as described in paragraph (c) of this section.

Power = The average value of maximum engine power of all the engine configurations within an engine family, calculated on a production-weighted basis, in kilowatts.

LF = Load factor. Use 0.69 for propulsion marine engines and 0.51 for auxiliary marine engines. We may specify a different load factor if we approve the use of special test procedures for an engine family under 40 CFR 1065.10(c)(2), consistent with good engineering judgment.

UL = The useful life for the given engine family, in hours.

(b) [Reserved]

(c) As described in § 1042.730, compliance with the requirements of this subpart is determined at the end of the model year based on actual U.S.-directed production volumes. Do not include any of the following engines to calculate emission credits:

(1) Engines with a permanent exemption under subpart G of this part or under 40 CFR part 1068.

(2) Exported engines.

(3) Engines not subject to the requirements of this part, such as those excluded under § 1042.5.

(4) [Reserved]

(5) Any other engines, where we indicate elsewhere in this part 1042 that they are not to be included in the calculations of this subpart.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23008, Apr. 30, 2010; 81 FR 74152, Oct. 25, 2016]

§ 1042.710 Averaging emission credits.

(a) Averaging is the exchange of emission credits among your engine families.

(b) You may certify one or more engine families to an FEL above the emission standard, subject to the FEL caps and other provisions in subpart B

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of this part, if you show in your application for certification that your projected balance of all emission-credit transactions in that model year is greater than or equal to zero.

(c) If you certify an engine family to an FEL that exceeds the otherwise applicable emission standard, you must obtain enough emission credits to offset the engine family's deficit by the due date for the final report required in §1042.730. The emission credits used to address the deficit may come from your other engine families that generate emission credits in the same model year, from emission credits you have banked from previous model years, or from emission credits generated in the same or previous model years that you obtained through trading.

[73 FR 37243, June 30, 2008, as amended at 81 FR 74152, Oct. 25, 2016]

§ 1042.715 Banking emission credits.

(a) Banking is the retention of emission credits by the manufacturer generating the emission credits for use in future model years for averaging or trading.

(b) You may designate any emission credits you plan to bank in the reports you submit under §1042.730 as reserved credits. During the model year and before the due date for the final report, you may designate your reserved emission credits for averaging or trading.

(c) Reserved credits become actual emission credits when you submit your final report. However, we may revoke these emission credits if we are unable to verify them after reviewing your reports or auditing your records.

[75 FR 23009, Apr. 30, 2010]

§ 1042.720 Trading emission credits.

(a) Trading is the exchange of emission credits between manufacturers. You may use traded emission credits for averaging, banking, or further trading transactions.

(b) You may trade actual emission credits as described in this subpart. You may also trade reserved emission credits, but we may revoke these emission credits based on our review of your records or reports or those of the company with which you traded emis-

sion credits. You may trade banked credits within an averaging set to any certifying manufacturer.

(c) If a negative emission credit balance results from a transaction, both the buyer and seller are liable, except in cases we deem to involve fraud. See §1042.255(e) for cases involving fraud. We may void the certificates of all engine families participating in a trade that results in a manufacturer having a negative balance of emission credits. See §1042.745.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010]

§ 1042.725 Information required for the application for certification.

(a) You must declare in your application for certification your intent to use the provisions of this subpart for each engine family that will be certified using the ABT program. You must also declare the FELs you select for the engine family for each pollutant for which you are using the ABT program. Your FELs must comply with the specifications of subpart B of this part, including the FEL caps. FELs must be expressed to the same number of decimal places as the emission standards.

(b) Include the following in your application for certification:

(1) A statement that, to the best of your belief, you will not have a negative balance of emission credits for any averaging set when all emission credits are calculated at the end of the year.

(2) Detailed calculations of projected emission credits (positive or negative) based on projected production volumes. We may require you to include similar calculations from your other engine families to demonstrate that you will be able to avoid negative credit balances for the model year. If you project negative emission credits for a family, state the source of positive emission credits you expect to use to offset the negative emission credits.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010; 81 FR 74152, Oct. 25, 2016]

§ 1042.730 ABT reports.

(a) If any of your engine families are certified using the ABT provisions of this subpart, you must send an end-of-year report within 90 days after the end

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of the model year and a final report within 270 days after the end of the model year. We may waive the requirement to send the end-of-year report, as long as you send the final report on time.

(b) Your end-of-year and final reports must include the following information for each engine family participating in the ABT program:

(1) Engine-family designation and averaging set.

(2) The emission standards that would otherwise apply to the engine family.

(3) The FEL for each pollutant. If you change the FEL after the start of production, identify the date that you started using the new FEL and/or give the engine identification number for the first engine covered by the new FEL. In this case, identify each applicable FEL and calculate the positive or negative emission credits as specified in §1042.225.

(4) The projected and actual U.S.-directed production volumes for the model year, as described in §1042.705(c). If you changed an FEL during the model year, identify the actual U.S.-directed production volume associated with each FEL.

(5) Maximum engine power for each engine configuration, and the average engine power weighted by U.S.-directed production volumes for the engine family.

(6) Useful life.

(7) Calculated positive or negative emission credits for the whole engine family. Identify any emission credits that you traded, as described in paragraph (d)(1) of this section.

(c) Your end-of-year and final reports must include the following additional information:

(1) Show that your net balance of emission credits from all your participating engine families in each averaging set in the applicable model year is not negative.

(2) State whether you will retain any emission credits for banking. If you choose to retire emission credits that would otherwise be eligible for banking, identify the engine families that generated the emission credits, including the number of emission credits from each family.

(3) State that the report's contents are accurate.

(d) If you trade emission credits, you must send us a report within 90 days after the transaction, as follows:

(1) As the seller, you must include the following information in your report:

(i) The corporate names of the buyer and any brokers.

(ii) A copy of any contracts related to the trade.

(iii) The averaging set corresponding to the engine families that generated emission credits for the trade, including the number of emission credits from each averaging set.

(2) As the buyer, you must include the following information in your report:

(i) The corporate names of the seller and any brokers.

(ii) A copy of any contracts related to the trade.

(iii) How you intend to use the emission credits, including the number of emission credits you intend to apply for each averaging set.

(e) Send your reports electronically to the Designated Compliance Officer using an approved information format. If you want to use a different format, send us a written request with justification for a waiver.

(f) Correct errors in your end-of-year report or final report as follows:

(1) You may correct any errors in your end-of-year report when you prepare the final report, as long as you send us the final report by the time it is due.

(2) If you or we determine within 270 days after the end of the model year that errors mistakenly decreased your balance of emission credits, you may correct the errors and recalculate the balance of emission credits. You may not make these corrections for errors that are determined more than 270 days after the end of the model year. If you report a negative balance of emission credits, we may disallow corrections under this paragraph (f)(2).

(3) If you or we determine anytime that errors mistakenly increased your balance of emission credits, you must

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correct the errors and recalculate the balance of emission credits.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010; 81 FR 74152, Oct. 25, 2016]

§ 1042.735 Recordkeeping.

(a) You must organize and maintain your records as described in this section.

(b) Keep the records required by this section for at least eight years after the due date for the end-of-year report. You may not use emission credits for any engines if you do not keep all the records required under this section. You must therefore keep these records to continue to bank valid credits.

(c) Keep a copy of the reports we require in § 1042.730.

(d) Keep records of the engine identification number for each engine you produce that generates or uses emission credits under the ABT program. You may identify these numbers as a range. If you change the FEL after the start of production, identify the date you started using each FEL and the range of engine identification numbers associated with each FEL. You must also identify the purchaser and destination for each engine you produce to the extent this information is available.

(e) We may require you to keep additional records or to send us relevant information not required by this section in accordance with the Clean Air Act.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23009, Apr. 30, 2010; 81 FR 74153, Oct. 25, 2016]

§ 1042.745 Noncompliance.

(a) For each engine family participating in the ABT program, the certificate of conformity is conditional upon full compliance with the provisions of this subpart during and after the model year. You are responsible to establish to our satisfaction that you fully comply with applicable requirements. We may void the certificate of conformity for an engine family if you fail to comply with any provisions of this subpart.

(b) You may certify your engine family to an FEL above an emission standard based on a projection that you will have enough emission credits to offset the deficit for the engine family. How-

ever, we may void the certificate of conformity if you cannot show in your final report that you have enough actual emission credits to offset a deficit for any pollutant in an engine family.

(c) We may void the certificate of conformity for an engine family if you fail to keep records, send reports, or give us information we request.

(d) You may ask for a hearing if we void your certificate under this section (see § 1042.920).

Subpart I—Special Provisions for Remanufactured Marine Engines

§ 1042.801 General provisions.

This subpart describes how the provisions of this part 1042 apply for certain remanufactured marine engines.

(a) The requirements of this subpart apply for remanufactured Tier 2 and earlier commercial Category 1 and Category 2 marine engines at or above 600 kW, excluding those engines originally manufactured before 1973. Note that the requirements of this subpart do not apply for engines below 600 kW, Category 3 engines, engines installed on recreational vessels, or Tier 3 and later engines.

(b) Any person meeting the definition of “remanufacturer” in § 1042.901 may apply for a certificate of conformity for a remanufactured engine family.

(c) The rebuilding requirements of 40 CFR 1068.120 do not apply to remanufacturing of engines using a certified remanufacturing system under this subpart. However, the requirements of 40 CFR 1068.120 do apply to all other remanufacturing of engines.

(d) Unless specified otherwise, engines certified under this subpart are also subject to the other requirements of this part.

(e) For remanufactured engines required to have a valid certificate of conformity, placing a new marine engine back into service following remanufacturing is a violation of 40 CFR 1068.101(a)(1), unless it has a valid certificate of conformity for its model year and the required label.

(f) Remanufacturing systems that require a fuel change or use of a fuel additive may be certified under this part. However, they are not considered to be “available” with respect to triggering

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the requirement for an engine to be covered by a certificate of conformity under §1042.815. The following provisions apply:

(1) Only fuel additives registered under 40 CFR part 79 may be used under this paragraph (f).

(2) You must demonstrate in your application that the fuel or additive will actually be used by operators, including a description of how the vessels and dispensing tanks will be labeled. We may require you to provide the labels to the operators.

(3) You must also describe analytical methods that can be used by EPA or others to verify that fuel meets your specifications.

(4) You must provide clear instructions to the operators specifying that they may only use the specified fuel/additive, label their vessels and fuel dispensing tanks, and keep records of their use of the fuel/additive in order for their engine to be covered by your certificate. Use of the incorrect fuel (or fuel without the specified additive) or any other failure to comply with the requirements of this paragraph is a violation of 40 CFR 1068.101(b)(1).

(g) Vessels equipped with emission controls as part of a state or local retrofit program prior to January 1, 2017 are exempt from the requirements of this subpart, as specified in this paragraph (g).

(1) This exemption only applies for retrofit programs sponsored by a state government (or one of its political subdivisions) for the purpose of reducing emissions. The exemption does not apply where the sponsoring government specifies that inclusion in the retrofit program is not intended to provide an exemption from the requirements of this subpart.

(2) The prohibitions against tampering and defeat devices in 40 CFR 1068.101(b) and the rebuilding requirements in 40 CFR 1068.120 apply for the exempt engines in the same manner as if they were covered by a certificate.

