MEMORANDUM

Subject: Response to Public Comments on Proposed National Emission Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines Located at Area Sources of Hazardous Air Pollutant Emissions or Have a Site Rating Less Than or Equal to 500 Brake HP Located at Major Sources of Hazardous Air Pollutant Emissions

From: Melanie King, Energy Strategies Group

To: EPA Docket EPA-HQ-OAR-2008-0708

On March 5, 2009, the Environmental Protection Agency (EPA) proposed national emission standards for hazardous air pollutants (NESHAP) for stationary reciprocating internal combustion engines (RICE) that are either located at area sources of hazardous air pollutant (HAP) emissions or that have a site rating of less than or equal to 500 brake horsepower (HP) and are located at major sources of HAP emissions in 40 CFR part 63, subpart ZZZZ. EPA also proposed national emission standards for hazardous air pollutants for existing stationary compression ignition (CI) engines greater than 500 brake HP that are located at major sources of HAP emissions. It is important to note that the proposed rule covered both CI and spark ignition (SI) engines. The final rule will be promulgated in two parts. The first action will cover CI engines only. The purpose of this document is to present a summary of the public comments that EPA received on the proposed standards for CI engines and the responses developed. This summary of comments and responses serves as the basis for revisions made to the standards between proposal and promulgation. The comments on the proposed standards for SI engines and the responses to those comments will be summarized in a separate document that will be made available at the time that the final rule for SI engines is promulgated, which is expected to be in August 2010.

EPA received 199 public comments on the proposed rule. A listing of all persons submitting comments, their affiliation, and the Document ID for their comments is presented in Table 1. The comments can be obtained online from the Federal Docket Management System at http://www.regulations.gov. The docket number for this rulemaking is EPA-HQ-OAR-2008-0708. In this document, commenters are identified by the last three digits of the Document ID of their comments. Note that as stated above, this document includes the comments related to CI engines only, therefore the comments that pertain to SI engines will be summarized and responded to in a separate document.

Table 1. List of Commenters on the Proposed National Emission Standards for Hazardous Air Pollutants for Existing Stationary Reciprocating Internal Combustion Engines

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0036	Bo Quick Southwire Company
EPA-HQ-OAR-2008-0708-0038 EPA-HQ-OAR-2008-0708-0062	Jack Maley Director, Fleet Operations Exterran
EPA-HQ-OAR-2008-0708-0039 EPA-HQ-OAR-2008-0708-0180 EPA-HQ-OAR-2008-0708-0242	Stephanie R. Meadows Upstream Senior Policy Advisor American Petroleum Institute (API)
EPA-HQ-OAR-2008-0708-0040 EPA-HQ-OAR-2008-0708-0155	Lisa Beal Director, Environment and Construction Policy Interstate Natural Gas Association of America (INGAA)
EPA-HQ-OAR-2008-0708-0041	Craig S. Harrison Hunton & Williams on behalf of the Utility Air Regulation Group (UARG)
EPA-HQ-OAR-2008-0708-0042	R. L. Bedard
EPA-HQ-OAR-2008-0708-0043	Anonymous
EPA-HQ-OAR-2008-0708-0044	J. Hartz
EPA-HQ-OAR-2008-0708-0045	Mark Sutton Executive Director Gas Processors Association (GPA)
EPA-HQ-OAR-2008-0708-0046	Patrick J. Nugent Executive Director Texas Pipeline Association
EPA-HQ-OAR-2008-0708-0047	Anonymous
EPA-HQ-OAR-2008-0708-0048	Jorge Verde
EPA-HQ-OAR-2008-0708-0050	Quinton Hancock Cree, Inc.
EPA-HQ-OAR-2008-0708-0051	Nancy C. Wrona Director, Air Quality Division Arizona Department of Environmental Quality (ADEQ)
EPA-HQ-OAR-2008-0708-0052	K. W. Breeden Sr.
EPA-HQ-OAR-2008-0708-0053	L. Jordan
EPA-HQ-OAR-2008-0708-0054	Anonymous
EPA-HQ-OAR-2008-0708-0055	Suneet K. Sikka Eastman Chemical Company
EPA-HQ-OAR-2008-0708-0056	Bruce Chrisman Manager of Engineering Cameron's Compression Systems
EPA-HQ-OAR-2008-0708-0057 EPA-HQ-OAR-2008-0708-0059	Gary L. Smith Consulting Engineer Cummings & Smith, Inc.

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0058 EPA-HQ-OAR-2008-0708-0060	Gary L. Smith Consulting Engineer Cummings & Smith, Inc.
EPA-HQ-OAR-2008-0708-0061	Dan Popp PM Technologies
EPA-HQ-OAR-2008-0708-0063	Robert L. (Bobby) Myers II Principal Cirrus Consulting, LLC
EPA-HQ-OAR-2008-0708-0064 EPA-HQ-OAR-2008-0708-0070	Chris Mello Program Manager, Rural Energy Alaska Energy Authority (AEA)
EPA-HQ-OAR-2008-0708-0065 EPA-HQ-OAR-2008-0708-0073	Alice Edwards Acting Director Alaska Department of Environmental Conservation Division of Air Quality
EPA-HQ-OAR-2008-0708-0066 Support the comments of EPA-HQ-OAR-2008-0708-0064	Scott Newlun General Manger Yakutat Power
EPA-HQ-OAR-2008-0708-0067	L. Stevens
EPA-HQ-OAR-2008-0708-0068 Support the comments of EPA-HQ-OAR-2008-0708-0064	Keith Berggren Generation Supervisor Inside Passage Electric Cooperative (IPEC)
EPA-HQ-OAR-2008-0708-0069	Ron Sober RFS Consulting, Inc.
EPA-HQ-OAR-2008-0708-0071	Joy Wiecks Air Quality Technician Fond du Lac Band of Lake Superior Chippewa (The Band)
EPA-HQ-OAR-2008-0708-0074	Ken Daubert Plant Superintendent Kapaia Generating Station, Kauai Island Utility Cooperative (KIUC)
EPA-HQ-OAR-2008-0708-0075 Support the comments of EPA-HQ-OAR-2008-0708-0064	Jodi Mitchell Chief Executive Officer (CEO)/General Manager and Keith Berggren Generation Supervisor Inside Passage Electric Cooperative (IPEC)
EPA-HQ-OAR-2008-0708-0076 EPA-HQ-OAR-2008-0708-0114 Supports the comments of EPA-HQ-OAR-2008-0708-0096 EPA-HQ-OAR-2008-0708-0123 EPA-HQ-OAR-2008-0708-0242	David F. Wesson EH&S (Environmental Health and Safety) Global Regulatory Affairs The Dow Chemical Company (Dow)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0077	Robert E. Williams II Environmental Department FirstEnergy Corporation (FE)
EPA-HQ-OAR-2008-0708-0078	Russ D. Santiago Operations Superintendent, Port Allen Generating Station Kauai Island Utility Cooperative (KIUC)
EPA-HQ-OAR-2008-0708-0079	Bruce D. Alexander Environmental Regulatory Strategies Director Exelon Corporation
EPA-HQ-OAR-2008-0708-0080	Darryl Hoffman Utilities Program Manager Level 3 Communications, Inc.
EPA-HQ-OAR-2008-0708-0081	Kathleen Tobin Manager, Corporate Safety & Environmental Compliance Verizon Communications Inc.
EPA-HQ-OAR-2008-0708-0082	Don C. DiCristofaro CCM, President Blue Sky Environmental LLC
EPA-HQ-OAR-2008-0708-0083	Bruce J. Parker President and Chief Executive Officer (CEO), National Solid Wastes Management Association (NSWMA) and John H. Skinner Executive Director and Chief Executive Officer (CEO) Solid Waste Association of North America (SWANA)
EPA-HQ-OAR-2008-0708-0084 Incomplete Comment (No attachment)	Innoventive Power, LLC & CPower, Inc.
EPA-HQ-OAR-2008-0708-0085 Support the comments of EPA-HQ-OAR-2008-0708-0084	Demand Response Service Providers (DRSP Coalition) Innovative Power, LLC & CPower, Inc.
EPA-HQ-OAR-2008-0708-0086	Vincent St. Angelo Environmental Engineering Babcock & Wilcox Nuclear Operations Group (B&W NOG-L)
EPA-HQ-OAR-2008-0708-0087	Michael Garvin Assistant Vice President Scientific and Regulatory Affairs Pharmaceutical Research and Manufacturers of America (PhRMA)
EPA-HQ-OAR-2008-0708-0088	Michael Bradley Director The Clean Energy Group (CEG)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0089 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	Kathleen M. Sgamma Director of Government Affairs Independent Petroleum Association of Mountain States (IPAMS)
EPA-HQ-OAR-2008-0708-0090	Steven A. Kent Manager -Standby Generation Industrial Energy Applications, Inc. (IEA)
EPA-HQ-OAR-2008-0708-0091 EPA-HQ-OAR-2008-0708-0096	Joseph L. Suchecki Engine Manufacturers Association (EMA)
EPA-HQ-OAR-2008-0708-0092	Debbie Angotto Facilities Coordinator, on behalf of Thomas L. (surname illegible) Greenwich Hospital, Greenwich, CT
EPA-HQ-OAR-2008-0708-0093 EPA-HQ-OAR-2008-0708-0211	Trina L. Vielhauer Chief, Bureau of Air Regulation Division of Air Resource Management Florida Department of Environmental Protection
EPA-HQ-OAR-2008-0708-0094 EPA-HQ-OAR-2008-0708-0165	Laurel L. Kroack Chief, Bureau of Air Illinois Environmental Protection Agency (Illinois EPA)
EPA-HQ-OAR-2008-0708-0095	Reynaldo Tuazon Utilities Manager Adventist Hinsdale Hospital
EPA-HQ-OAR-2008-0708-0097 EPA-HQ-OAR-2008-0708-0163	Kasey Gabbard Permits & Policy Group NiSource
EPA-HQ-OAR-2008-0708-0098	Brian W. Green Air Quality Specialist RRI Energy, Inc.
EPA-HQ-OAR-2008-0708-0099 Support the comments of EPA-HQ-OAR-2008-0708-0096	Brady Winkleman Caterpillar Inc.
EPA-HQ-OAR-2008-0708-0100 EPA-HQ-OAR-2008-0708-0208 Support the comments of EPA-HQ-OAR-2008-0708-0096	Lynn Palmer Vice President, Engineering Dresser Waukesha
EPA-HQ-OAR-2008-0708-0101 Supports the comments of EPA-HQ-OAR-2008-0708-0104 EPA-HQ-OAR-2008-0708-0111 EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0225 EPA-HQ-OAR-2008-0708-0242	Lee O. Fuller Independent Petroleum Association of America (IPAA) et al.