(3) Vessel owners must request an exemption prior to remanufacturing the engine. Your request must include documentation that your vessel has been retrofitted consistent with the specifications of paragraph (g)(1) of this section, and a signed statement declaring

that to be true. Except for the initial request for a specific vessel and a specific retrofit, you may consider your request to be approved unless we notify you otherwise within 30 days of the date that we receive your request.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23009, Apr. 30, 2010; 86 FR 34512, June 29, 2021]

§ 1042.810 Requirements for owner/operators and installers during remanufacture.

This section describes how the remanufacturing regulations affect owner/operators and installers for engines subject to this subpart.

(a) See the definition of “remanufacture” in §1042.901 to determine if you are remanufacturing your engine. (NOTE: Replacing cylinders one at a time may qualify as remanufacturing, depending on the interval between replacement.)

(b) See the definition of “new marine engine” in §1042.901 to determine if remanufacturing your engine makes it subject to the requirements of this part. If the engine is considered to be new, it is subject to the certification requirements of this subpart, unless it is exempt under subpart G of this part.

(c) Your engine is not subject to the standards of this subpart if we determine that no certified remanufacturing system is available for your engine as described in §1042.815. For engines that are remanufactured during multiple events within a five-year period, you are not required to use a certified system until all of your engine’s cylinders have been replaced after the system became available. For example, if you remanufacture your 16-cylinder engine by replacing four cylinders each January and a system becomes available for your engine June 1, 2010, your engine must be in a certified configuration when you replace four cylinders in January of 2014. At that point, all 16 cylinders would have been replaced after June 1, 2010.

(d) You may comply with the certification requirements of this part for your remanufactured engine by either obtaining your own certificate of conformity as specified in subpart C of this part or by having a certifying remanufacturer include your engine under its

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certificate of conformity. In either case, your remanufactured engine must be covered by a certificate before it is reintroduced into service.

(e) Contact a certifying remanufacturer to have your engine included under its certificate of conformity. You must comply with the certificate holder's emission-related installation instructions.

[73 FR 37243, June 30, 2008, as amended at 81 FR 74153, Oct. 25, 2016]

§ 1042.815 Demonstrating availability.

(a) A certified remanufacturing system is considered to be available for a specific engine only if EPA has certified the remanufacturing system as being in compliance with the provisions of this part and the certificate holder has demonstrated during certification that the system meets the criteria of this paragraph (a). We may issue a certificate for a remanufacturing system that does not meet these criteria, but such systems would not be considered available.

(1) The engine configuration must be included in the engine family for the remanufacturing system.

(2) The total marginal cost of the remanufacturing system, as calculated under paragraph (c) of this section, must be less than \$45,000 per ton of PM reduction.

(3) It must be possible to obtain and install the remanufacturing system in a timely manner consistent with normal remanufacturing procedures. For example, a remanufacturing system would generally not be considered to be available if it required that the engine be removed from the vessel and shipped to a factory to be remanufactured.

(4) The remanufacturing system may result in increased maintenance costs, provided the incremental maintenance costs are included in the total costs. The remanufacturing system may not adversely affect engine reliability or power. Note that owner/operators may ask us to determine that a remanufacturing system is not considered available for their vessels because of excessive costs under § 1042.850.

(b) We will maintain a list of available remanufacturing systems. A new remanufacturing system is considered to be available 120 days after we first

issue a certificate of conformity for it. Where we issue a certificate of conformity based on carryover data for a system that is already considered to be available for the configuration, the 120-day delay does not apply and the new system is considered to be available when we issue the certificate.

(c) For the purpose of paragraph (a)(2) of this section, marginal cost means the difference in costs between remanufacturing the engine using the remanufacturing system and remanufacturing the engine conventionally, divided by the projected amount that PM emissions will be reduced over the engine's useful life.

(1) Total costs include:

(i) Incremental hardware costs.

(ii) Incremental labor costs.

(iii) Incremental operating costs over one useful life period.

(iv) Other costs (such as shipping).

(2) Calculate the projected amount that PM emissions will be reduced over the engine's useful life using the following equation:

$$\text{PM tons} = (\text{EF}_{\text{base}} - \text{EF}_{\text{cont}}) \times (\text{PR}) \times (\text{UL}) \times (\text{LF}) \times (10^{-6})$$

Where:

EF_{base} = deteriorated baseline PM emission rate (g/kW-hr).

EF_{cont} = deteriorated controlled PM emission rate (g/kW-hr).

PR = maximum engine power for the engine (kW).

UL = useful life (hr).

LF = the load factor that would apply for your engine under § 1042.705.

§ 1042.820 Emission standards and required emission reductions for remanufactured engines.

(a) The requirements of this section apply with respect to emissions as measured according to subpart F of this part. See paragraph (g) of this section for special provisions related to remanufacturing systems certified for both locomotive and marine engines. Remanufactured Tier 2 and earlier engines may be certified under this subpart only if they have NO_x emissions equivalent to or less than baseline NO_x levels and PM emissions at least 25.0 percent less than baseline PM emission levels. See § 1042.825 for provisions for determining baseline NO_x and PM emissions. See § 1042.835 for provisions

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related to demonstrating compliance with these requirements.

(b) The NTE and ABT provisions of this part do not apply for remanufactured engines.

(c) The exhaust emission standards in this section apply for engines using the fuel type on which the engines in the engine family are designed to operate. Engines designed to operate using residual fuel must comply with the standards and requirements of this part when operated using residual fuel.

(d) Your engines must meet the exhaust emission standards of this section over their full useful life, as defined in §1042.101(e).

(e) The duty-cycle emission standards in this subpart apply to all testing performed according to the procedures in §1042.505, including certification, production-line, and in-use testing.

(f) Sections 1042.120, 1042.125, 1042.130, 1042.140 apply for remanufactured engines as written. Section 1042.115 applies for remanufactured engines as written, except for the requirement that electronically controlled engines broadcast their speed and output shaft torque.

(g) A remanufacturing system certified for locomotive engines under 40 CFR part 1033 may be deemed to also meet the requirements of this section, as specified in §1042.836.

§ 1042.825 Baseline determination.

(a) For the purpose of this subpart, the term “baseline emissions” means the average measured emission rate specified by this section. Baseline emissions are specific to a given certificate holder and a given engine configuration.

(b) Select a used engine to be the emission-data engine for the engine family for testing. Using good engineering judgment, select the engine configuration expected to represent the most common configuration in the family.

(c) Remanufacture the engine according to OEM specifications (or equivalent). The engine is considered “the baseline engine” at this point. If the OEM specifications include a range of adjustment for any parameter, set the parameter to the midpoint of the range. You may ask us to allow you to

adjust it differently, consistent with good engineering judgment.

(d) Test the baseline engine four times according to the test procedures in subpart F of this part. The baseline emissions are the average of those four tests.

(e) We may require you to test a second engine of the same or different configuration in addition to the engine tested under this section. If we require you to test the same configuration, average the results of the testing with previous results, unless we determine that your previous results are not valid.

(f) Use good engineering judgment for all aspects of the baseline determination. We may reject your baseline if we determine that you did not use good engineering judgment, consistent with the provisions of 40 CFR 1068.5.

§ 1042.830 Labeling.

(a) The labeling requirements of this paragraph (a) apply for remanufacturing that is subject to the standards of this subpart. At the time of manufacture, affix a permanent and legible label identifying each engine. The label must be—

(1) Attached in one piece so it is not removable without being destroyed or defaced.

(2) Secured to a part of the engine needed for normal operation and not normally requiring replacement.

(3) Durable and readable for the engine’s entire useful life.

(4) Written in English.

(b) The label required under paragraph (a) of this section must—

(1) Include the heading “EMISSION CONTROL INFORMATION”.

(2) Include your full corporate name and trademark.

(3) Include EPA’s standardized designation for the engine family.

(4) State the engine’s category, displacement (in liters or L/cyl), maximum engine power (in kW), and power density (in kW/L) as needed to determine the emission standards for the engine family. You may specify displacement, maximum engine power, and power density as ranges consistent with the ranges listed in §1042.101. See §1042.140 for descriptions of how to specify per-cylinder displacement,

maximum engine power, and power density.

(5) State: "THIS MARINE ENGINE MEETS THE STANDARDS OF 40 CFR PART 1042, SUBPART I, FOR [CALENDAR YEAR OF REMANUFACTURE]."

(c) For remanufactured engines that are subject to this subpart as described in §1042.801(a), but are not subject to remanufacturing standards as allowed by §1042.810 or §1042.815, you may voluntarily add a label as specified in paragraphs (a) and (b) of this section, except that the label must omit the standardized designation for the engine family and include the following alternative compliance statement: "THIS MARINE ENGINE IS NOT SUBJECT TO REMANUFACTURING STANDARDS UNDER 40 CFR PART 1042, SUBPART I, FOR [CALENDAR YEAR OF REMANUFACTURE]."

(d) You may add information to the emission control information label to identify other emission standards that the engine meets or does not meet (such as international standards). You may also add other information to ensure that the engine will be properly maintained and used.

(e) You may ask us to approve modified labeling requirements in this section if you show that it is necessary or appropriate. We will approve your request if your alternate label is consistent with the intent of the labeling requirements of this section.

[81 FR 74153, Oct. 25, 2016]

§ 1042.835 Certification of remanufactured engines.

(a) *General requirements.* See §§ 1042.201, 1042.210, 1042.220, 1042.225, 1042.250, and 1042.255 for the general requirements related to obtaining a certificate of conformity. See § 1042.836 for special certification provisions for remanufacturing systems certified for locomotive engines under 40 CFR 1033.936.

(b) *Applications.* See § 1042.840 for a description of what you must include in your application.

(c) *Engine families.* See § 1042.845 for instruction about dividing your engines into engine families.

(d) *Test data.* (1) Measure baseline emissions for the test configuration as specified in § 1042.825.

(2) Measure emissions from the test engine for your remanufacturing system according to the procedures of subpart F of this part.

(3) We may measure emissions from any of your test engines or other engines from the engine family, as follows:

(i) We may decide to do the testing at your plant or any other facility. If we do this, you must deliver the test engine to a test facility we designate. The test engine you provide must include appropriate manifolds, aftertreatment devices, electronic control units, and other emission-related components not normally attached directly to the engine block. If we do the testing at your plant, you must schedule it as soon as possible and make available the instruments, personnel, and equipment we need.

(ii) If we measure emissions from one of your test engines, the results of that testing become the official emission results for the engine. Unless we later invalidate these data, we may decide not to consider your data in determining if your engine family meets applicable requirements.

(iii) Before we test one of your engines, we may set its adjustable parameters to any point within the specified adjustable ranges (see § 1042.115(d)).

(iv) Before we test one of your engines, we may calibrate it within normal production tolerances for anything we do not consider an adjustable parameter.

(4) You may ask to use emission data from a previous model year instead of doing new tests, but only if all the following are true:

(i) The engine family from the previous model year differs from the current engine family only with respect to model year or other characteristics unrelated to emissions. You may also ask to add a configuration subject to § 1042.225.

(ii) The emission-data engine from the previous model year remains the appropriate emission-data engine.

(iii) The data show that the emission-data engine would meet all the requirements that apply to the engine family

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covered by the application for certification.

(5) We may require you to test a second engine of the same or different configuration in addition to the engine tested under this section.