Document ID	**Commenter/Affiliation**
EPA-HQ-OAR-2008-0708-0102	Scott W. Snedden HSE Manager Westlake Longview Corporation
EPA-HQ-OAR-2008-0708-0103	John Dutton HSE Committee Chairman Gas Compressor Association (GCA)
EPA-HQ-OAR-2008-0708-0104	Angie Burckhalter Vice President, Regulatory Affairs Oklahoma Independent Petroleum Association (OIPA)
EPA-HQ-OAR-2008-0708-0105 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Orland T. Pylant, Director, Compliance CenterPoint Energy-Mississippi River Transmission Corporation (MRT)
EPA-HQ-OAR-2008-0708-0106 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Laura L. Guthrie Manager, Air Program CenterPoint Energy Field Services, Inc. (CEFS)
EPA-HQ-OAR-2008-0708-0107	Phil Kairis Vice President Energy Alternatives
EPA-HQ-OAR-2008-0708-0108	Bruce Chrisman Manager, Engineering Cameron Compression Systems
EPA-HQ-OAR-2008-0708-0109	Mark A. Young Executive Director Lowell Regional Wastewater Utility (LRWWU)
EPA-HQ-OAR-2008-0708-0110	Union Pacific Railroad Company
EPA-HQ-OAR-2008-0708-0111	Frank Mortl President/Chief Executive Officer (CEO) Michigan Oil And Gas Association (MOGA)
EPA-HQ-OAR-2008-0708-0112 Supports the comments of EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	Johnny Dreyer Director of Industry Affairs Gas Processors Association (GPA)
EPA-HQ-OAR-2008-0708-0113 EPA-HQ-OAR-2008-0708-0222	John P. Duraes President New England Healthcare Engineers' Society (NEHES)
EPA-HQ-OAR-2008-0708-0115	Christopher Collins Source Water Manager Pawtucket Water Supply Board (PWSB)
EPA-HQ-OAR-2008-0708-0116	G. Vinson Hellwig Michigan and Robert H. Colby Chattanooga, Tennessee, Co-Chairs, Air Toxic Committee National Association of Clean Air Agencies (NACAA)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0117	Anonymous
EPA-HQ-OAR-2008-0708-0118	Robin Seguin CHMM, Environmental Manager, Qwest Risk Management Qwest
EPA-HQ-OAR-2008-0708-0119 EPA-HQ-OAR-2008-0708-0143	Marie Robinson Chairperson, National Telecommunications Safety Panel (NTSP) AT&T Services, Inc.
EPA-HQ-OAR-2008-0708-0120	Matt Shields Milford Facilities Manager Milton Cat
EPA-HQ-OAR-2008-0708-0121	Valerie Ughetta Director, Stationary Sources Alliance of Automobile Manufacturers
EPA-HQ-OAR-2008-0708-0122 Supports the comments of EPA-HQ-OAR-2008-0708-0155	John B. Kuhn Global Air Leader Celanese Corporation
EPA-HQ-OAR-2008-0708-0123 EPA-HQ-OAR-2008-0708-0134	Jim Griffin Senior Director American Chemistry Council (ACC)
EPA-HQ-OAR-2008-0708-0124 EPA-HQ-OAR-2008-0708-0235	Tim Knox Vice President, Engineering and Production Compressor Systems, Inc. (CSI)
EPA-HQ-OAR-2008-0708-0125	Martin E. Rock, P.E., J.D. President & Senior Principal OMNI Professional Environmental Associates, P.A.
EPA-HQ-OAR-2008-0708-0126	F. William Brownell and Craig S. Harrison Hunton & Williams LLP on behalf of the Utility Air Regulatory Group (UARG)
EPA-HQ-OAR-2008-0708-0127	Julie Frazier Senior Environmental Specialist Butler County Water and Sewer Department (BCWS)
EPA-HQ-OAR-2008-0708-0128 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Nicholas DeMarco Executive Director West Virginia Oil and Natural Gas Association
EPA-HQ-OAR-2008-0708-0129	Cathy Waxman Manager Air Quality Compliance, National Grid
EPA-HQ-OAR-2008-0708-0130	Steve Hensley Senior Director Regulatory Affairs USA Rice Federation
EPA-HQ-OAR-2008-0708-0131	John Dutton Manager, Operations J-W Power Company

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EPA-HQ-OAR-2008-0708-0132	Gerald Meinecke Vice President - Procurement & Compression Exterran
EPA-HQ-OAR-2008-0708-0133	Jim Griffin Senior Director American Chemistry Council (ACC)
EPA-HQ-OAR-2008-0708-0135	R. J. Riley Texas Agriculture Energy Users Association (TAEUA) and Texas Corn Growers Association
EPA-HQ-OAR-2008-0708-0136 EPA-HQ-OAR-2008-0708-0237 Supports the comments of EPA-HQ-OAR-2008-0708-0045 EPA-HQ-OAR-2008-0708-0046 EPA-HQ-OAR-2008-0708-0104 EPA-HQ-OAR-2008-0708-0242	Darren Smith Manager, Environmental Health and Safety (EHS) Devon Energy Corporation
EPA-HQ-OAR-2008-0708-0137	Tim Knox Vice President Engineering and Production Compressor Systems, Inc. (CSI)
EPA-HQ-OAR-2008-0708-0138 Supports the comments of EPA-HQ-OAR-2008-0708-0101 EPA-HQ-OAR-2008-0708-0104	Gregory D. Russell Vorys, Sater, Seymour and Pease LLP on behalf of Ohio Oil and Gas Association (OOGA)
EPA-HQ-OAR-2008-0708-0139	Craig Eckberg NRG Energy, Inc.
EPA-HQ-OAR-2008-0708-0140	Golder Associates Inc. on behalf of David A. Buff Principal Engineer Mosaic Fertilizer LLC (Mosaic)
EPA-HQ-OAR-2008-0708-0141	John Preczewski P.E., Assistant Director State of New Jersey Department of Environmental Protection (NJDEP)
EPA-HQ-OAR-2008-0708-0142	Michael S. Dae Wellfield and Environmental Compliance Manager Energy Developments, Inc. (EDI)
EPA-HQ-OAR-2008-0708-0144	Richard T. Wolbach CEM, Department of Physical Plant The University of Vermont (UVM)
EPA-HQ-OAR-2008-0708-0145 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Debra A. Ristig Vice President, Engineering and Compliance CenterPoint Energy Gas Transmission Company (CEGT)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0146	Karl M. Bhatnagar, P.E., ESH&M, Air Quality Northrop Grumman, Aerospace Systems (NGAS)
EPA-HQ-OAR-2008-0708-0147	David A. Buff Principal Engineer, Golder Associates Inc. on behalf of The Florida Sugar Industry (FSI)
EPA-HQ-OAR-2008-0708-0148	Ethan W. Hinkley Environmental Compliance Specialist, Air Quality Red Cedar Gathering Company
EPA-HQ-OAR-2008-0708-0149	Kathryn Garcia Commissioner New York City Department of Environmental Protection (NYCDEP)
EPA-HQ-OAR-2008-0708-0150 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	Patrick J. Nugent Executive Director Texas Pipeline Association (TPA)
EPA-HQ-OAR-2008-0708-0151 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	Bruce Thompson President American Exploration and Production Council (AXPC)
EPA-HQ-OAR-2008-0708-0152	Shannon S. Broome Air Permitting Forum
EPA-HQ-OAR-2008-0708-0153	Marilyn Leland Executive Director Alaska Power Association
EPA-HQ-OAR-2008-0708-0154	Robert D. Bessette President Council of Industrial Boiler Owners (CIBO)
EPA-HQ-OAR-2008-0708-0156	Kevin D. Bailey Air Compliance Supervisor ExxonMobil Production Company
EPA-HQ-OAR-2008-0708-0157 EPA-HQ-OAR-2008-0708-0096 EPA-HQ-OAR-2008-0708-0123 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0221 EPA-HQ-OAR-2008-0708-0242	Debra J. Jezouit and Megan Berge Baker Botts L.L.P. on behalf of Class of '85 Regulatory Response Group
EPA-HQ-OAR-2008-0708-0158	Terry L. Steinert Environmental Compliance Manager Koch Carbon, LLC (Koch Carbon)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0159 Supports the comments of EPA-HQ-OAR-2008-0708-0257	Mary Uhl Chief, Air Quality Bureau (AQB) New Mexico Environment Department (NMED)
EPA-HQ-OAR-2008-0708-0160 EPA-HQ-OAR-2008-0708-0257	Cynthia Finley Director, Regulatory Affairs National Association of Clean Water Agencies (NACWA)
EPA-HQ-OAR-2008-0708-0161	Dave Copeland Manager, Air Quality, Corporate Safety & Environmental Services Praxair, Inc.
EPA-HQ-OAR-2008-0708-0162	Kathryn R. Ross Senior Environmental Planner Consumers Energy Company
EPA-HQ-OAR-2008-0708-0164	Mary Uhl Air Quality Bureau New Mexico Environment Department (Incomplete)
EPA-HQ-OAR-2008-0708-0166	Aandy Ly, PE CEM Director, Facilities Management & Planning, Energy Administration & Operations Boston University (BU)
EPA-HQ-OAR-2008-0708-0167 Supports the comments of EPA-HQ-OAR-2008-0708-0121 EPA-HQ-OAR-2008-0708-0154	Lawrence W. Kavanagh Vice President American Iron and Steel Institute (AISI) and Bruce A. Steiner President American Coke and Coal Chemicals Institute (ACCCI)
EPA-HQ-OAR-2008-0708-0168 Supports the comments of EPA-HQ-OAR-2008-0708-0126	William T. Horton Senior Environmental Specialist Environmental Health and Safety Air Management Duke Energy Corporation (Duke Energy)
EPA-HQ-OAR-2008-0708-0169	Rick N. Soucy Senior Project Manager GZA GeoEnvironmental, Inc.
EPA-HQ-OAR-2008-0708-0170	Mark Macarro Tribal Chairman Pechanga Band of Luiseno Indians (Tribe)
EPA-HQ-OAR-2008-0708-0171	Mark J. Sedlacek Director Environmental Services Los Angeles Department of Water and Power (LADWP)
EPA-HQ-OAR-2008-0708-0172	Kerwei Sew Senior Environmental Engineer, Environmental Operations 3M Company