(6) If you use an alternate test procedure under 40 CFR 1065.10 and later testing shows that such testing does not produce results that are equivalent to the procedures specified in subpart F of this part, we may reject data you generated using the alternate procedure.

(e) *Demonstrating compliance.* (1) For purposes of certification, your engine family is considered in compliance with the emission standards in §1042.820 if all emission-data engines representing that family have test results showing compliance with the standards and percent reductions required by that section. To compare emission levels from the emission-data engine with the applicable emission standards, apply an additive deterioration factor of 0.015 g/kW-hr to the measured emission levels for PM. Alternatively, you may test your engine as specified in §1042.245 to develop deterioration factors that represent the deterioration expected in emissions over your engines' full useful life.

(2) Collect emission data using measurements to one more decimal place than the applicable standard. Apply the deterioration factor to the official emission result, then round the adjusted figure to the same number of decimal places as the emission standard. Compare the rounded emission levels to the emission standard for each emission-data engine.

(3) Your applicable NO_x standard for each configuration is the baseline NO_x emission rate for that configuration plus 5.0 percent (to account for test-to-test and engine-to-engine variability). Your applicable PM standard for each configuration is the baseline PM emission rate for that configuration multiplied by 0.750 plus the deterioration factor. If you choose to include configurations in your engine family for which you do not measure baseline emissions, you must demonstrate through engineering analysis that your remanufacturing system will reduce PM emissions by at least 25.0 percent

for those configurations and not increase NO_x emissions.

(4) Your engine family is deemed to comply if any emission-data engine representing that family for certification has test results showing a deteriorated emission level above an applicable emission standard for any pollutant.

(f) *Safety Evaluation.* You must exercise due diligence in ensuring that your system will not adversely affect safety or otherwise violate the prohibition of §1042.115(e).

(g) *Compatibility Evaluation.* If you are not the original manufacturer of the engine, you must contact the original manufacturer of the engine to verify that your system is compatible with the engine. Keep records of your contact with the original manufacturer.

§ 1042.836 Marine certification of locomotive remanufacturing systems.

If you certify a Tier 0, Tier 1, or Tier 2 remanufacturing system for locomotives under 40 CFR part 1033, you may also certify the system under this part, according to the provisions of this section.

(a) Include the following with your application for certification under 40 CFR part 1033 (or as an amendment to your application):

(1) A statement of your intent to use your remanufacturing system for marine engines. Include a list of marine engine models for which your system may be used.

(2) If there are significant differences in how your remanufacture system will be applied to marine engines relative to locomotives, in an engineering analysis demonstrating that your system will achieve emission reductions from marine engines similar to those from locomotives.

(3) A description of modifications needed for marine applications.

(4) A demonstration of availability as described in §1042.815, except that the total marginal cost threshold does not apply.

(5) An unconditional statement that all the engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

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(b) Sections 1042.835 and 1042.840 do not apply for engines certified under this section.

(c) Systems that were certified to the standards of 40 CFR part 92 are subject to the following restrictions:

(1) Tier 0 locomotive systems may not be used for any Category 1 engines or Tier 1 or later Category 2 engines.

(2) Where systems certified to the standards of 40 CFR part 1033 are also available for an engine, you may not use a system certified to the standards of 40 CFR part 92.

[73 FR 37243, June 30, 2008, as amended at 73 FR 59194, Oct. 8, 2008; 75 FR 23009, Apr. 30, 2010; 81 FR 74153, Oct. 25, 2016; 86 FR 34512, June 29, 2021]

§ 1042.840 Application requirements for remanufactured engines.

This section specifies the information that must be in your application, unless we ask you to include less information under §1042.201(c). We may require you to provide additional information to evaluate your application.

(a) Describe the engine family's specifications and other basic parameters of the engine's design and emission controls. List the fuel type on which your engines are designed to operate (for example, ultra low-sulfur diesel fuel). List each distinguishable engine configuration in the engine family. For each engine configuration, list the maximum engine power and the range of values for maximum engine power resulting from production tolerances, as described in §1042.140.

(b) Explain how the emission control system operates. Describe in detail all system components for controlling exhaust emissions, including any auxiliary emission control devices (AECDs) you add to the engine. Identify the part number of each component you describe.

(c) Summarize the cost effectiveness analysis used to demonstrate your system will meet the availability criteria of §1042.815. Identify the maximum allowable costs for vessel modifications to meet these criteria.

(d) Describe the engines you selected for testing and the reasons for selecting them.

(e) Describe the test equipment and procedures that you used, including the

duty cycle(s) and the corresponding engine applications. Also describe any special or alternate test procedures you used.

(f) Describe how you operated the emission-data engine before testing, including the duty cycle and the number of engine operating hours used to stabilize emission levels. Explain why you selected the method of service accumulation. Describe any scheduled maintenance you did.

(g) List the specifications of the test fuel to show that it falls within the required ranges we specify in 40 CFR part 1065. See §1042.801 if your certification is based on the use of special fuels or additives.

(h) Identify the engine family's useful life.

(i) Include the maintenance and warranty instructions you will give to the owner/operator (see §§1042.120 and 1042.125).

(j) Include the emission-related installation instructions you will provide if someone else installs your engines in a vessel (see §1042.130).

(k) Describe your emission control information label (see §1042.830).

(l) Identify the engine family's deterioration factors and describe how you developed them (see §1042.245). Present any emission test data you used for this.

(m) State that you operated your emission-data engines as described in the application (including the test procedures, test parameters, and test fuels) to show you meet the requirements of this part.

(n) Present emission data for HC, NO_x, PM, and CO as required by §1042.820. Show emission figures before and after applying adjustment factors for regeneration and deterioration factors for each pollutant and for each engine.

(o) Report all valid test results. Also indicate whether there are test results from invalid tests or from any other tests of the emission-data engine, whether or not they were conducted according to the test procedures of subpart F of this part. If you measure CO₂, report those emission levels. We may require you to report these additional test results. We may ask you to send other information to confirm that your

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tests were valid under the requirements of this part and 40 CFR part 1065.

(p) Describe all adjustable operating parameters (see §1042.115(d)), including production tolerances. Include the following in your description of each parameter:

(1) The nominal or recommended setting.

(2) The intended physically adjustable range.

(3) The limits or stops used to establish adjustable ranges.

(4) For Category 1 engines, information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your intended physically adjustable ranges.

(5) For Category 2 engines, propose a range of adjustment for each adjustable parameter, as described in §1042.115(d). Include information showing why the limits, stops, or other means of inhibiting adjustment are effective in preventing adjustment of parameters on in-use engines to settings outside your proposed adjustable ranges.

(q) Unconditionally certify that all the engines in the engine family comply with the requirements of this part, other referenced parts of the CFR, and the Clean Air Act.

(r) Include the information required by other subparts of this part.

(s) Include other applicable information, such as information specified in this part or 40 CFR part 1068 related to requests for exemptions.

(t) Name an agent for service located in the United States. Service on this agent constitutes service on you or any of your officers or employees for any action by EPA or otherwise by the United States related to the requirements of this part.

(u) If you are not the original manufacturer of the engine, include a summary of your contact with the original manufacturer of the engine and provide to us any documentation provided to you by the original manufacturer.

[73 FR 37243, June 30, 2008, as amended at 81 FR 74153, Oct. 25, 2016]

§ 1042.845 Remanufactured engine families.

(a) For purposes of certification, divide your product line into families of engines that are expected to have similar emission characteristics throughout the useful life as described in this section. You may not group Category 1 and Category 2 engines in the same family.

(b) In general, group engines in the same engine family if they are the same in all the following aspects:

(1) The combustion cycle and fuel (the fuels with which the engine is intended or designed to be operated).

(2) The cooling system (for example, raw-water vs. separate-circuit cooling).

(3) Method of air aspiration.

(4) Method of exhaust aftertreatment (for example, catalytic converter or particulate trap).

(5) Combustion chamber design.

(6) Nominal bore and stroke.

(7) Method of control for engine operation other than governing (i.e., mechanical or electronic).

(8) Original engine manufacturer.

(c) Alternatively, you may ask us to allow you to include other engine configurations in your engine family, consistent with good engineering judgment.

(d) Do not include in your family any configurations for which good engineering judgment indicates that your emission controls are unlikely to provide PM emission reductions similar to the configuration(s) tested.

§ 1042.850 Exemptions and hardship relief.

This section describes exemption and hardship provisions that are available for owner/operators of engines subject to the provisions of this subpart.

(a) Vessels owned and operated by entities that meet the size criterion of this paragraph (a) are exempt from the requirements of this subpart I. To be exempt, your gross annual revenue for the calendar year before the remanufacture must be less than \$5,000,000 in 2008 dollars or the equivalent value for future years based on the Bureau of Labor Statistics' Producer Price Index (see *www.bls.gov*). Include all revenues from any parent company and its subsidiaries. The exemption applies only

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for years in which you meet this criterion.

(b) In unusual circumstances, we may exempt you from an otherwise applicable requirement that you apply a certified remanufacturing system when remanufacturing your marine engine.

(1) To be eligible, you must demonstrate that all of the following are true:

(i) Unusual circumstances prevent you from meeting requirements from this chapter.

(ii) You have taken all reasonable steps to minimize the extent of the nonconformity.

(iii) Not having the exemption will jeopardize the solvency of your company.

(iv) No other allowances are available under the regulations in this chapter to avoid the impending violation.

(2) Send the Designated Compliance Officer a written request for an exemption before you are in violation.

(3) We may impose other conditions, including provisions to use an engine meeting less stringent emission standards or to recover the lost environmental benefit.

(4) In determining whether to grant the exemptions, we will consider all relevant factors, including the following:

(i) The number of engines to be exempted.

(ii) The size of your company and your ability to endure the hardship.

(iii) The length of time a vessel is expected to remain in service.

(c) If you believe that a remanufacturing system that we identified as being available cannot be installed without significant modification of your vessel, you may ask us to determine that a remanufacturing system is not considered available for your vessel because the cost would exceed the total marginal cost threshold in § 1042.815(a)(2).

(d) Other exemptions specified in subpart G of this part and 40 CFR part 1068, subparts C and D also apply to remanufactured engines. For example, the national security exemption ap-

plies to remanufactured engines as described in § 1042.635.

[73 FR 37243, June 30, 2008, as amended at 74 FR 8426, Feb. 24, 2009; 75 FR 23009, Apr. 30, 2010; 81 FR 74153, Oct. 25, 2016]

Subpart J—Definitions and Other Reference Information

§ 1042.901 Definitions.

The following definitions apply to this part. The definitions apply to all subparts unless we note otherwise. All undefined terms have the meaning the Clean Air Act gives to them. The definitions follow:

Adjustable parameter has the meaning given in 40 CFR 1068.50.

Aftertreatment means relating to a catalytic converter, particulate filter, or any other system, component, or technology mounted downstream of the exhaust valve (or exhaust port) whose design function is to decrease emissions in the engine exhaust before it is exhausted to the environment. Exhaust-gas recirculation and turbochargers are not aftertreatment.

Alcohol-fueled engine means an engine that is designed to run using an alcohol fuel. For purposes of this definition, alcohol fuels do not include fuels with a nominal alcohol content below 25 percent by volume.

Amphibious vehicle means a vehicle with wheels or tracks that is designed primarily for operation on land and secondarily for operation in water.