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0173 Supports the comments of EPA-HQ-OAR-2008-0708-0206	T. Moser Chairman, Strategic Team and Resource Sharing (STARS) Integrated Regulatory Affairs Group
EPA-HQ-OAR-2008-0708-0174	Mark Maslyn Executive Director, Public Policy American Farm Bureau Federation (AFBF)
EPA-HQ-OAR-2008-0708-0175 Supports the comments of EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0241	Pamela A. Lacey Senior Managing Counsel American Gas Association (AGA)
EPA-HQ-OAR-2008-0708-0176	Deirdre K. Hirner Executive Director Illinois Environmental Regulatory Group (IERG) et al.
EPA-HQ-OAR-2008-0708-0177	Shawne C. McGibbon Acting Chief Counsel for Advocacy and Keith Holman Assistant Chief Counsel for Environmental Policy, Office of Advocacy U.S. Small Business Administration (SBA)
EPA-HQ-OAR-2008-0708-0178	Lisa Goldberg Director, Environment, Safety and Health Aerospace Industries Association of America (AIA)
EPA-HQ-OAR-2008-0708-0179	Marilyn Crockett Executive Director Alaska Oil and Gas Association (AOGA)
EPA-HQ-OAR-2008-0708-0181 EPA-HQ-OAR-2008-0708-0243	Scott Davis Director, Environmental, Health & Safety Arizona Public Service (APS)
EPA-HQ-OAR-2008-0708-0182	Shawn Wade Director, Communications Plains Cotton Growers, Inc. (PCG)
EPA-HQ-OAR-2008-0708-0183	Don Mark Anthony Air Quality Engineer Alyeska Pipeline Service Company (Alyeska)
EPA-HQ-OAR-2008-0708-0184	Jack F. Alvey Vice President, Generation Indiana Municipal Power Agency (IMPA)
EPA-HQ-OAR-2008-0708-0185	Earl C. Burke Facilities Engineering Manager Baltimore Washington Medical Center (BWMC)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0186 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	William W. (Bill) Grygar II Environmental and Regulatory Manager Anadarko Petroleum Corporation
EPA-HQ-OAR-2008-0708-0187 Supports the comments of EPA-HQ-OAR-2008-0708-0096 EPA-HQ-OAR-2008-0708-0155	Karen St. John Director, Regulatory Affairs BP America Inc. (BP)
EPA-HQ-OAR-2008-0708-0188	Steve Donatiello, P.E. Senior Environmental Engineer Laclede Gas Company
EPA-HQ-OAR-2008-0708-0189	Ricke A. Kress President Southern Gardens Citrus Holding Corporation
EPA-HQ-OAR-2008-0708-0190	Stuart Latham Manager, Land and Environmental Southern Star Central Gas Pipeline, Inc. (Southern Star)
EPA-HQ-OAR-2008-0708-0191 EPA-HQ-OAR-2008-0708-0239 Supports the comments of EPA-HQ-OAR-2008-0708-0083 EPA-HQ-OAR-2008-0708-0126 EPA-HQ-OAR-2008-0708-0155	Skiles Boyd Vice President, Environmental Management and Resources DTE Energy
EPA-HQ-OAR-2008-0708-0192	Terry Steinert Koch Carbon LLC
EPA-HQ-OAR-2008-0708-0193	James D. Jones Senior Consultant, EHS Services North America Alcoa Inc.
EPA-HQ-OAR-2008-0708-0194	Larry LeJeune Director, Pesticide and Environmental Programs Division, Office of Agricultural and Environmental Sciences Louisiana Department of Agriculture and Forestry
EPA-HQ-OAR-2008-0708-0195	Michael L. R. Housley President Legacy Energy Group, LLC
EPA-HQ-OAR-2008-0708-0196	Sarah E. Amick Environmental Counsel Rubber Manufacturers Association (RMA)
EPA-HQ-OAR-2008-0708-0197 Supports the comments of EPA-HQ-OAR-2008-0708-0126	Nilaksh Kothari General Manager Manitowoc Public Utilities (MPU)
EPA-HQ-OAR-2008-0708-0198	Bernard Milam Energy Manager University of Maryland Medical Center (UMMC)

Document ID	**Commenter/Affiliation**
EPA-HQ-OAR-2008-0708-0199	Joseph Kubsh Executive Director Manufacturers of Emission Controls Association (MECA)
EPA-HQ-OAR-2008-0708-0200 Supports the comments of EPA-HQ-OAR-2008-0708-0242	Michelle Koch HES (Health/Environment/Safety) Professional Marathon Oil Corporation
EPA-HQ-OAR-2008-0708-0201	Chad Gregory Senior Vice President United Egg Producers (UEP)
EPA-HQ-OAR-2008-0708-0202	Theresa Pfeifer Regulatory Compliance Officer Metro Wastewater Reclamation District
EPA-HQ-OAR-2008-0708-0203	Caroline Choi Director, Energy Policy & Strategy Progress Energy
EPA-HQ-OAR-2008-0708-0204	Jon E. Kallen Manager, Environmental Policy and Strategy MidAmerican Energy Holdings Company
EPA-HQ-OAR-2008-0708-0205 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Michael Tomko Counsel, Parsons Behle & Latimer on behalf of Utah Industry Environmental Coalition (UIENC)
EPA-HQ-OAR-2008-0708-0206	Amy Van Kolken Banister Senior Director, Air and Landfill Gas Programs and Kerry Kelly Director, Federal Public Affairs Waste Management (WM)
EPA-HQ-OAR-2008-0708-0207 EPA-HQ-OAR-2008-0708-0126	John C. Butler Director, Operations Support Nuclear Energy Institute (NEI)
EPA-HQ-OAR-2008-0708-0209	Stephen R. Gossett, P.E. Senior Environmental Associate Eastman Chemical Company (ECC)
EPA-HQ-OAR-2008-0708-0210 Supports the comment of EPA-HQ-OAR-2008-0708-0155	Vincent L. Brindley Principal Environmental Engineer El Paso Pipeline Group
EPA-HQ-OAR-2008-0708-0212	G. William Fowler Attorney, on behalf of the West Texas Gas Inc. (WTG)
EPA-HQ-OAR-2008-0708-0213	Ed Torres Director of Technical Services Orange County Sanitation District (OCSD)
EPA-HQ-OAR-2008-0708-0214	Brian Bonnell Senior Manager, Strategic Sourcing and Procurement Human Genome Sciences

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0215	Hilary Sinnamon Consultant Environmental Defense Fund (EDF)
EPA-HQ-OAR-2008-0708-0216 Supports the comments of EPA-HQ-OAR-2008-0708-0088 EPA-HQ-OAR-2008-0708-0157 EPA-HQ-OAR-2008-0708-0207	Rayburn L. Butts Director, Environmental Services Florida Power and Light Company (FPLC)
EPA-HQ-OAR-2008-0708-0217	Michael Hutcheson Ameren Corporation
EPA-HQ-OAR-2008-0708-0218 EPA-HQ-OAR-2008-0708-0233 Supports comments of EPA-HQ-OAR-2008-0708-0155	Everette Johnson Director, Engineering Cameron Compression Systems
EPA-HQ-OAR-2008-0708-0219	Dan Pugliese Director, Engineering Hines
EPA-HQ-OAR-2008-0708-0220	Cathy S. Formigoni Legal Assistant, Hodge Dwyer & Driver on behalf of Illinois Municipal Electric Agency (IMEA)
EPA-HQ-OAR-2008-0708-0221 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	Deb Hastings Vice President, Environmental Affairs Texas Oil and Gas Association (TXOGA)
EPA-HQ-OAR-2008-0708-0223	Elizabeth A. Rubino SVP Human Resources QVC
EPA-HQ-OAR-2008-0708-0224 Supports the comments of EPA-HQ-OAR-2008-0708-0155	Edward L. Kropp Chair, Air Subcommittee, Environmental Committee West Virginia Chamber of Commerce
EPA-HQ-OAR-2008-0708-0225	Deborah Seligman Vice President, Governmental Affairs New Mexico Oil & Gas Association (NMOGA)
EPA-HQ-OAR-2008-0708-0226	Shawne C. McGibbon Acting Chief Counsel and Kevin Bromberg Assistant Chief Counsel, Environmental Policy, Office of Advocacy Small Business Administration (SBA)
EPA-HQ-OAR-2008-0708-0227	Quinn V. Kilty Manager Air/Water, Xcel Energy, Inc.
EPA-HQ-OAR-2008-0708-0228	Eric L. Riser Jorden Bischoff & Hiser PLC Counsel for Nucor Corporation

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0229	Carl H. Batliner Director, Environmental Affairs AK Steel Corporation
EPA-HQ-OAR-2008-0708-0230	Andrew C. Lawrence Director, Office of Nuclear Safety, Quality Assurance and Environment, Office of Health, Safety and Security U.S. Department of Energy (DOE)
EPA-HQ-OAR-2008-0708-0231 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0242	John Robitaille Vice President Petroleum Association of Wyoming (PAW)
EPA-HQ-OAR-2008-0708-0232	David R. Bell Sustainability Engineer, Facilities Supervisor Becton Dickinson Diagnostic Systems Baltimore Campus
EPA-HQ-OAR-2008-0708-0234 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155	Ann W. McIver QEP, Director, Environmental Stewardship Citizens Gas
EPA-HQ-OAR-2008-0708-0236	John Quinn Director, Environmental Issues Constellation Energy
EPA-HQ-OAR-2008-0708-0238 EPA-HQ-OAR-2008-0708-0248 EPA-HQ-OAR-2008-0708-0252	Karl M. Kyriss President Aqua America, Inc.
EPA-HQ-OAR-2008-0708-0240	Bruce R. Byrd Vice President and General Counsel-Washington AT&T Services, Inc.
EPA-HQ-OAR-2008-0708-0241 Supports comments of EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0175	William D. Schrand Administrator, Environmental Programs Southwest Gas Corporation
EPA-HQ-OAR-2008-0708-0244 Supports the comments of EPA-HQ-OAR-2008-0708-0112 EPA-HQ-OAR-2008-0708-0155	Richard Bye Director, Environmental Services CenterPoint Energy, Inc.
EPA-HQ-OAR-2008-0708-0245	Ronald J. Schott Esq. Senior Corporate Counsel, Environment, Health and Safety Wyeth
EPA-HQ-OAR-2008-0708-0246	Jim Valentine Combustion Components Associates, Inc. (CCA)