2008 Annex VI means MARPOL Annex VI, which is an annex to the International Convention on the Prevention of Pollution from Ships, 1973, as modified by the protocol of 1978 relating thereto (incorporated by reference in § 1042.910).

Applicable emission standard or *applicable standard* means an emission standard to which an engine is subject; or, where an engine has been or is being certified to another standard or FEL, applicable emission standards means the FEL and other standards to which the engine has been or is being certified. This definition does not apply to subpart H of this part.

Auxiliary emission control device means any element of design that senses temperature, vessel speed, engine RPM,

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transmission gear, or any other parameter for the purpose of activating, modulating, delaying, or deactivating the operation of any part of the emission control system.

Base engine means a land-based engine to be marinized, as configured prior to marinization.

Baseline emissions has the meaning given in §1042.825.

Brake power means the usable power output of the engine, not including power required to fuel, lubricate, or heat the engine, circulate coolant to the engine, or to operate aftertreatment devices.

Calibration means the set of specifications and tolerances specific to a particular design, version, or application of a component or assembly capable of functionally describing its operation over its working range.

Carryover means relating to certification based on emission data generated from an earlier model year as described in §1042.235(d).

Category 1 means relating to a marine engine with specific engine displacement below 7.0 liters per cylinder. See §1042.670 to determine equivalent per-cylinder displacement for nonreciprocating marine engines (such as gas turbine engines). Note that the maximum specific engine displacement for Category 1 engines subject to Tier 1 and Tier 2 standards was 5.0 liters per cylinder.

Category 2 means relating to a marine engine with a specific engine displacement at or above 7.0 liters per cylinder but less than 30.0 liters per cylinder. See §1042.670 to determine equivalent per-cylinder displacement for nonreciprocating marine engines (such as gas turbine engines). Note that the minimum specific engine displacement for Category 2 engines subject to Tier 1 and Tier 2 standards was 5.0 liters per cylinder.

Category 3 means relating to a reciprocating marine engine with a specific engine displacement at or above 30.0 liters per cylinder.

Certification means relating to the process of obtaining a certificate of conformity for an engine family that complies with the emission standards and requirements in this part.

Certified emission level means the highest deteriorated emission level in an engine family for a given pollutant from either transient or steady-state testing.

Clean Air Act means the Clean Air Act, as amended, 42 U.S.C. 7401–7671q.

Commercial means relating to an engine or vessel that is not a recreational marine engine or a recreational vessel.

Compression-ignition means relating to a type of reciprocating, internal-combustion engine that is not a spark-ignition engine. Note that certain other marine engines (such as those powered by natural gas with maximum engine power at or above 250 kW) are deemed to be compression-ignition engines in §1042.1.

Constant-speed engine means an engine whose certification is limited to constant-speed operation. Engines whose constant-speed governor function is removed or disabled are no longer constant-speed engines.

Constant-speed operation has the meaning given in 40 CFR 1065.1001.

Crankcase emissions means airborne substances emitted to the atmosphere from any part of the engine crankcase's ventilation or lubrication systems. The crankcase is the housing for the crankshaft and other related internal parts.

Critical emission-related component has the meaning given in 40 CFR 1068.30.

Date of manufacture has the meaning given in 40 CFR 1068.30.

Days means calendar days, unless otherwise specified. For example, where we specify working days, we mean calendar days excluding weekends and U.S. national holidays.

Designated Compliance Officer means the Director, Diesel Engine Compliance Center, U.S. Environmental Protection Agency, 2000 Traverwood Drive, Ann Arbor, MI 48105; complianceinfo@epa.gov; www.epa.gov/ve-certification.

Deteriorated emission level means the emission level that results from applying the appropriate deterioration factor to the official emission result of the emission-data engine.

Deterioration factor means the relationship between emissions at the end of useful life and emissions at the low-hour test point (see §§1042.240 and

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1042.245), expressed in one of the following ways:

(1) For multiplicative deterioration factors, the ratio of emissions at the end of useful life to emissions at the low-hour test point.

(2) For additive deterioration factors, the difference between emissions at the end of useful life and emissions at the low-hour test point.

Diesel fuel has the meaning given in 40 CFR 1090.80. This generally includes No. 1 and No. 2 petroleum diesel fuels and biodiesel fuels.

Discrete-mode means relating to the discrete-mode type of steady-state test described in § 1042.505.

ECA associated area has the meaning given in 40 CFR 1043.20.

Dual-fuel means relating to an engine designed for operation on two different fuels but not on a continuous mixture of those fuels (see § 1042.601(j)). For purposes of this part, such an engine remains a dual-fuel engine even if it is designed for operation on three or more different fuels. Note that this definition differs from MARPOL Annex VI.

Emission control area (ECA) has the meaning given in 40 CFR 1043.20.

Emission control system means any device, system, or element of design that controls or reduces the emissions of regulated pollutants from an engine.

Emission-data engine means an engine that is tested for certification. This includes engines tested to establish deterioration factors.

Emission-related maintenance means maintenance that substantially affects emissions or is likely to substantially affect emission deterioration.

Engine has the meaning given in 40 CFR 1068.30. This includes complete and partially complete engines.

Engine configuration means a unique combination of engine hardware and calibration within an engine family. Engines within a single engine configuration differ only with respect to normal production variability or factors unrelated to emissions.

Engine family has the meaning given in § 1042.230.

Engine manufacturer means a manufacturer of an engine. See the definition of “manufacturer” in this section.

Engineering analysis means a summary of scientific and/or engineering

principles and facts that support a conclusion made by a manufacturer, with respect to compliance with the provisions of this part.

Excluded means relating to an engine that either:

(1) Has been determined not to be a nonroad engine, as specified in 40 CFR 1068.30; or

(2) Is a nonroad engine that, according to § 1042.5, is not subject to this part 1042.

Exempted has the meaning given in 40 CFR 1068.30.

Exhaust-gas recirculation means a technology that reduces emissions by routing exhaust gases that had been exhausted from the combustion chamber(s) back into the engine to be mixed with incoming air before or during combustion. The use of valve timing to increase the amount of residual exhaust gas in the combustion chamber(s) that is mixed with incoming air before or during combustion is not considered exhaust-gas recirculation for the purposes of this part.

Family emission limit (FEL) means an emission level declared by the manufacturer to serve in place of an otherwise applicable emission standard under the ABT program in subpart H of this part. The family emission limit must be expressed to the same number of decimal places as the emission standard it replaces. The family emission limit serves as the emission standard for the engine family with respect to all required testing.

Flexible-fuel means relating to an engine designed for operation on any mixture of two or more different fuels (see § 1042.601(j)).

Freshly manufactured marine engine means a marine engine that has not been placed into service. An engine becomes freshly manufactured when it is originally manufactured. See the definition of “New marine engine” for provisions that specify that certain other types of new engines are treated as freshly manufactured engines.

Foreign vessel means a vessel of foreign registry or a vessel operated under the authority of a country other than the United States.

Fuel system means all components involved in transporting, metering, and mixing the fuel from the fuel tank to

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the combustion chamber(s), including the fuel tank, fuel tank cap, fuel pump, fuel filters, fuel lines, carburetor or fuel-injection components, and all fuel-system vents.

Fuel type means a general category of fuels such as gasoline, diesel fuel, residual fuel, or natural gas. There can be multiple grades within a single fuel type, such as high-sulfur or low-sulfur diesel fuel.

Gas turbine engine has the meaning given in 40 CFR 1068.30. In general, this means anything commercially known as a gas turbine engine. It does not include external combustion steam engines.

Good engineering judgment has the meaning given in 40 CFR 1068.30. See 40 CFR 1068.5 for the administrative process we use to evaluate good engineering judgment.

Green Engine Factor means a factor that is applied to emission measurements from a Category 2 engine that has had little or no service accumulation. The Green Engine Factor adjusts emission measurements to be equivalent to emission measurements from an engine that has had approximately 300 hours of use.

High-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *high-sulfur diesel fuel* means a diesel fuel with a maximum sulfur concentration above 500 parts per million.

(2) For testing, *high-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Hydrocarbon (HC) means the hydrocarbon group on which the emission standards are based for each fuel type, as described in §1042.101(d) and §1042.104(a).

Identification number means a unique specification (for example, a model number/serial number combination) that allows someone to distinguish a particular engine from other similar engines.

Light-commercial marine engine means a Category 1 propulsion marine engine at or above 600 kW with power density above 45.0 kW/liter that is certified with a shorter useful life based on its high power density.

Low-hour means relating to an engine that has stabilized emissions and represents the undeteriorated emission level. This would generally involve less than 300 hours of operation for engines with NO_x aftertreatment and 125 hours of operation for other engines.

resents the undeteriorated emission level. This would generally involve less than 300 hours of operation for engines with NO_x aftertreatment and 125 hours of operation for other engines.

Low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *low-sulfur diesel fuel* means a diesel fuel marketed as low-sulfur diesel fuel having a maximum sulfur concentration of 500 parts per million.

(2) For testing, *low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

Manufacture means the physical and engineering process of designing, constructing, and assembling an engine or a vessel, or modifying or operating an engine or vessel in a way that makes it a new marine engine or new marine vessel.

Manufacturer means any person who manufactures (see definition of “manufacture” in this section) a new engine or vessel or imports such engines or vessels for resale. All manufacturing entities under the control of the same person are considered to be a single manufacturer.

(1) This term includes, but is not limited to:

(i) Any person who manufactures an engine or vessel for sale in the United States or otherwise introduces a new marine engine into U.S. commerce.

(ii) Importers who import engines or vessels for resale.

(iii) Post-manufacture marinizers.

(iv) Vessel owners/operators that reflag a formerly foreign vessel as a U.S.-flagged vessel.

(v) Any person who modifies or operates an engine or vessel in a way that makes it a new marine engine or new marine vessel.

(2) Dealers that do not cause an engine or vessel to become new are not manufacturers.

Marine engine means a nonroad engine that is installed or intended to be installed on a marine vessel. This includes a portable auxiliary marine engine only if its fueling, cooling, or exhaust system is an integral part of the vessel. A fueling system is considered integral to the vessel only if one or

more essential elements are permanently affixed to the vessel. There are two kinds of marine engines:

(1) Propulsion marine engine means a marine engine that moves a vessel through the water or directs the vessel's movement.

(2) Auxiliary marine engine means a marine engine not used for propulsion.

Marine vessel has the meaning given in 1 U.S.C. 3, except that it does not include amphibious vehicles. The definition in 1 U.S.C. 3 very broadly includes every craft capable of being used as a means of transportation on water.

Maximum engine power has the meaning given in §1042.140.

Maximum in-use engine speed has the meaning given in §1042.140.

Maximum test power means the power output observed at the maximum test speed with the maximum fueling rate possible.

Maximum test speed has the meaning given in 40 CFR 1065.1001.

Maximum test torque has the meaning given in 40 CFR 1065.1001.

Model year means any of the following:

(1) For freshly manufactured marine engines (see definition of "new marine engine," paragraph (1)), model year means one of the following:

(i) Calendar year of production.

(ii) Your annual new model production period if it is different than the calendar year. This must include January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year. For seasonal production periods not including January 1, model year means the calendar year in which the production occurs, unless you choose to certify the applicable engine family with the following model year. For example, if your production period is June 1, 2010 through November 30, 2010, your model year would be 2010 unless you choose to certify the engine family for model year 2011.

(2) For an engine that is converted to a marine engine after being certified and placed into service as a motor vehicle engine, a nonroad engine that is not a marine engine, or a stationary engine, model year means the calendar

year in which the engine was originally produced. For an engine that is converted to a marine engine after being placed into service as a motor vehicle engine, a nonroad engine that is not a marine engine, or a stationary engine without having been certified, model year means the calendar year in which the engine becomes a new marine engine. (See definition of "new marine engine," paragraph (2)).

(3) For an uncertified marine engine excluded under §1042.5 that is later subject to this part as a result of being installed in a different vessel, model year means the calendar year in which the engine was installed in the non-excluded vessel. For a marine engine excluded under §1042.5 that is later subject to this part as a result of reflagging the vessel, model year means the calendar year in which the engine was originally manufactured. For a marine engine that becomes new under paragraph (7) of the definition of "new marine engine," model year means the calendar year in which the engine was originally manufactured. (See definition of "new marine engine," paragraphs (3) and (7).)

(4) For engines that do not meet the definition of "freshly manufactured" but are installed in new vessels, model year means the calendar year in which the engine is installed in the new vessel (see definition of "new marine engine," paragraph (4)).

(5) For remanufactured engines, model year means the calendar year in which the remanufacture takes place.

(6) For imported engines:

(i) For imported engines described in paragraph (6)(i) of the definition of "new marine engine," *model year* has the meaning given in paragraphs (1) through (4) of this definition.

(ii) For imported engines described in paragraph (6)(ii) of the definition of "new marine engine," *model year* means the calendar year in which the engine is remanufactured.

(iii) For imported engines described in paragraph (6)(iii) of the definition of "new marine engine," *model year* means the calendar year in which the engine is first assembled in its imported configuration, unless specified otherwise in this part or in 40 CFR part 1068.

(iv) For imported engines described in paragraph (6)(iv) of the definition of “new marine engine,” *model year* means the calendar year in which the engine is imported.

(7) [Reserved]

(8) For freshly manufactured vessels, model year means the calendar year in which the keel is laid or the vessel is at a similar stage of construction. For vessels that become new under paragraph (2) or (3) of the definition of “new vessel” (as a result of modifications), model year means the calendar year in which the modifications physically begin.

Motor vehicle has the meaning given in 40 CFR 85.1703(a).

New marine engine means any of the following:

(1) A freshly manufactured marine engine for which the ultimate purchaser has never received the equitable or legal title. This kind of engine might commonly be thought of as “brand new.” In the case of this paragraph (1), the engine is new from the time it is produced until the ultimate purchaser receives the title or the product is placed into service, whichever comes first.

(2) An engine originally manufactured as a motor vehicle engine, a nonroad engine that is not a marine engine, or a stationary engine that is later used or intended to be used as a marine engine. In this case, the engine is no longer a motor vehicle, nonmarine, or stationary engine and becomes a “new marine engine.” The engine is no longer new when it is placed into marine service as a marine engine. This paragraph (2) applies for engines we exclude under §1042.5, where that engine is later installed as a marine engine in a vessel that is covered by this part 1042. For example, this would apply to an engine that is no longer used in a foreign vessel. An engine converted to a marine engine without having been certified is treated as a freshly manufactured engine under this part 1042.

(3) A marine engine that has been previously placed into service in an application we exclude under §1042.5, where that engine is installed in a vessel that is covered by this part 1042. The engine is new when it first enters

U.S. waters on a vessel covered by this part 1042. For example, this would apply to an engine that is no longer used in a foreign vessel and for engines on a vessel that is reflagged as a U.S. vessel. Note paragraph (7) of this definition may also apply.

(4) An engine not covered by paragraphs (1) through (3) of this definition that is intended to be installed in a new vessel. This generally includes installation of used engines in new vessels. The engine is no longer new when the ultimate purchaser receives a title for the vessel or it is placed into service, whichever comes first. Such an engine is treated as a freshly manufactured engine under this part 1042, whether or not it meets the definition of “freshly manufactured marine engine.”

(5) A remanufactured marine engine. An engine becomes new when it is remanufactured (as defined in this section) and ceases to be new when placed back into service.

(6) An imported marine engine, subject to the following provisions:

(i) An imported marine engine covered by a certificate of conformity issued under this part that meets the criteria of one or more of paragraphs (1) through (4) of this definition, where the original engine manufacturer holds the certificate, is new as defined by those applicable paragraphs.

(ii) An imported remanufactured engine that would have been required to be certified if it had been remanufactured in the United States.

(iii) An imported engine that will be covered by a certificate of conformity issued under this part, where someone other than the original engine manufacturer holds the certificate (such as when the engine is modified after its initial assembly), is a new marine engine when it is imported. It is no longer new when the ultimate purchaser receives a title for the engine or it is placed into service, whichever comes first.

(iv) An imported marine engine that is not covered by a certificate of conformity issued under this part at the time of importation is new, but only if it was produced on or after the dates shown in the following table. This addresses uncertified engines and vessels

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initially placed into service that someone seeks to import into the United States. Importation of this kind of en-

gine (or vessel containing such an engine) is generally prohibited by 40 CFR part 1068.

APPLICABILITY OF EMISSION STANDARDS FOR COMPRESSION-IGNITION MARINE ENGINES

Engine category and type	Power (kW)	Per-cylinder displacement (L/cyl)	Initial model year of emission standards
Category 1	P <19	All	2000
Category 1	19 ≤ P <37	All	1999
Category 1, Recreational	P ≥37	disp. <0.9	2007
Category 1, Recreational	All	0.9 ≤ disp. <2.5	2006
Category 1, Recreational	All	disp. ≥2.5	2004
Category 1, Commercial	P ≥37	disp. <0.9	2005
Category 1, Commercial	All	disp. ≥0.9	2004
Category 2 and Category 3	All	disp. ≥5.0	2004

(7) A marine engine that is not covered by a certificate of conformity issued under this part on a U.S.-flag vessel entering U.S. waters is new, but only if it was produced on or after the dates identified in paragraph (6)(iv) of this definition. Such entrance is deemed to be introduction into U.S. commerce.

New vessel means any of the following:

(1) A vessel for which the ultimate purchaser has never received the equitable or legal title. The vessel is no longer new when the ultimate purchaser receives this title or it is placed into service, whichever comes first.

(2) For vessels with no Category 3 engines, a vessel that has been modified such that the value of the modifications exceeds 50 percent of the value of the modified vessel, excluding temporary modifications (as defined in this section). The value of the modification is the difference in the assessed value of the vessel before the modification and the assessed value of the vessel after the modification. The vessel is no longer new when it is placed into service. Use the following equation to determine if the fractional value of the modification exceeds 50 percent:

$$\text{Percent of value} = \frac{[(\text{Value after modification}) - (\text{Value before modification})] \times 100\%}{(\text{Value after modification})}$$

(3) For vessels with Category 3 engines, a vessel that has undergone a modification that substantially alters the dimensions or carrying capacity of the vessel, changes the type of vessel,

or substantially prolongs the vessel's life.

(4) An imported vessel that has already been placed into service, where it has an engine not covered by a certificate of conformity issued under this part at the time of importation that was manufactured after the requirements of this part start to apply (see §1042.1).

Noncompliant engine means an engine that was originally covered by a certificate of conformity but is not in the certified configuration or otherwise does not comply with the conditions of the certificate.

Nonconforming engine means an engine not covered by a certificate of conformity that would otherwise be subject to emission standards.

Nonmethane hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the difference between the emitted mass of total hydrocarbons and the emitted mass of methane.

Nonroad means relating to nonroad engines, or vessels, or equipment that include nonroad engines.

Nonroad engine has the meaning given in 40 CFR 1068.30. In general, this means all internal-combustion engines except motor vehicle engines, stationary engines, engines used solely for competition, or engines used in aircraft.

NO_x Technical Code means the "Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines" adopted by the International Maritime Organization (incorporated by reference in §1042.910). The

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Technical Code is part of 2008 Annex VI.

Official emission result means the measured emission rate for an emission-data engine on a given duty cycle before the application of any deterioration factor, but after the applicability of regeneration adjustment factors.

Operator demand has the meaning given in 40 CFR 1065.1001.

Owners manual means a document or collection of documents prepared by the engine manufacturer for the owner or operator to describe appropriate engine maintenance, applicable warranties, and any other information related to operating or keeping the engine. The owners manual is typically provided to the ultimate purchaser at the time of sale. The owners manual may be in paper or electronic format.

Oxides of nitrogen has the meaning given in 40 CFR 1065.1001.

Particulate trap means a filtering device that is designed to physically trap particulate matter above a certain size.

Passenger means a person that provides payment as a condition of boarding a vessel. This does not include the owner or any paid crew members.

Placed into service means put into initial use for its intended purpose. Engines and vessels do not qualify as being "placed into service" based on incidental use by a manufacturer or dealer.

Post-manufacture marinizer means an entity that produces a marine engine by modifying a non-marine engine, whether certified or uncertified, complete or partially complete, where the entity is not controlled by the manufacturer of the base engine or by an entity that also controls the manufacturer of the base engine. In addition, vessel manufacturers that substantially modify marine engines are post-manufacture marinizers. For the purpose of this definition, "substantially modify" means changing an engine in a way that could change engine emission characteristics.

Power density has the meaning given in § 1042.140.

Ramped-modal means relating to the ramped-modal type of steady-state test described in § 1042.505.

Rated speed means the maximum full-load governed speed for governed en-

gines and the speed of maximum power for ungoverned engines.

Recreational marine engine means a Category 1 propulsion marine engine that is intended by the manufacturer to be installed on a recreational vessel.

Recreational vessel means a vessel that is intended by the vessel manufacturer to be operated primarily for pleasure or leased, rented or chartered to another for the latter's pleasure. However, this does not include the following vessels:

- (1) Vessels below 100 gross tons that carry more than 6 passengers.
- (2) Vessels at or above 100 gross tons that carry one or more passengers.
- (3) Vessels used solely for competition (see § 1042.620).

Reflag means to register as a U.S. vessel any vessel that previously had a foreign registry or had been placed into service without registration.

Remanufacture means to replace every cylinder liner in a commercial engine with maximum engine power at or above 600 kW, whether during a single maintenance event or cumulatively within a five-year period. For the purpose of this definition, "replace" includes removing, inspecting, and re-qualifying a liner. Rebuilding a recreational engine or an engine with maximum engine power below 600 kW is not remanufacturing.

Remanufacture system or remanufacturing system means all components (or specifications for components) and instructions necessary to remanufacture an engine in accordance with applicable requirements of this part 1042.

Remanufacturer has the meaning given to "manufacturer" in section 216(1) of the Clean Air Act (42 U.S.C. 7550(1)) with respect to remanufactured marine engines. This term includes any person that is engaged in the manufacture or assembly of remanufactured engines, such as persons who:

- (1) Design or produce the emission-related parts used in remanufacturing.
- (2) Install parts in or on an existing engine to remanufacture it.
- (3) Own or operate the engine and provide specifications as to how an engine is to be remanufactured (i.e., specifying who will perform the work, when the work is to be performed, what

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parts are to be used, or how to calibrate the adjustable parameters of the engine).