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0247 Supports the comments of EPA-HQ-OAR-2008-0708-0126 EPA-HQ-OAR-2008-0708-0155 EPA-HQ-OAR-2008-0708-0175	Pamela F. Faggert Vice President and Chief Environmental Officer Dominion Resources Services, Inc.
EPA-HQ-OAR-2008-0708-0249	Kenneth D. Schisler Senior Director, Regulatory Affairs EnerNOC, Inc. (EnerNOC)
EPA-HQ-OAR-2008-0708-0250	Michael A. Caldarera Vice President, Regulatory and Technical Services National Propane Gas Association (NPGA)
EPA-HQ-OAR-2008-0708-0251	Marielle Daniels Manager, Patient Care Regulation Connecticut Hospital Association (CHA)
EPA-HQ-OAR-2008-0708-0253 EPA-HQ-OAR-2008-0708-0258 EPA-HQ-OAR-2008-0708-0260	Sean M. O'Keefe Director, Environmental Affairs Alexander & Baldwin, Inc. (A&B)
EPA-HQ-OAR-2008-0708-0255	John Otto Engineering Manager Brush Resources, Inc.
EPA-HQ-OAR-2008-0708-0256	Craig Wysong EHS Manager CARBO Ceramics, Inc.
EPA-HQ-OAR-2008-0708-0259	John Prescott Executive Vice President and General Manager Power Resources Cooperative (PRC)
EPA-HQ-OAR-2008-0708-0261	Michael H. Bernard President Mid-Continent Oil and Gas Association of Oklahoma (MCOGAO)
EPA-HQ-OAR-2008-0708-0262	Ed Hasely, Sr. Environmental Engineer Energen Resources
EPA-HQ-OAR-2008-0708-0263	Michael J. Kelly Director, Facilities Management University of Massachusetts Memorial Medical Center (UMassMMC)
EPA-HQ-OAR-2008-0708-0264	Chelly Reesman Environmental Engineer J.R. Simplot Company
EPA-HQ-OAR-2008-0708-0265	Scott Salisbury President Landfill Energy Systems

Document ID	Commenter/Affiliation
EPA-HQ-OAR-2008-0708-0267	Jeffrey A. Smith Lead Environmental Scientist, Infrastructure Maintenance Division South Florida Water Management District
EPA-HQ-OAR-2008-0708-0268	Peter H. Zeliff President and CEO Innovative Energy Systems
EPA-HQ-OAR-2008-0708-0269	Ronnie Anderson President Louisiana Farm Bureau Federation (LFBF)
EPA-HQ-OAR-2008-0708-0270	Stephanie Cheng Chair, Air Issues and Regulations (AIR) Committee Bay Area Clean Water Agencies (BACWA)

Summary of Public Comments and Responses

The summary of public comments and responses is organized as follows:

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- 2.3 Diesel Engines
- 2.4 Other

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- 4.3 Engine Test Data

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- 5.5 Diesel Engines
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- 14.5 Other

1.0 General Approach

1.1 Comment: A few commenters (61, 94, 116) support EPA's proposed rulemaking. One commenter (94) supports EPA's proposed actions to reduce exhaust pollutants from existing stationary RICE that are located at area sources of HAP emissions and certain existing stationary RICE and stationary compression ignition (CI) engines that are located at major sources of HAP emissions. One commenter (116) commended the EPA for proposing a regulation that will reduce HAP and diesel emissions from the RICE source category.

Response: No response is needed.

1.2 Comment: A few commenters (155, 224 and 242) are concerned with how the proposed rulemaking is in some cases the first in addressing recent Court decisions. The commenters characterize some of the recent issues as including the following:

- The Brick maximum achievable control technology (MACT) decision determined that EPA must set standards for HAP and cannot avoid standards in cases when the MACT floor is based on sources that have no added emission controls,
- The Brick MACT decision indicated that EPA has to consider the range of emission level associated with the best performing sources; and
- The rejection of the startup, shutdown and malfunction (SSM) exemption meaning that HAP emission standards must apply continuously. The Court expressed the need for some standard, but this does not mean an unchanging standard.

The commenters state that the proposed rule is setting a precedent, but the commenters (155, 242) noted that there is no clear evidence of how EPA considered integrating these decisions into the rulemaking. Regarding the MACT floor decisions, the commenters (155, 242) believe the floor was based on flawed and deficient data. The commenters (155, 242) do not believe EPA has considered emissions variability. For SSM limits, the commenters (155, 242) said that EPA has set limits without any data from actual SSM events. The importance of integrating these Court decisions warrants considerable additional effort by EPA for this rulemaking, the commenters (155, 242) said. Commenters 155 and 242 specifically addressed each particular issue in separate comments, but noted that the issues reach beyond this rulemaking and will convey the Agency's perspective that may be applied to future rulemakings. For these reasons, the commenters (155, 242) firmly believe that EPA should provide guidance material to communicate to the public the Agency's interpretation of Court decisions and how those will be incorporated into future rules.

Response: EPA understands the commenters' concerns with respect to recent court decisions affecting how the regulations for existing stationary engines at area sources and existing stationary engines less than or equal to 500 HP were developed. The U.S. Court of Appeals for the District of Columbia Circuit on March 13, 2007 vacated EPA's MACT standards for the Brick and Structural Manufacturing category (40 CFR part 63, subpart JJJJJ). This is referred to as the "Brick MACT decision" (Sierra Club v. EPA, 479 F.3d 875 (D.C. Cir. 2007).) EPA recognizes that it had limited emissions data when it developed the MACT floor standards for the proposed rule. EPA has on several occasions requested emissions data from industry and solicited data in the preamble to the proposed rule. However, EPA had to propose emission standards based on what data was available at the time. During the public comment period and the months following the close of the public comment period, EPA has worked with various groups and been able to gather additional emissions test data for stationary engines. EPA has reviewed the original emissions test data used to develop the proposed standards to ensure that engines were properly identified and categorized, as well as to determine if there was any other information that may indicate that the data was used inappropriately at proposal.

For the proposed MACT floor for existing engines at major sources, EPA selected the best performing 12 percent of sources it had emissions data for within each engine subcategory and averaged the emissions from those 12 percent. Commenters argued that EPA's approach at proposal did not consider emissions variability. The approach at proposal counted each emissions test as a single data point. This meant that for cases where an engine was tested multiple times, the MACT floor may have included multiple data points from one engine, but only one data point from another engine. Commenters argued that this approach does not sufficiently take into account emissions variability or potentially inappropriately skews the MACT floor toward the one engine that was tested multiple times because with multiple data points emissions from that engine would have more weight in the top 12 percent. EPA believes that it is appropriate to use a different approach to incorporate emissions variability in the final standards. Subsequently, EPA has reanalyzed the available emissions data and considered different ways of taking into account the range of emissions that can occur. In the final rule, EPA has incorporated variability by considering the range of emissions that can be seen across different loads and during a single test. EPA believes that this approach more accurately considers variability in emissions. EPA discussed the final approach in setting the MACT floor limits more extensively in the memo entitled "MACT Floor and MACT Determination for

Existing Stationary Non-Emergency CI RICE Greater Than or Equal to 100 HP Located at Major Sources."

Regarding the proposed SSM limits, EPA received numerous concerns from affected stakeholders on a range of issues. These issues are discussed in Section 3.0. EPA is not finalizing particularized numerical emission limits specifically for periods of SSM, but is issuing work practice standards for periods of startup and including periods of shutdown and malfunction within the emission standards that generally apply to the various subcategories of stationary CI engines. The reasons for the approach we take in the final rule are discussed in the responses to comments in Section 3.0.

EPA plans to make implementation and compliance material available to the regulated community following the promulgation of this rule. However, EPA cannot promise that such material will include the Agency's interpretation of Court decisions and how those will be used in future rules.

1.3 Comment: Several commenters (89, 93, 101, 104, 112, 129, 150, 151, 172, 186, 221, 231, 242, 261, 264) noted concerns due to a complex proposed rulemaking and some commenters added that it is extra problematic to implement due to previous rulemakings issued that affect similar and sometimes the same engines. One commenter (242) noted that it has a number of outstanding and unresolved petitions submitted to EPA on the CI NSPS and spark ignited (SI) new source performance standards (NSPS)/NESHAP, where it has questions concerning implementation and enforcement of those rules. There is ongoing confusion among State and regional agencies in implementing these rules, something that is exacerbated by EPA's lack of response and guidance on several implementation questions, the commenter (242) said.

According to the commenter (242), the inclusion of natural gas engines with diesel engines in this rulemaking will lead to a further increase in unresolved, issues complicating rule requirements and implementation. For example, for the SI NSPS/NESHAP, the commenter (242) pointed out various issues, which included a discussion on the integration of risk-based criteria for area source engines under the NESHAP. For that rulemaking, compliance with the NESHAP was mostly shown by demonstrating compliance with the NSPS, therefore it seems the comment went largely unanswered by EPA, the commenter (242) said. The commenter (242) indicated that it was hoping EPA would address this issue in this rulemaking, but has not. In general, the commenter (242) recommended that EPA develop and publish substantive compliance tools and provide assistance in interpreting rule requirements from multiple overlapping engine rules.

Commenters 89, 101, 151, 221, 231 stated that the rules are complex because of their overlap with and references to the mobile source engine rules (i.e., for automobiles, boats, construction equipment, etc.). The commenters (89, 101, 151, 221, 231) believe that the mobile source rules are not well understood by the agencies and industries involved with the stationary source rules, and added that EPA has done little to aid the agencies and industry in understanding these rules. Additionally, the commenters (89, 101, 151, 221, 231) believe that EPA should delay promulgation of these rules until compliance assistance material can be developed to aid the state agencies and regulated community in their compliance efforts.