Residual fuel means any fuel with a T_{90} greater than 700 °F as measured with the distillation test method specified in 40 CFR 1065.1010. This generally includes all RM grades of marine fuel without regard to whether they are known commercially as residual fuel. For example, fuel marketed as intermediate fuel may be residual fuel.

Revoke has the meaning given in 40 CFR 1068.30. In general this means to terminate the certificate or an exemption for an engine family.

Round has the meaning given in 40 CFR 1065.1001.

Scheduled maintenance means adjusting, repairing, removing, disassembling, cleaning, or replacing components or systems periodically to keep a part or system from failing, malfunctioning, or wearing prematurely. It also may mean actions you expect are necessary to correct an overt indication of failure or malfunction for which periodic maintenance is not appropriate.

Small-volume boat builder means a boat manufacturer with fewer than 500 employees and with annual worldwide production of fewer than 100 boats. For manufacturers owned by a parent company, these limits apply to the combined production and number of employees of the parent company and all its subsidiaries. Manufacturers that produce vessels with Category 3 engines are not small-volume boat builders.

Small-volume engine manufacturer means a manufacturer of Category 1 and/or Category 2 engines with annual worldwide production of fewer than 1,000 internal combustion engines (marine and nonmarine). For manufacturers owned by a parent company, the limit applies to the production of the parent company and all its subsidiaries. Manufacturers that certify or produce any Category 3 engines are not small-volume engine manufacturers.

Spark-ignition means relating to a gasoline-fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion

cycle. Spark-ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Specified adjustable range means a range of adjustment for an adjustable parameter that is approved as part of certification. Note that Category 1 engines must comply with emission standards over the full physically adjustable range for any adjustable parameters.

Steady-state has the meaning given in 40 CFR 1065.1001.

Sulfur-sensitive technology means an emission control technology that experiences a significant drop in emission control performance or emission-system durability when an engine is operated on low-sulfur diesel fuel (*i.e.*, fuel with a sulfur concentration of 300 to 500 ppm) as compared to when it is operated on ultra-low sulfur diesel fuel (*i.e.*, fuel with a sulfur concentration less than 15 ppm). Exhaust gas recirculation is not a sulfur-sensitive technology.

Suspend has the meaning given in 40 CFR 1068.30. In general this means to temporarily discontinue the certificate or an exemption for an engine family.

Temporary modification means a modification to a vessel based on a written contract for marine services such that the modifications will be removed from the vessel when the contract expires. This provision is intended to address short-term contracts that would generally be less than 12 months in duration. You may ask us to consider modifications that will be in place longer than 12 months as temporary modifications.

Test engine means an engine in a test sample.

Test sample means the collection of engines selected from the population of an engine family for emission testing. This may include testing for certification, production-line testing, or in-use testing.

Tier 1 means relating to the Tier 1 emission standards, as shown in Appendix I.

Tier 2 means relating to the Tier 2 emission standards, as shown in § 1042.104 and Appendix I.

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Tier 3 means relating to the Tier 3 emission standards, as shown in §1042.101 and §1042.104.

Tier 4 means relating to the Tier 4 emission standards, as shown in §1042.101.

Total hydrocarbon has the meaning given in 40 CFR 1065.1001. This generally means the combined mass of organic compounds measured by the specified procedure for measuring total hydrocarbon, expressed as a hydrocarbon with an atomic hydrogen-to-carbon ratio of 1.85:1.

Total hydrocarbon equivalent has the meaning given in 40 CFR 1065.1001. This generally means the sum of the carbon mass contributions of non-oxygenated hydrocarbons, alcohols and aldehydes, or other organic compounds that are measured separately as contained in a gas sample, expressed as exhaust hydrocarbon from petroleum-fueled engines. The atomic hydrogen-to-carbon ratio of the equivalent hydrocarbon is 1.85:1.

Ultimate purchaser means, with respect to any new vessel or new marine engine, the first person who in good faith purchases such new vessel or new marine engine for purposes other than resale.

Ultra low-sulfur diesel fuel means one of the following:

(1) For in-use fuels, *ultra low-sulfur diesel fuel* means a diesel fuel marketed as ultra low-sulfur diesel fuel having a maximum sulfur concentration of 15 parts per million.

(2) For testing, *ultra low-sulfur diesel fuel* has the meaning given in 40 CFR part 1065.

United States has the meaning given in 40 CFR 1068.30.

Upcoming model year means for an engine family the model year after the one currently in production.

U.S.-directed production volume means the number of engine units, subject to the requirements of this part, produced by a manufacturer for which the manufacturer has a reasonable assurance that sale was or will be made to ultimate purchasers in the United States.

U.S. waters includes U.S. navigable waters and the U.S. EEZ.

Useful life means the period during which the engine is designed to properly function in terms of reliability

and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. It is the period during which an engine is required to comply with all applicable emission standards. See §§1042.101(e) and 1042.104(d).

Variable-speed engine means an engine that is not a constant-speed engine.

Vessel means a marine vessel.

Vessel operator means any individual that physically operates or maintains a vessel or exercises managerial control over the operation of the vessel.

Vessel owner means the individual or company that holds legal title to a vessel.

Void has the meaning given in 40 CFR 1068.30. In general this means to invalidate a certificate or an exemption both retroactively and prospectively.

Volatile liquid fuel means any fuel other than diesel fuel or biodiesel that is a liquid at atmospheric pressure and has a Reid Vapor Pressure higher than 2.0 pounds per square inch.

Waterline length means the horizontal distance measured between perpendiculars taken at the forwardmost and aftermost points on the waterline corresponding to the deepest operating draft (see “Length between perpendiculars” at 46 CFR 175.400). This applies for a worst-case combination of a fully loaded vessel in freshwater in summer.

We (us, our) means the Administrator of the Environmental Protection Agency and any authorized representatives.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23010, Apr. 30, 2010; 81 FR 74153, Oct. 25, 2016; 85 FR 62232, Oct. 2, 2020; 85 FR 78468, Dec. 4, 2020; 86 FR 34512, June 29, 2021; 88 FR 4663, Jan. 24, 2023]

§ 1042.905 Symbols, acronyms, and abbreviations.

The following symbols, acronyms, and abbreviations apply to this part:

- ABT Averaging, banking, and trading.
- AECD auxiliary emission control device.
- CFR Code of Federal Regulations.
- CH₄ methane.
- CO carbon monoxide.
- CO₂ carbon dioxide.
- cyl cylinder.
- disp. displacement.
- ECA Emission Control Area.

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EEZ Exclusive Economic Zone.
EPA Environmental Protection Agency.
FEL Family Emission Limit.
g grams.
HC hydrocarbon.
hr hours.
IMO International Maritime Organization.
kPa kilopascals.
kW kilowatts.
L liters.
LTR Limited Testing Region.
N₂O nitrous oxide.
NARA National Archives and Records Administration.
NMHC nonmethane hydrocarbon.
NO_x oxides of nitrogen (NO and NO₂).
NTE not-to-exceed.
PM particulate matter.
RPM revolutions per minute.
SAE Society of Automotive Engineers.
SCR selective catalytic reduction.
THC total hydrocarbon.
THCE total hydrocarbon equivalent.
ULSD ultra low-sulfur diesel fuel.
U.S.C. United States Code.

[81 FR 74154, Oct. 25, 2016]

§ 1042.910 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Environmental Protection Agency must publish a document in the FEDERAL REGISTER and the material must be available to the public. All approved material is available for inspection at EPA Docket Center, WJC West Building, Room 3334, 1301 Constitution Avenue NW, Washington, DC 20004, www.epa.gov/dockets, (202) 202-1744, and is available from the sources listed in this section. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, email fedreg.legal@nara.gov or go to: http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html.

(b) The International Maritime Organization, 4 Albert Embankment, Lon-

don SE1 7SR, United Kingdom, or www.imo.org, or 44-(0)20-7735-7611.

(1) MARPOL Annex VI, Regulations for the Prevention of Air Pollution from Ships, Fourth Edition, 2017, and NO_x Technical Code 2008.

(i) Revised MARPOL Annex VI, Regulations for the Prevention of Pollution from Ships, Fourth Edition, 2017 (“2008 Annex VI”); IBR approved for § 1042.901.

(ii) NO_x Technical Code 2008, Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines, 2017 Edition, (“NO_x Technical Code”); IBR approved for §§ 1042.104(g), 1042.230(d), 1042.302(c) and (e), 1042.501(g), and 1042.901.

(2) [Reserved]

[86 FR 34512, June 29, 2021]

§ 1042.915 Confidential information.

The provisions of 40 CFR 1068.10 apply for information you consider confidential.

[81 FR 74155, Oct. 25, 2016]

§ 1042.920 Hearings.

(a) You may request a hearing under certain circumstances, as described elsewhere in this part. To do this, you must file a written request, including a description of your objection and any supporting data, within 30 days after we make a decision.

(b) For a hearing you request under the provisions of this part, we will approve your request if we find that your request raises a substantial factual issue.

(c) If we agree to hold a hearing, we will use the procedures specified in 40 CFR part 1068, subpart G.

§ 1042.925 Reporting and record-keeping requirements.

(a) This part includes various requirements to submit and record data or other information. Unless we specify otherwise, store required records in any format and on any media and keep them readily available for eight years after you send an associated application for certification, or eight years after you generate the data if they do not support an application for certification. You are expected to keep your own copy of required records rather than relying on someone else to keep

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records on your behalf. We may review these records at any time. You must promptly send us organized, written records in English if we ask for them. We may require you to submit written records in an electronic format.

(b) The regulations in §1042.255, 40 CFR 1068.25, and 40 CFR 1068.101 describe your obligation to report truthful and complete information. This includes information not related to certification. Failing to properly report information and keep the records we specify violates 40 CFR 1068.101(a)(2), which may involve civil or criminal penalties.

(c) Send all reports and requests for approval to the Designated Compliance Officer (see §1042.801).

(d) Any written information we require you to send to or receive from another company is deemed to be a required record under this section. Such records are also deemed to be submissions to EPA. We may require you to send us these records whether or not you are a certificate holder.

(e) Under the Paperwork Reduction Act (44 U.S.C. 3501 et seq), the Office of Management and Budget approves the reporting and recordkeeping specified in the applicable regulations. The following items illustrate the kind of reporting and recordkeeping we require for engines and vessels regulated under this part:

(1) We specify the following requirements related to engine certification in this part 1042:

(i) In §1042.135 we require engine manufacturers to keep certain records related to duplicate labels sent to vessel manufacturers.

(ii) In §1042.145 we include various reporting and recordkeeping requirements related to interim provisions.

(iii) In subpart C of this part we identify a wide range of information required to certify engines.

(iv) In §§1042.345 and 1042.350 we specify certain records related to production-line testing.

(v) In subpart G of this part we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various special compliance provisions.

(vi) In §§1042.725, 1042.730, and 1042.735 we specify certain records related to averaging, banking, and trading.

(vii) In subpart I of this part we specify certain records related to meeting requirements for remanufactured engines.

(2) We specify the following requirements related to testing in 40 CFR part 1065:

(i) In 40 CFR 1065.2 we give an overview of principles for reporting information.

(ii) In 40 CFR 1065.10 and 1065.12 we specify information needs for establishing various changes to published test procedures.