Two commenters (112, 150) contended that each of these engine regulations has brought significant changes to control requirements, training, monitoring, recordkeeping, and reporting. In addition, the commenter (112) pointed out that both the Consolidated Engine Rule and the CI NSPS are still under litigation by API. The commenter (112) believes that the proposed regulations add tremendously to the current requirements by bringing existing engines under the rules with more stringent requirements than new or reconstructed sources. The commenter (112) stated that its member companies have serious concerns with interpreting the complex current and proposed compliance requirements and asked that EPA attempt to simplify existing federal engine rule requirements before the SI rules are finalized.

The commenter (112) noted that determining applicability of the rule requires companies to define engines as existing, new, or reconstructed, which is difficult, and often impossible, primarily because records that are required to determine if the engine has been reconstructed may be on multiple authorizations for expenditures (AFEs) or may simply not exist. The commenter (112) said that most, if not all, states have preconstruction authorizations that require companies to begin the permitting process well in advance of commencement of construction. The permitting process is complicated because specific regulatory requirements cannot be determined until the unit is overhauled and the final invoices are received, according to commenter 112. Frequently, engines are leased and returned to distributors and later purchased or leased by other companies and records get lost or possibly never obtained or maintained, making it nearly impossible for the new owner to establish a complete life history of an engine, commenter 112 added. Commenter 112 also pointed out that competing companies may be reluctant or unwilling to share their records with new owners. Also, in absence of sufficient documentation, some companies may make the conservative assumption that the rule applies, while others will assume by lack of documentation that the rule does not apply, the commenter (112) said.

Two commenters (112 and 150) said that a modified engine could be “new” under NSPS and “existing” under NESHAP because NESHAP considers only reconstruction and not modification, whereas NSPS considers both reconstruction and modification.

The commenter (112) additionally indicated that subpart ZZZZ is already very complex due to the numerous cross references to the mobile source regulations in 40 CFR parts 90 and 1068, as well as the 2008 amendments that added requirements for new small lean burn engines at major sites. The commenter (112) believes that adding this proposed major amendment to cover existing sources would make subpart ZZZZ even more difficult for both regulatory agencies and industry to interpret and for those who are subject, to comply. To simplify the proposed regulation, several commenters (89, 101, 112, 151, 221, 231, 242) recommended a new separate section, subpart ZZZZa. Commenter 261 suggested a similar separation of subsections and that EPA should delay promulgation until compliance assistance material can be developed to aid the State agencies and regulated community in their compliance efforts.

Commenter 150 said that the complexity has been exacerbated by the fact that the applicability of some requirements is uncertain due to ongoing litigation. The commenter (150) believes that the proposed rules will add to the complexity by bringing in existing engines. The commenter (150) gave the following examples of instances when it will be difficult to determine which rules apply to which engines:

- Applicable requirements are different depending on whether an engine had or had not been reconstructed. Making that determination would be difficult or impossible in some cases because records may be hard to locate and hard to access or they may no longer exist.
- Requirements may differ based on whether a source is a major source or minor source. As engines were added or subtracted, the facility’s status could vary, and so could the applicable rules. In this regard, the commenter (150) believes that EPA should allow a facility sufficient time to come into compliance when a facility’s status changes due to

addition or removal of equipment. The commenter (150) proposed a 3-year compliance period, which the commenter said was done in the NESHAP for natural gas transmission and storage [40 CFR 63.1270(d)(1)].

One commenter (93) provided an 18-page applicability flow chart to illustrate the permitting and compliance applicability requirements for the subject engines. The commenter (93) reported that differing state agency flow charts and guidance materials reviewed by them (Texas and Nebraska) have reached different interpretations regarding the applicability of the proposed rule. The commenter (93) stated that this highlights concerns regarding the rule’s complexities, which the commenter believed could result in inconsistent implementation throughout the country. The commenter (93) further reported that it had received numerous telephone calls from consultants outside of Florida asking for the commenter’s interpretation of the proposed changes in an effort to gain a general consensus of the states on the rule’s applicability. For example, a new category was proposed for existing emergency SI engines with a site rating of less than or equal to 500 HP located at a major source of HAP. The commenter (93) reported that they were able to determine the emission and operating limitations, maintenance requirements and equipment needed. However, they stated that the compliance requirements (40 CFR 63.6630 Table 5 in the Appendix) are clearly identified for only a few specific engine categories and then appear to group the rest of the engine categories in one large category of engines with a site rating of less than or equal to 500 HP located at a major source of HAP. The commenter (93) expressed that it is unclear if this large category is meant to be inclusive or exclusive of the remaining specific engines categories, such as emergency engines and SI engines.

The commenter (93) recommended that EPA revise the NESHAP to specify all the applicable requirements under a given engine category subheading. The commenter (93) opined that, this way, applicability would then only need to be determined once for each engine category as the applicable requirements (emissions and operating limitations, general compliance requirements, etc.) would be specified by regulated engine category.

Response: The engines that are subject to the NSPS are new engines and are not the focus of this rulemaking. EPA, therefore, does not believe that those issues will affect this rulemaking. EPA notes that it is required to promulgate standards for new engines under section 111 NSPS provisions and for new and existing engines under section 112 NESHAP provisions. Much of the complication commenters discuss results from the straightforward implementation of the requirements of the Clean Air Act. In terms of having a combined rulemaking for natural gas and diesel engines, EPA does not think that this complicates the rule. Issuing a rulemaking that addresses all types of stationary engines regardless of fuel type is consistent with how the original 2004 RICE NESHAP was developed.

It is not true that there are multiple overlapping engine rules for existing engines. This rule addresses engines that have not been addressed before, i.e., existing stationary engines at area sources and existing stationary engines less than or equal to 500 HP at major sources. EPA has not issued regulations for these engines previously, but noted in earlier final rules that EPA would be addressing these engines in the future. Since the final CI NSPS and SI NSPS rules covered only new stationary engines and the original 2004 RICE NESHAP covered only stationary engines at major sources greater than 500 HP, there are no other requirements affecting existing stationary engines at area sources. There are also no other requirements affecting existing stationary engines less than or equal to 500 HP located at major sources since again, the CI NSPS and SI NSPS rules covered only new stationary engines and the original 2004 RICE NESHAP covered only stationary engines at major sources greater than 500 HP.

Commenters expressed concern regarding overlap and references to mobile sources rules. It is not clear what the commenters' concerns are because there are minimal references to the mobile source regulations in the proposed rule. EPA recognizes that individual owners and operators may not be familiar with the mobile source requirements. That is one reason why this rulemaking is focused on source-specific requirements and is not a manufacturer-based program. In the NSPS rules for new CI and SI stationary engines it made sense to implement a program that addresses emissions from engines at the point of manufacturing rather than when these engines are installed in the field, and to coordinate the requirements for new stationary engines with requirements for similar new mobile engines. The coordination of mobile and stationary engine requirements has in fact reduced the complexity of meeting EPA regulations for these new engines, since manufacturers and users of such engines can comply by meeting the same standards whether they are mobile or stationary.

In this regulation, since it affects existing stationary engines, the engines are already located at the affected source. EPA has made reference to the mobile source rules only when absolutely necessary in order to demonstrate that for example certain control technologies or fuels are currently available and technically feasible. Other references include citing parts of 40 CFR part 80, which contain the specifics of the fuel requirements for existing non-emergency diesel engines. Therefore, it is unclear what references to the mobile source rules the commenters are referring that are problematic.

EPA cannot delay promulgation of the final rule due to a court-ordered schedule requiring EPA to finalize the regulation by February 10, 2010. As discussed elsewhere in this document, EPA has already previously delayed the rulemaking affecting existing stationary engines at area sources and existing stationary engines less than or equal to 500 HP at major sources.

In the final rule, EPA has made an effort to promulgate requirements that are as clear as possible and that minimize the burden of implementing these requirements. In conjunction with the promulgation of the final rule, EPA will publish this Response to Comments (RTC) Document, which summarizes the comments EPA received on the proposed rule and EPA's responses to each comment. The RTC document will explain and provide supporting rationale for EPA's regulatory decisions. The document will also be helpful as a compliance assistance tool in cases where commenters have asked for clarification on certain issues. Further, EPA also plans to provide other compliance assistance and implementation material to help sources in demonstrating compliance with the final rule.

As far as the comment regarding the compliance period when a facility's status changes from a minor to a major source, EPA already includes provisions in 63.6595(b) of the rule that allows an area source that becomes a major source, where construction or reconstruction is commenced before the date the area source becomes a major of HAP, up to 3 years to comply with the rule. EPA believes this addresses the commenter's concern on this issue.

1.4 <u>Comment</u>: Numerous commenters (38, 39, 41, 42, 45, 46, 130, 194, 205) believe that the comment period provided in the proposal was inadequate. Two commenters (45, 46) requested a 90-day extension to the public comment period for the proposed rule, to August 3, 2009. The commenters (45, 46) believe that due to the breadth of coverage and implications for thousands of existing RICE, the proposed 60-day comment deadline is entirely inadequate to assess implications, review background documentation, and develop comments supported with complete technical data and facts. The commenters (45, 46) asserted that, in light of the pending EPA proposed rule that addresses Mandatory Reporting of Greenhouse Gases (GHGs) and affects the same stakeholders, failure to grant an extension will undermine the ability to provide necessary comments and respond effectively to either rule proposal. One commenter (39) requested an additional 90 days to comment in order to develop a more comprehensive analysis and subsequent comment submittal to EPA. Commenter 40 agreed with commenter 39, but said that if a 90-day extension was not provided that at least 60 days be provided.

The commenter (45) added that it will take time to fully assess the implications of the proposed rule because it affects thousands of smaller engines at area source facilities that historically have been considered exempt or inconsequential emission sources. The commenter (45) asserted that his organization's historical comments have been consistent with the administration goal of science-based decision making, and that a limited comment period will compromise scientific integrity in the decision making for the proposed rule. The commenter (45) understands that EPA's schedule is constrained by a commitment to develop a final diesel engine rule, but believes that if a 90-day extension cannot be accommodated, at least an additional 60-days extension (i.e., 120 days total) is necessary. In the alternative, the commenter (45) suggested removing natural gas-fired engines from the proposal (see Section 1.2). Commenter 38 supported a 60-day extension.

Due to the breadth of coverage and implications for thousands of existing engines, two commenters (41, 42) believe that the 60-day comment deadline is inadequate to assess implications, review background documentation, and develop comments substantiated with technical data and facts. Additionally, in order to prepare joint comment for its member companies, the commenter (41) must coordinate among its member companies, making location of relevant information and preparation of comments on the proposal in 60 days difficult.

One commenter (194) requested on behalf of the agricultural industry in its state that EPA allow further consideration and review time to allow a more detailed comment to be submitted.

Response: EPA provided a 30-day extension to the public comment period to allow additional time for commenters to prepare and submit their comments. EPA could not provide additional time beyond the 30 days due to the court-ordered deadline for the final rule of February 10, 2010. In addition, EPA attempted to the best of its ability to review information that came to the Agency from the public after the end of the comment period.

1.5 Comment: Two commenters (176, 220) expressed that it is inappropriate for EPA to use section 112 of the CAA to target non-HAP pollutants. The commenter (176) opined that EPA addresses criteria pollutants, both in terms of the degree to which such pollutants are emitted from these types of engines, and the benefits that the proposed compliance requirements would have on criteria pollutants to justify regulation of engines located at area sources that have minimal impact on urban areas from HAP emissions.

Response: EPA is not using the CAA to target non-HAP pollutants from existing stationary RICE, but is applying the use of a surrogate for HAP emissions from certain engines. Measuring emissions of HAP is in many cases much more expensive than measuring surrogate emissions and setting a standard in terms of a single pollutant would mean simpler and cheaper emissions testing. Formaldehyde is the HAP emitted in the largest quantity from stationary RICE and is related to the level of other HAP emissions. Therefore, formaldehyde is an appropriate representation of HAP emissions. EPA studied emissions data to determine if CO would be representative of HAP emissions. Because EPA determined that there is a relationship between CO and formaldehyde for certain engine types, EPA is using CO as a surrogate for HAP emissions for these engines. Also, while EPA's standards are based on HAP reductions, there is no reason to ignore the co-benefits of the rule in terms of reduction in non-HAP pollutants when calculating the benefits of the rule.

1.6 Comment: One commenter (69) opposes the proposed rulemaking because it imposes a tremendous hardship on the regulated community; strains the resources needed to demonstrate and/or achieve compliance, and is of marginal benefit, particularly for the oil and gas industry. The commenter (69) suggests that the proposal rule should be stayed indefinitely, or at least phased until a more favorable economic time.

Response: EPA is required by statute to develop regulations for all existing stationary engines to address HAP emissions under sections 112(d), 112(c)(3) and 112(k) of the CAA. To the extent possible, EPA has attempted to minimize the burden on the regulated community, but EPA does not believe that the requirements are significantly burdensome. EPA does not have the option to delay the rulemaking due to consent decrees requiring EPA to finalize and issue the regulation by February 2010.

1.7 Comment: Four commenters (64, 66, 68, 75) requested that EPA provide additional time for Alaska to develop its arguments further if EPA did not agree that the proposed NESHAP requirements are not appropriate for rural Alaska.

Response: EPA believes that the comment period provided for the proposed rule was sufficient and that additional time is not necessary. See comment 2.2.3 for EPA's response to the comments related to the requirements for engines located in rural Alaska.

1.8 Comment: Several commenters (89, 101, 103, 130, 136, 151, 155, 167, 172, 187, 221, 224, 226, 231, 241, 242) think that EPA should attempt to harmonize the proposed rule requirements with requirements in the other stationary engine rules (2004 RICE NESHAP, CI NSPS, SI NSPS, and 2008 RICE NESHAP revisions) in order to simplify the implementation process. According to commenter 155, owners/operators of the stationary engine rules have experienced issues with implementing these rules.

The commenter (242) thinks that EPA should simplify and harmonize the various engine rules to simplify the implementation and enforcement process. As mentioned, the regulated community has been having issues and a hard time implementing the various engine rules that have been issued by EPA over the years since 2004 when the first engine rule was published. This proposed rulemaking will add to the confusion with competing requirements and other issues, the commenter (242) said. EPA should revisit rule requirements and think about options to harmonize requirements across rulemakings, the commenter (242) recommended. The commenter (242) referred to EPA simplifying the reporting and recordkeeping requirements for engines subject to the NESHAP (new and reconstructed) under the 2008 rulemaking. Those engines were allowed to demonstrate compliance by meeting the NSPS. However, the current proposal affecting existing engines will result in these existing engines having more onerous recordkeeping and reporting requirements than what is required for new engines, the commenter (242) said. In addition, existing engines will in some cases have more stringent emission limits than new engines, the commenter (242) noted. The commenter (242) suggested that EPA think about separating the requirements for existing area sources and existing small engines at major sources into a new subpart (e.g., subpart ZZZZa). In the new subpart, EPA could clearly indicate that only certain provisions of 40 CFR part 63, subpart A GP (GP) apply to these engines so that similar reporting, recordkeeping and maintenance requirements apply for the NSPS and subpart ZZZZa affected engines, the commenter (242) recommended.

Commenter 136 noted that the 2004 RICE MACT and 2008 Consolidated NSPS and NESHAP engine rule and this proposed rule are inconsistent; for example, the proposed standards for some existing RICE are more stringent than the recent emission standards for new/reconstructed RICE. Commenters 130 and 136 believe that EPA should allow areas source RICE that require control to comply with the NSPS requirements in lieu of NESHAP requirements. Further, the commenter (136) urged that EPA simplify and harmonize the rules to avoid contradictions and minimize the potential for compliance and enforcement confusion.

One commenter (103) stated that the requirements for all of the different rules (original 40 CFR part 63, subpart ZZZZ; part 60, subpart JJJJ; and now revised part 63, subpart ZZZZ) are overly burdensome. The commenter (103) indicated that EPA should consider having standards for area sources that are consistent for all rules, and noted that new sources already have this standard, but existing sources are treated differently under this proposal.

The commenter (103) asserted that specific surrogates for HAP are not needed for area sources if an overall level of performance can be demonstrated by the engine. The commenter (103) asserted that if the costs for controls for rural area sources can be justified, then surrogates for the existing engines should be the same as for new sources. As an example, the commenter (103) indicated that if an existing rich burn engine is operating at NSPS standards (2.0 grams per horsepower-hour (g/HP-hr) NOx, 4 g/HP-hr carbon monoxide (CO), and 1.0 g/HP-hr volatile organic compounds (VOC)) then the NSCR can be considered to be functioning correctly and HAP will be reduced even though formaldehyde is not measured directly.

One commenter (172) noted that there were inconsistent thresholds between these proposed rules and the related SI and CI NSPS, creating complications. For instance, engine size in the CI NSPS is defined in terms of cylinder displacement, while HP or kilowatt (KW) ratings are used in other rules.

Another commenter (172) noted that while EPA based setting the 300 HP subcategory for CI RICE and the 250 HP subcategory for SI RICE on where the greatest emission reductions are achieved, the multiple levels resulted in more confusion. The commenter (172) suggested that 500 HP be kept as the cutoff to identify a “large” engine for greater consistency and clarity.

Response: To the extent possible, EPA has attempted to harmonize requirements and make provisions consistent across rulemakings affecting stationary engines. Existing stationary engines addressed in this rulemaking are not covered in the NSPS rules. In the CI and SI NSPS rules, EPA is primarily relying on engine manufacturer certifications. For engines likely to be covered under a certification program, EPA believes it is more appropriate to lessen the recordkeeping, reporting, and testing requirements on the individual owners and operators because of engine certificates. However, for existing stationary engines covered in this rulemaking, EPA is relying on each individual owner and operator to demonstrate compliance with the requirements. Records and testing are necessary to demonstrate that the engine is meeting the emission standards and that other requirements in the rule are followed appropriately. Also, NESHAP and NSPS rulemakings are developed under different sections of the statute and address different pollutants. In the NESHAP, EPA must address HAP emissions, but in the NSPS, EPA must address criteria pollutants like NO_x, CO, and PM.

Regarding the comments that requirements applicable to existing stationary engines may be more stringent than the requirements for new stationary engines, EPA understands the concerns. However, due to the recent Brick MACT decision, which said that EPA could not set MACT floors of no emission reduction, EPA had to take a different approach in setting standards for existing stationary engines than was taken in earlier regulations. The outcome of the Brick MACT decision and the SSM decision occurred after the previous engine rulemakings and therefore EPA cannot help the fact that standards may become more stringent for older engines under a different analysis.

In response to the comment regarding inconsistent threshold across rules, EPA again notes that the rules, in particular the NESHAP versus NSPS rules, rules for new versus existing engines, and rules for engines at major sources versus area sources, are developed to address different statutory requirements. Further, in the rules targeting new engines, EPA relied heavily on a manufacturer-based certification program. For both NSPS regulations, but more so in the CI NSPS, EPA modeled emission standards and requirements in the nonroad engine rules affecting similar engines. In those two rules, the emission standards were mostly targeted to engine manufacturers and since EPA followed nonroad requirements in many cases, it made sense to adopt engine size thresholds and emission standards similar to, and in the same units as was done in the nonroad engine rules.

2.0 Applicability

2.1 Area Sources

2.1.1 Comment: Numerous commenters (64, 66, 68, 75, 104, 111, 112, 124, 131, 132, 136, 148, 150, 155, 175, 183, 187, 225, 226, 241, 247, 253, 261, 262) expressed concern over EPA's decision to not distinguish between rural and urban engines at area sources in the proposed rule. Several commenters (64, 66, 68, 75, 104, 112, 136, 183, 226) requested that EPA reevaluate its congressional authority to regulate area HAP sources in rural areas. The commenter (112) believes that the proposal is inconsistent with 42 U.S.C. 7412(n)(4)(B) [CAA section 112(n)(4)(B)], which states that:

"The Administrator shall not list oil and gas production wells (with its associated equipment) as an area source category under subsection (c) of this section, except that the Administrator may establish an area source category for oil and gas production wells located in any metropolitan statistical area or consolidated metropolitan statistical area with a population in excess of 1 million, if the Administrator determines that emissions of hazardous air pollutants from such wells present more than a negligible risk of adverse effects to public health."