(iii) In 40 CFR 1065.25 we establish basic guidelines for storing test information.

(iv) In 40 CFR 1065.695 we identify the specific information and data items to record when measuring emissions.

(3) We specify the following requirements related to the general compliance provisions in 40 CFR part 1068:

(i) In 40 CFR 1068.5 we establish a process for evaluating good engineering judgment related to testing and certification.

(ii) In 40 CFR 1068.25 we describe general provisions related to sending and keeping information.

(iii) In 40 CFR 1068.27 we require manufacturers to make engines available for our testing or inspection if we make such a request.

(iv) In 40 CFR 1068.105 we require vessel manufacturers to keep certain records related to duplicate labels from engine manufacturers.

(v) In 40 CFR 1068.120 we specify recordkeeping related to rebuilding engines.

(vi) In 40 CFR part 1068, subpart C, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to various exemptions.

(vii) In 40 CFR part 1068, subpart D, we identify several reporting and recordkeeping items for making demonstrations and getting approval related to importing engines.

(viii) In 40 CFR 1068.450 and 1068.455 we specify certain records related to testing production-line engines in a selective enforcement audit.

(ix) In 40 CFR 1068.501 we specify certain records related to investigating and reporting emission-related defects.

(x) In 40 CFR 1068.525 and 1068.530 we specify certain records related to recalling nonconforming engines.

(xi) In 40 CFR part 1068, subpart G, we specify certain records for requesting a hearing.

[81 FR 74155, Oct. 25, 2016]

APPENDIX I TO PART 1042—SUMMARY OF PREVIOUS EMISSION STANDARDS

The following standards apply to compression-ignition marine engines produced before the model years specified in §1042.1:

(a) *Engines below 37 kW.* Tier 1 and Tier 2 standards for engines below 37 kW originally adopted under 40 CFR part 89 apply as follows:

TABLE 1 TO APPENDIX I—EMISSION STANDARDS FOR ENGINES BELOW 37 kW [g/kW-hr]

Rated power (kW)	Tier	Model year	NMHC + NO _x	CO	PM
kW<8	Tier 1	2000	10.5	8.0	1.0
	Tier 2	2005	7.5	8.0	0.80
8≤kW<19	Tier 1	2000	9.5	6.6	0.80
	Tier 2	2005	7.5	6.6	0.80
19≤kW<37	Tier 1	1999	9.5	5.5	0.80
	Tier 2	2004	7.5	5.5	0.60

(b) *Engines at or above 37 kW.* Tier 1 and Tier 2 standards for engines at or above 37 kW originally adopted under 40 CFR part 94 apply as follows:

(1) *Tier 1 standards.* NO_x emissions from model year 2004 and later engines with displacement of 2.5 or more liters per cylinder may not exceed the following values:

(i) 17.0 g/kW-hr when maximum test speed is less than 130 rpm.

(ii) $45.0 \times N^{-0.20}$ when maximum test speed is at or above 130 but below 2000 rpm, where N is the maximum test speed of the engine in revolutions per minute. Round the calculated standard to the nearest 0.1 g/kW-hr.

(ii) 9.8 g/kW-hr when maximum test speed is 2000 rpm or more.
(2) *Tier 2 primary standards.* Exhaust emissions from Category 1 engines at or above 37 kW and all Category 2 engines may not exceed the values shown in the following table:

TABLE 2 TO APPENDIX I—PRIMARY TIER 2 EMISSION STANDARDS FOR COMMERCIAL AND RECREATIONAL MARINE ENGINES AT OR ABOVE 37 kW (G/KW-HR)

Engine size liters/cylinder	Maximum engine power	Category	Model year	NO _x + THC g/kW-hr	CO g/kW-hr	PM g/kW-hr
disp. <0.9	power ≥37 kW	Category 1 Commercial ...	2005	7.5	5.0	0.40
		Category 1 Recreational ..	2007	7.5	5.0	0.40
0.9 ≤disp. <1.2	All	Category 1 Commercial ...	2004	7.2	5.0	0.30
		Category 1 Recreational ..	2006	7.2	5.0	0.30
1.2 ≤disp. <2.5	All	Category 1 Commercial ...	2004	7.2	5.0	0.20
		Category 1 Recreational ..	2006	7.2	5.0	0.20
2.5 ≤disp. <5.0	All	Category 1 Commercial ...	2007	7.2	5.0	0.20
		Category 1 Recreational ..	2009	7.2	5.0	0.20
5.0 ≤disp. <15.0	All	Category 2	2007	7.8	5.0	0.27
		Category 2	2007	8.7	5.0	0.50
15.0 ≤disp. <20.0	power <3300 kW	Category 2	2007	9.8	5.0	0.50
		Category 2	2007	9.8	5.0	0.50
20.0 ≤disp. <25.0	All	Category 2	2007	9.8	5.0	0.50
		Category 2	2007	11	5.0	0.5
25.0 ≤disp. <30.0	All	Category 2	2007	11	5.0	0.5

(3) *Tier 2 supplemental standards.* The following not-to-exceed emission standards apply for all engines subject to the Tier 2 standards described in paragraph (b)(2) of this appendix.

(i) *Commercial marine engines.* (A) 1.20 times the applicable standards (or FELs) when tested in accordance with the supplemental test procedures specified in §1042.515 at loads

greater than or equal to 45 percent of the maximum power at rated speed or 1.50 times the applicable standards (or FELs) at loads less than 45 percent of the maximum power at rated speed.

(B) As an option, the manufacturer may instead choose to comply with limits of 1.25 times the applicable standards (or FELs) when tested over the whole power range in

accordance with the supplemental test procedures specified in §1042.515.

(ii) *Recreational marine engines.* (A) 1.20 times the applicable standards (or FELs) when tested in accordance with the supplemental test procedures specified in §1042.515 at loads greater than or equal to 45 percent of the maximum power at rated speed and speeds less than 95 percent of maximum test speed, or 1.50 times the applicable standards (or FELs) at loads less than 45 percent of the maximum power at rated speed, or 1.50 times

the applicable standards (or FELs) at any loads for speeds greater than or equal to 95 percent of the maximum test speed.

(B) As an option, the manufacturer may instead choose to comply with limits of 1.25 times the applicable standards (or FELs) when tested over the whole power range in accordance with the supplemental test procedures specified in §1042.515.

[73 FR 37243, June 30, 2008, as amended at 75 FR 23012, Apr. 30, 2010; 86 FR 34513, June 29, 2021; 88 FR 4664, Jan. 24, 2023]

APPENDIX II TO PART 1042— STEADY-STATE DUTY CYCLES

(a) The following duty cycles apply as specified in §1042.505(b)(1):

(1) The following duty cycle applies for discrete-mode testing:

E3 mode No.	Engine speed ¹	Percent of maximum test power	Weighting factors
1	Maximum test speed	100	0.2
2	91%	75	0.5
3	80%	50	0.15
4	63%	25	0.15

¹ Maximum test speed is defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed ^{1 3}	Power (percent) ^{2 3}
1a Steady-state	229	Maximum test speed	100%.
1b Transition	20	Linear transition	Linear transition in torque.
2a Steady-state	166	63%	25%.
2b Transition	20	Linear transition	Linear transition in torque.
3a Steady-state	570	91%	75%.
3b Transition	20	Linear transition	Linear transition in torque.
4a Steady-state	175	80%	50%.

¹ Maximum test speed is defined in 40 CFR part 1065. Percent speed is relative to maximum test speed.

² The percent power is relative to the maximum test power.

³ Advance from one mode to the next within a 20 second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(b) The following duty cycles apply as specified in §1042.505(b)(2):

(1) The following duty cycle applies for discrete-mode testing:

E5 mode No.	Engine speed ¹	Percent of maximum test power	Weighting factors
1	Maximum test speed	100	0.08
2	91%	75	0.13
3	80%	50	0.17
4	63%	25	0.32
5	Warm idle	0	0.3

¹ Maximum test speed is defined in 40 CFR part 1065. Percent speed values are relative to maximum test speed.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed ^{1 3}	Power (percent) ^{2 3}
1a Steady-state	167	Warm idle	0.
1b Transition	20	Linear transition	Linear transition in torque.
2a Steady-state	85	Maximum test speed	100%.
2b Transition	20	Linear transition	Linear transition in torque.
3a Steady-state	354	63%	25%.
3b Transition	20	Linear transition	Linear transition in torque.
4a Steady-state	141	91%	75%.
4b Transition	20	Linear transition	Linear transition in torque.

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RMC mode	Time in mode (seconds)	Engine speed ^{1 3}	Power (percent) ^{2 3}
5a Steady-state	182	80%	50%.
5b Transition	20	Linear transition	Linear transition in torque.
6 Steady-state	171	Warm idle	0.

¹ Maximum test speed is defined in 40 CFR part 1065. Percent speed is relative to maximum test speed.
² The percent power is relative to the maximum test power.
³ Advance from one mode to the next within a 20 second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode, and simultaneously command a similar linear progression for engine speed if there is a change in speed setting.

(c) The following duty cycles apply as specified in §1042.505(b)(3):
 (1) The following duty cycle applies for discrete-mode testing:

E2 mode No.	Engine speed ¹	Torque (percent) ²	Weighting factors
1	Engine Governed	100	0.2
2	Engine Governed	75	0.5
3	Engine Governed	50	0.15
4	Engine Governed	25	0.15

¹ Speed terms are defined in 40 CFR part 1065.
² The percent torque is relative to the maximum test torque as defined in 40 CFR part 1065.

(2) The following duty cycle applies for ramped-modal testing:

RMC mode	Time in mode (seconds)	Engine speed	Torque (percent) ^{1 2}
1a Steady-state	229	Engine Governed	100%.
1b Transition	20	Engine Governed	Linear transition.
2a Steady-state	166	Engine Governed	25%.
2b Transition	20	Engine Governed	Linear transition.
3a Steady-state	570	Engine Governed	75%.
3b Transition	20	Engine Governed	Linear transition.
4a Steady-state	175	Engine Governed	50%.

¹ The percent torque is relative to the maximum test torque as defined in 40 CFR part 1065.
² Advance from one mode to the next within a 20 second transition phase. During the transition phase, command a linear progression from the torque setting of the current mode to the torque setting of the next mode.

[81 FR 74156, Oct. 25, 2016]

APPENDIX III TO PART 1042—NOT-TO-EXCEED ZONES

(a) The following definitions apply for this Appendix III:

(1) *Percent power* means the percentage of the maximum power achieved at Maximum Test Speed (or at Maximum Test Torque for constant-speed engines).

(2) *Percent speed* means the percentage of Maximum Test Speed.

(b) Figure 1 of this Appendix illustrates the default NTE zone for marine engines certified using the duty cycle specified in §1042.505(b)(1), except for variable-speed propulsion marine engines used with controllable-pitch propellers or with electrically coupled propellers, as follows:

(1) Subzone 1 is defined by the following boundaries:

(i) $\text{Percent power} + 100 > 0.7 \cdot (\text{percent speed} + 100)^{2.5}$.

(ii) $\text{Percent power} + 100 \leq (\text{percent speed} + 90)^{3.5}$.

(iii) $\text{Percent power} + 100 \geq 3.0 \cdot (1 - \text{percent speed} + 100)$.