Three commenters (104, 112, 136) requested clarification of EPA's rationale to regulate low levels of emissions from engines at oil and gas production facilities outside metropolitan areas, contending that EPA has applied this rule more broadly than the Congressional intent of the CAA, and requested that EPA reevaluate this issue of whether EPA can regulate rural area sources in light of the 42 U.S.C. 7412(n)(4)(B) language.

One commenter (220) stated most of its members are located at area sources in non-urban locales, where HAP emissions from the affected engines, some of which are emergency engines, are unlikely to impact urban areas. Thus, engines located at non-urban sources should be exempt from the requirements of the proposed rule. Commenter 220 added that EPA has not made a case for such stringent regulation of units in non-urban areas, particularly where operation of such units is minimal. EPA should only impose requirements for non-emergency units in urban areas.

Four commenters (111, 150, 187, 225) stated that EPA has based this rulemaking for area sources on sections of the CAA and its Urban Air Toxics Strategy that are intended to remove threats to public health in urban areas. The commenters (111, 150, 225) do not believe that the remote RICE at area sources in the oil and gas industry threaten public health in urban areas. Three of the commenter (150, 187, 225) noted that the NESHAP for glycol gas dehydrators (40 CFR part 63, subpart HH) takes into account the location of area sources and does not apply the specific requirements of the rule to rural area sources. The commenters (150, 225) believe that the same approach should be used for the RICE rule, i.e., engines that are not located in or near populated areas should be exempt or subject to an alternative set of requirements so as not to force expensive requirements on remote engines that have no impact on public health. In particular, one of these commenters (150) stated that rural sources should be excluded from requirements relating to catalytic controls.

One commenter (111) questioned the rationale for the statement in the proposal preamble the “it would not be practical or appropriate to limit the applicability to urban areas….”

Regarding practicality, the commenter (111) stated that urban area and urban cluster boundaries have been well defined by the Census Bureau (2000 Census) and that it would be easy to determine whether a facility is inside or outside these boundaries. Regarding appropriateness, the commenter (111) stated that the rationale in the proposal preamble does not relate the density of RICE to population density nor other HAP sources, both stationary and mobile, while the 1999 Integrated Urban Air Toxics Strategy document (which is the basis of this proposal) stated that "the vast majority of HAP emissions…are within counties with urban areas. Additionally, a greater number of different HAP may be emitted from the multiple sources present in urban areas than from the more limited number and variety of sources present in rural areas." The commenter (111) indicated that significant impacts from small sources in non-urban areas are dependent on them being additive to another major emitter (i.e., at major sources) or dependent on multiple sources of the same or different types being located within additive impact areas.

The commenter (111) noted that the monetized benefits of the proposed rule (74 FR 9712) do not distinguish between rural and urban benefits. The commenter (111) anticipates that the risk avoidance benefits would be skewed to urban populations and requested that the benefits be analyzed in this manner if rural sources are to be included in the rule. In addition, the commenter (111) requested that the rule be limited to urban areas as defined in the 1999 Urban Air Toxics Strategy document or, at a minimum, be limited to major sources (RICE less than or equal to 500 HP) in rural areas if a clear positive cost/benefit can be demonstrated.

Several commenters (112, 124, 131, 132, 148, 155, 175, 187, 241, 242, 247, 253, 261, 262) cited rules where EPA considered urban proximity by allowing owners/operators to determine whether their engines were located in an urban area by the distance to an urban cluster as defined by the U.S. Census Bureau. For those rules, requirements and implementation schedules are based on location, and units that are considered non-urban show compliance by meeting work practices.

Several commenters recommended that EPA follow 40 CFR part 63, subpart HH for existing stationary engines and only require work practices for area sources engines in rural area. Commenter 241 concluded that following urban criteria ((defined as urban areas [UA] plus a 2 mile buffer area and urban clusters [UC] greater than 10,000)) that parallel 40 CFR part 63, subpart HH, the final rule could provide an exemption for area source engines located in a rural area or require GACT work practices rather than MACT-equivalent emission limits. In addition, commenters 97 and 241 stated that with technology and cost limitations for emissions measurement and a lack of emissions data, EPA should consider section 112(h) of the CAA alternatives for promulgating design, equipment, work practice, or operational standards. Similarly, commenter 112 concluded that the proposed rules will be onerous and costly, and should not be imposed at area sources in rural areas unless the science supports the need for this type of regulation. The commenter (112) stated that engines in the oil and gas industry are installed in the same areas as glycol dehydrators and are typically installed away from residences when possible to reduce noise disturbances to nearby residences.

The commenter (253) disagreed with EPA's conclusion that "it would not be practical or appropriate to limit the applicability to urban areas." The commenter (253) noted that large numbers of stationary RICE in rural areas do not necessarily correlate with high ambient concentrations of HAP, especially since many of the RICE in rural areas are likely to be emergency generators or engines with similarly low operating hours. The commenter (253) believed that irrigation systems associated with farming activities in particular will typically be located in isolated rural areas and are unlikely to contribute to ambient concentrations of HAP that remotely approach those which Congress intended to be addressed through the area source program. The commenter (262) recommended that engines that are not located in or near populated areas be exempted from the rule, because they have no impact on public health. The commenter (253) urged EPA to consider excluding all RICE that are located at area sources on farms, in particular, RICE associated with irrigation pumps that are used to provide water for farming activities from the rule.

Some commenters (97, 226, 247) believed that EPA should conduct an analysis of urban versus rural emissions and rural engine impacts on urban areas. Commenter 97 believes that the results of the analysis will warrant different standards, or overall exemption, for rural engines, especially those in remote locations. The commenter (97) stated that section 112(h) of the CAA provides alternative approaches to emission limits if it is infeasible to prescribe or enforce emission standards based on the technical and economic practicality of applying measurement methodology. The commenter (97) believes that EPA should consider additional opportunities to rely on management or operating practices for compliance. The commenter stated that management practices are warranted for area sources under GACT provisions, and for both area and major sources engines under CAA section 112(h).

Several commenters (65, 111, 170, 194, 242) provided methods they suggested could be used to identify rural area sources and some provided examples specific to their locations as reasons why rural area sources need not be regulated. The commenter (242) observed that EPA has not determined the prevalence of engines in certain areas and is therefore issuing nationwide standards. The commenter (242) does not understand why nationwide standards were concluded as being appropriate with the lack of analysis conducted. Sources such as State and Federal emission inventories, Title V permits, Bureau of Land Management maps, original engine manufacturer records, pipeline maps, agricultural bureaus, etc. are available references that might indicate how engines are distributed, the commenter (242) said. One commenter (224) suggested that EPA analyze the impacts of engine emissions in rural areas on public health risk in urban areas for consistency with the CAA section 112(k) intent for area sources. The commenter (224) asserted that exemptions or less stringent standards for engines located at area sources in rural areas would likely be justified by such an analysis.

One commenter (170) provided that compliance with 40 CFR part 63, subpart ZZZZ would be onerous and costly for its tribe, especially if engine replacement is required. The commenter (170) requested that the scope of 40 CFR part 63, subpart ZZZZ be limited to RICE located at major sources of HAP and areas sources of HAP within urban areas. The commenter (170) suggested that the definition of "urban area" be based on either population density or standard metropolitan statistical area (SMSA). The commenter (170) opined that it was the original intent of section 112(k) of the CAA and the associated strategy to control HAP emissions from area sources in urban areas.

The commenter (170) asserted that most of the economic impacts of the proposed rule will occur in more rural areas (such as tribal lands) where reliable power sources are less readily available and stationary RICE are required to provide power for essential functions. The commenter (170) stated that the significantly lower population density of rural areas reduces the potential health risks due to the greater distance between emission sources and urbanized areas with dense population centers. The commenter (170) opined that the determination that there are high concentrations of stationary RICE in rural areas does not mean that these area sources expose a large number of persons to HAP emitted by stationary RICE. The commenter (170) stated that any assessment of potential public health risks should take into account local meteorology, and risks to public health before imposing area source regulations in rural areas.

The commenter (111) asserted that the distribution of oil and gas production RICE in Michigan (where the commenter's organization is located) suggests that neither of these conditions is met. Using geographic information systems software, geocoded gas well locations, and urban areas defined by the Census Bureau (urbanized areas plus urban clusters, 2000 Census), the commenter (111) found that 98 percent of the gas wells are located in rural areas. Because the compressor engines, located near the gas production wells, are used to transport the gas from the production facilities to the sales lines, commenter (111) asserted that it follows that Michigan oil and gas production RICE are overwhelmingly located in rural areas.

One state commenter (194) on behalf of the agricultural industry in their state, expressed that the operational area of these engines has not been studied to evaluate the environmental benefit obtained in congested areas as compared to open agricultural locations. This commenter (194) opined that there should be some measure of variable compliance provided in relation to the area of operation of these engines.

Commenter 76 indicated that in this context EPA should also consider the fact that a distinction has not been made between urban and rural areas. The commenter (76) has several engines in remotely located areas, which work on remote start and shutdown limiting staff access, particularly in those cases where remote locations have to be reached by boat.

<u>Response</u>: EPA is finalizing its proposal to regulate existing stationary CI engines located at area sources on a nationwide basis. EPA has not made a final determination with regard to

existing SI engines at area sources, and will do so in the later rule finalizing regulations for SI engines. EPA believes that the CAA provides the Agency with the authority to regulate area sources nationwide. Section 112(k)(1) of the CAA states that "It is the purpose of this subsection to achieve a substantial reduction in emissions of hazardous air pollutants from area sources and an equivalent reduction in the public health risks associated with such sources including a reduction of not less than 75 per centum in the incidence of cancer attributable to emissions from such sources." Consistent with this expressed purpose of section 112(k) of the CAA to reduce both emissions and risks, CAA section 112(k)(3)(i) requires that EPA list not less than 30 HAP that, as a result of emissions from area sources, present the greatest threat to public health in the largest number of urban areas. Sections 112(c)(3) and (k)(3)(ii) of the CAA require that EPA list area source categories that represent not less than 90 percent of the area source emissions of each of the listed HAP. Section 112(c) of the CAA requires that EPA issue standards for listed categories under CAA section 112(d). These relevant statutory provisions authorize EPA to regulate listed area source engines and not just engines located in urban areas. EPA believes that sections 112(c) and 112(k) of the CAA do not prohibit issuing area source rules of national applicability. EPA also disagrees with the statement that the proposal was inconsistent with section 112(n)(4)(B) of the CAA. The term "associated equipment" was defined for the purposes of subpart ZZZZ in the first RICE MACT rule not to include stationary RICE. EPA has not revisited that issue in this rule and the commenter has not provided sufficient reason to revisit that issue.