(2) Subzone 2 is defined by the following boundaries:

(i) $\text{Percent power} + 100 \geq 0.7 \cdot (\text{percent speed} + 100)^{2.5}$.

(ii) $\text{Percent power} + 100 \leq (\text{percent speed} + 90)^{3.5}$.

(iii) $\text{Percent power} + 100 < 3.0 \cdot (1 - \text{percent speed} + 100)$.

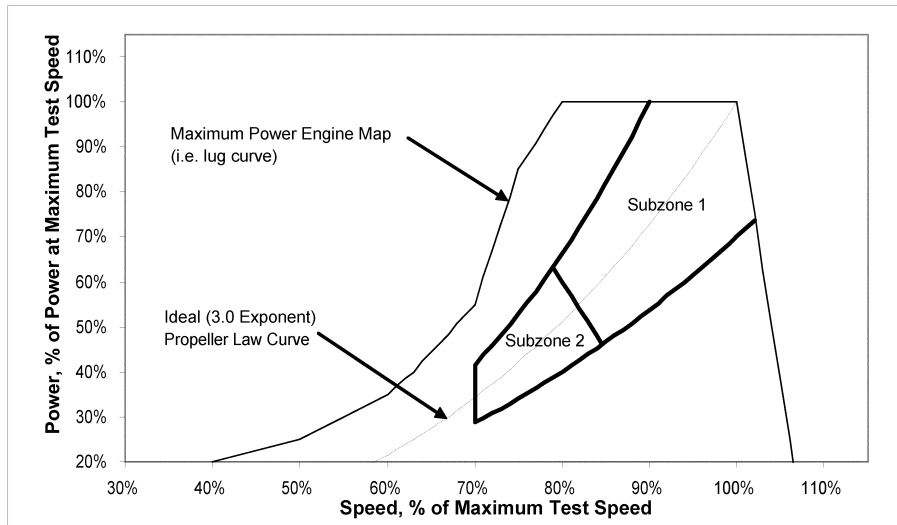
(iv) $\text{Percent speed} + 100 \geq 0.7$.

(3) Note that the line separating Subzone 1 and Subzone 2 includes the following endpoints:

(i) Percent speed = 78.9 percent; Percent power = 63.2 percent.

(ii) Percent speed = 84.6 percent; Percent power = 46.1 percent.

Figure 1 of Appendix III — NTE Zone and Subzones for Propeller-Law Marine Engines



(c) Figure 2 of this Appendix illustrates the default NTE zone for recreational marine engines certified using the duty cycle specified in §1042.505(b)(2), except for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers, as follows:

(1) Subzone 1 is defined by the following boundaries:

- (i) Percent power + 100 \geq 0.7 · (percent speed + 100)^{2.5}.
- (ii) Percent power + 100 \leq (percent speed + 90)^{3.5}.
- (iii) Percent power + 100 \geq 3.0 · (1 – percent speed + 100).
- (iv) Percent power \leq 95 percent.

(2) Subzone 2 is defined by the following boundaries:

(i) Percent power + 100 \geq 0.7 · (percent speed + 100)^{2.5}.

(ii) Percent power + 100 \leq (percent speed + 90)^{3.5}.

(iii) Percent power + 100 $<$ 3.0 · (1 – percent speed + 100).

(iv) Percent speed \geq 70 percent.

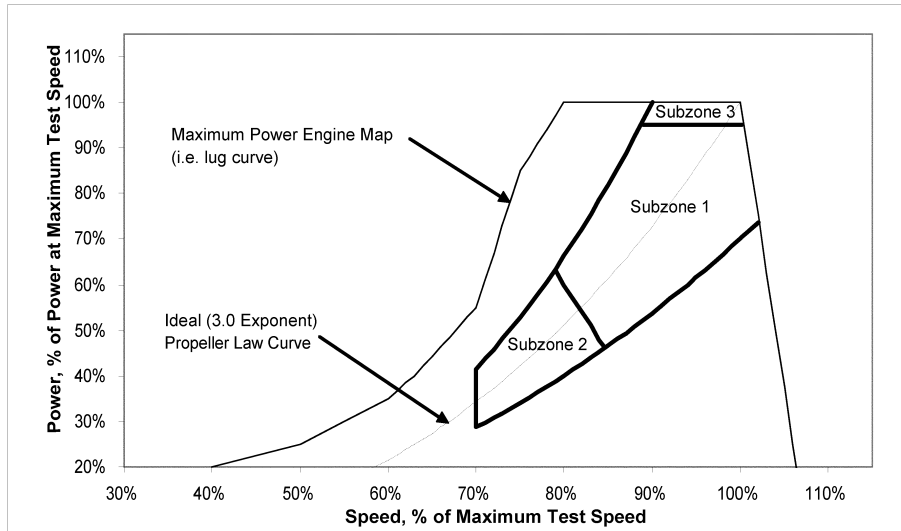
(3) Subzone 3 is defined by the following boundaries:

(i) Percent power + 100 \leq (percent speed + 90)^{3.5}.

(ii) Percent power $>$ 95 percent.

(4) Note that the line separating Subzone 1 and Subzone 3 includes a point at Percent speed = 88.7 percent and Percent power = 95.0 percent. See paragraph (b)(3) of this appendix regarding the line separating Subzone 1 and Subzone 2.

Figure 2 of Appendix III — NTE Zone and Subzones for Propeller-Law Recreational Marine Engines



(d) Figure 3 of this Appendix illustrates the default NTE zone for variable-speed marine engines used with controllable-pitch propellers or with electrically coupled propellers that are certified using the duty cycle specified in §1042.505(b)(1), (2), or (3), as follows:

(1) Subzone 1 is defined by the following boundaries:

- (i) Percent power + 100 $\geq 0.7 \cdot (\text{percent speed} + 100)^{2.5}$.
- (ii) Percent power + 100 $\geq 3.0 \cdot (1 - \text{percent speed} + 100)$.
- (iii) Percent speed ≥ 78.9 percent.

(2) Subzone 2a is defined by the following boundaries:

- (i) Percent power + 100 $\geq 0.7 \cdot (\text{percent speed} + 100)^{2.5}$.
- (ii) Percent speed ≥ 70 percent.
- (iii) Percent speed < 78.9 percent, for Percent power > 63.3 percent.

(iv) Percent power + 100 $< 3.0 \cdot (1 - \text{percent speed} + 100)$, for Percent speed ≥ 78.9 percent.

(3) Subzone 2b is defined by the following boundaries:

(i) The line formed by connecting the following two points on a plot of speed-vs.-power:

(A) Percent speed = 70 percent; Percent power = 28.7 percent.

(B) Percent power = 40 percent; Speed = governed speed.

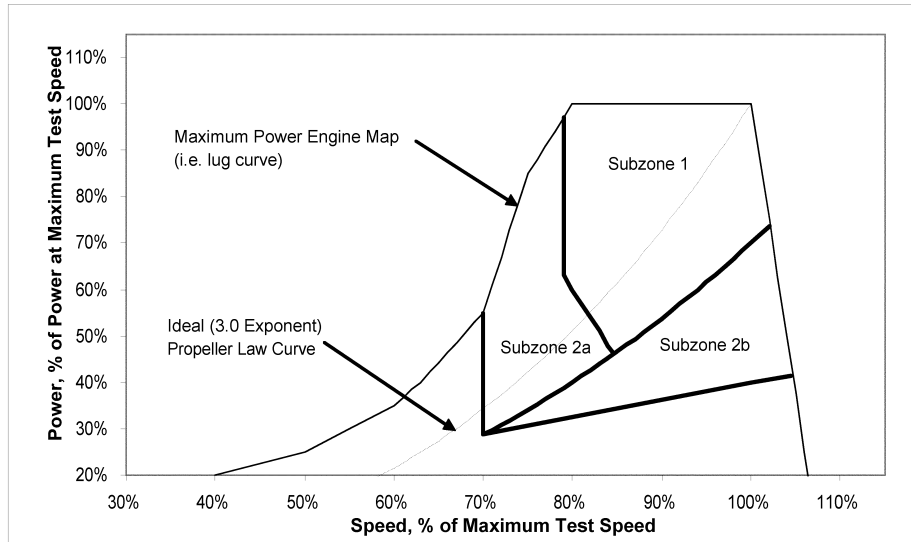
(ii) Percent power + 100 $< 0.7 \cdot (\text{percent speed} + 100)^{2.5}$.

(4) Note that the line separating Subzone 1 and Subzone 2a includes the following endpoints:

(i) Percent speed = 78.9 percent; Percent power = 63.3 percent.

(ii) Percent speed = 84.6 percent; Percent power = 46.1 percent.

Figure 3 of Appendix III — NTE Zone and Subzones for Variable-Pitch or Electronically Coupled Engines*



*Shown for engines capable of operating on the E3 Duty Cycle.

(e) Figure 4 of this Appendix illustrates the default NTE zone for constant-speed engines certified using a duty cycle specified in §1042.505(b)(3) or (4), as follows:

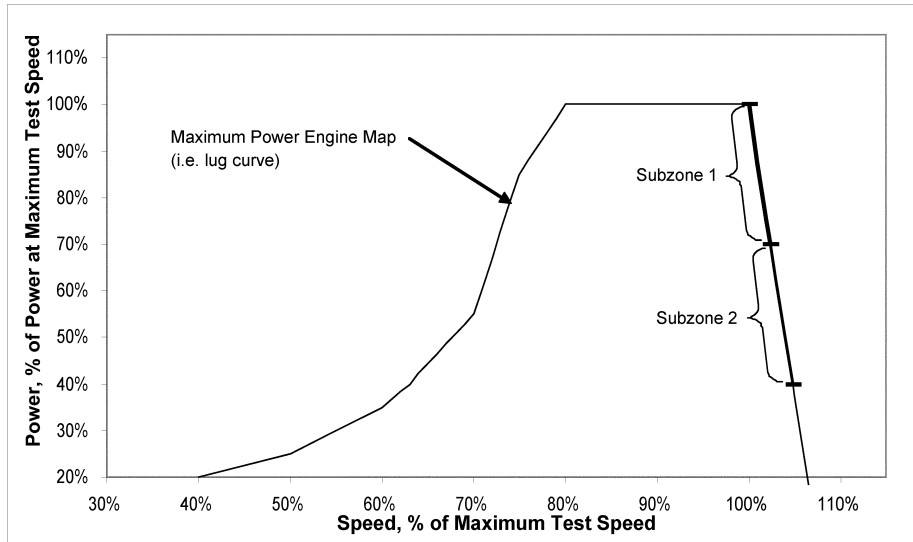
(1) Subzone 1 is defined by the following boundaries:

- (i) Percent power ≥ 70 percent.
- (ii) [Reserved]

(2) Subzone 2 is defined by the following boundaries:

- (i) Percent power < 70 percent.
- (ii) Percent power ≥ 40 percent.

Figure 4 of Appendix III — NTE Zone and Subzones for Constant-Speed Marine Engines



(f) Figure 5 of this Appendix illustrates the default NTE zone for variable-speed auxiliary marine engines certified using the duty cycle specified in §1042.505(b)5(ii) or (iii), as follows:

- (1) The default NTE zone is defined by the boundaries specified in 40 CFR 86.1370(b)(1), (2), and (4).
- (2) A special PM subzone is defined in 40 CFR 1039.515(b).