EPA does not believe that existing stationary CI engines are more prevalent in rural areas than in urban areas. Indeed, EPA estimates that only 17 percent of stationary CI area source engines subject to the rule are located in rural areas, using the definitions used in the Urban Air

Toxics Strategy. Given the requirement to regulate all engines in the source category in urban areas, we do not believe requiring regulation on a national basis is inappropriate.

The majority of stationary CI engines are used for emergency purposes. EPA has estimated that 80 percent of stationary CI engines are emergency engines and EPA has taken steps in the final rule to reduce the burden on owners and operators of these engines. All emergency CI engines located at area sources of HAP emissions are subject only to management practices under the final rule. EPA has also determined that existing emergency engines located at residential, institutional, and commercial facilities that are area sources of HAP emissions were not included in the original Urban Air Toxics Strategy inventory and therefore are not included in the source category listing. In the final rule, EPA has specified that those engines are not subject to subpart ZZZZ. In addition, existing non-emergency CI engines less than or equal to 300 HP that are located at area sources of HAP emissions are also only subject to management practices. EPA believes that requiring management practices instead of specific emission limitations and/or control efficiency requirements on the majority of existing stationary CI engines at area sources alleviates concerns regarding costly and burdensome requirements for rural sources.

For existing stationary non-emergency CI engines greater than 300 HP, EPA determined that GACT was the use of oxidation catalyst control. The commenters did not provide a reason that GACT would be different for non-emergency stationary CI engines located in rural areas. In determining GACT, EPA can consider factors such as availability and feasibility of control technologies and management practices, as well as costs and economic impacts. These factors are not different for existing stationary non-emergency CI engines in urban versus rural areas. For example, the availability of oxidation catalysts would be the same for urban and rural engines, and if an engine was in a rural location, that would not preclude an owner from being able to install aftertreatment controls. For the final rule, EPA estimated the capital cost of retrofitting an existing stationary non-emergency CI engine to be around $7,000 for a 300 HP engine. Annual costs of operating and maintaining the control device are estimated to be approximately $2,000 per year for the same engine. These costs would not be prohibitive for any engines and either rural or urban areas and are expected to be the same no matter the location. Furthermore, the controls that are expected to be used on non-emergency engines above 300 HP will have the co-benefit of PM reductions. PM emissions can travel tens or hundreds of miles from their source, so emissions from diesel engines in rural areas can impact urban populations. EPA's Diesel Health Assessment Document[1] (Diesel HAD) classified exposure to diesel exhaust as "likely to be carcinogenic to humans by inhalation" at environmental levels of exposure. Other agencies at the international, federal and state level have come to similar conclusions.[2] The EPA Diesel HAD provided insight into the possible ranges of lung cancer risk that might be present in the population resulting from environmental exposure to diesel emissions. Lifetime cancer risk may exceed 10^{-5} and could be as high as 10^{-3}. Because of uncertainties, the analysis acknowledged that the risks could be lower than 10^{-4} or 10^{-5}, and a zero risk from diesel exhaust exposure was not ruled out. This range of values includes numerous uncertainties and, as discussed in the Diesel HAD, does not constitute an Agency cancer unit risk range suitable for estimating the number of cancer cases resulting from exposure to diesel exhaust. EPA's 1999

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[1] Health Assessment Document for Diesel Engine Exhaust,'' U.S. Environmental Protection Agency, 600/8–90/057F, *http://www.epa.gov/ttn/atw/ dieselfinal.pdf,* May 2002.
[2] A number of other agencies (National Institute for Occupational Safety and Health, the International Agency for Research on Cancer, the World Health Organization, California EPA, and the U.S. Department of Health and Human Services) have made similar classifications regarding the diesel exhaust lung cancer hazard.

National-Scale Air Toxics Assessment (NATA) does not include a quantitative estimate of cancer risk for diesel exhaust, but it concludes that diesel exhaust ranks with the other emissions that the national-scale assessment suggests pose the greatest relative risk.[3] The purpose of this national-scale assessment is to provide a perspective on the magnitude of risks posed by outdoor sources of air toxics and to identify the pollutants and sources that are important contributors to these health risks.

The Diesel HAD established an inhalation Reference Concentration (RfC) of 5 $\mu g/m^3$ for diesel exhaust as measured by diesel PM.[4] The Diesel HAD concludes "that acute exposure to DE [diesel exhaust] has been associated with irritation of the eye, nose, and throat, respiratory symptoms (cough and phlegm), and neurophysiological symptoms such as headache, lightheadedness, nausea, vomiting, and numbness or tingling of the extremities."[5] There is also evidence of immunologic effects such as the exacerbation of allergenic responses to known allergens and asthma-like symptoms.

Diesel exhaust is a mixture that includes HAP that are known or suspected human carcinogens or have noncancer effects, including benzene, 1,3-butadiene, formaldehyde, acetaldehyde, polycyclic organic matter (POM), and naphthalene. Benzene[6] and 1,3-butadiene[7] are known human carcinogens. Noncancer health effects may include neurological,

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[3] For more information on NATA, see http://www.epa.gov/ttn/atw/nata1999/risksum.html.
[4] An RfC is defined by EPA as "an estimate of a continuous inhalation exposure to the human population, including sensitive subgroups, with uncertainty spanning perhaps an order of magnitude, which is likely to be without appreciable risks of deleterious noncancer effects during a lifetime."
[5] "Health Assessment Document for Diesel Engine Exhaust," U.S. Environmental Protection Agency, 600/8–90/057F, *http://www.epa.gov/ttn/ atw/dieselfinal.pdf,* May 2002, p. 9–9.
[6] Integrated Risk Information System File for Benzene, U.S. Environmental Protection Agency, *http://www.epa.gov/ncea/iris/subst/0276.htm,* 2000.
[7] Integrated Risk Information System File for 1,3-Butadiene, U.S. Environmental Protection Agency, *http://www.epa.gov/ncea/iris/subst/0139.htm,* 2002.

cardiovascular, liver, kidney, and respiratory effects, as well as effects on the immune and reproductive systems.

Several of the HAP emitted by diesel engines (e.g., acrolein, benzene, 1,3-butadiene, formaldehyde, naphthalene, and POM) were identified in EPA's 1999 NATA as national or regional cancer and/or noncancer risk drivers.[8] However, EPA does not have high confidence in the NATA data for all these compounds.[9] It should be noted that the NATA modeling framework has a number of limitations which prevent its use as the sole basis for setting regulatory standards. These limitations and uncertainties are discussed on the 1999 NATA Web site. Even so, this modeling framework is very useful in identifying air toxic pollutants and sources of greatest concern, setting regulatory priorities, and informing the decision making process.[10]

Diesel emissions contain fine and ultra-fine PM and contribute significantly to ambient $PM_{2.5}$ concentrations in many areas of the country.[11] The nature of the effects that have been reported to be associated with fine particle exposures include premature mortality, aggravation of respiratory and cardiovascular disease (as indicated by increased hospital admissions and emergency department visits), changes in lung function and increased respiratory symptoms, as well as new evidence for more subtle indicators of cardiovascular health (71 FR 61152, October

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[8] More information on NATA risk drivers is available at: *http://www.epa.gov/ttn/atw/nata1999/risksum.html*.

[9] See ''Control of Emissions From New Marine Compression-Ignition Engines at or Above 30 Liters per Cylinder; Proposed Rule,'' 72 FR 69521–69552, 69534, *http://www.epa.gov/fedrgstr/EPA-AIR/2007/December/Day-07/a23556.htm*, December 2007.

[10] For more information on NATA, see *http:// www.epa.gov/ttn/atw/nata1999/risksum.html*.

[11] ''Health Assessment Document for Diesel Engine Exhaust,'' U.S. Environmental Protection Agency, 600/8–90/057F, *http://www.epa.gov/ttn/ atw/dieselfinal.pdf*, May 2002, p. 2–97, Table 2–23.

17, 2006).[12] The PM Air Quality Criteria Document also notes that the PM components of gasoline and diesel engine exhaust represent one class of hypothesized likely important contributors to the observed ambient PM-related increases in lung cancer incidence and mortality.[13] The $PM_{2.5}$ National Ambient Air Quality Standard is designed to provide protection from the noncancer and premature mortality effects of $PM_{2.5}$ as a whole, of which diesel PM is a constituent.[14]

Diesel exhaust also includes NO_x and volatile organic compounds, which react in the presence of sunlight to form ozone. Ozone contributes to serious public health problems, including aggravation of respiratory disease (as indicated by increased hospital admissions and emergency room visits, school absences, lost work days, and restricted activity days), changes in lung function and increased respiratory symptoms, altered respiratory defense mechanisms, and chronic bronchitis. In addition, there is suggestive evidence of a contribution of ozone to cardiovascular-related morbidity and highly suggestive evidence that short-term ozone exposure directly or indirectly contributes to non-accidental and cardiopulmonary-related mortality, but

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[12] Detailed information on the health effects of PM is provided in: ''Air Quality Criteria for Particulate Matter,'' U.S. Environmental Protection Agency, Volume I, EPA600/P–99/002aF and Volume II, EPA600/P–99/002bF, October 2004; ''Review of the National Ambient Air Quality Standard for Particulate Matter: Policy Assessment of Scientific and Technical Information, OAQPS Staff Paper,'' U.S. Environmental Protection Agency, EPA–452/R–05–005, 2005; ''National Ambient Air Quality Standards for Particulate Matter; Proposed Rule,'' 71 FR 2620–2708, 2626– 2637, *http://www.epa.gov/air/particlepollution/ actions.html*, January 17, 2006 and ''National Ambient Air Quality Standards for Particulate Matter; Final Rule,'' 71 FR 61144–61233, *http:// www.epa.gov/air/particlepollution/actions.html*, October 17, 2006.
[13] ''Air Quality Criteria for Particulate Matter,'' U.S. Environmental Protection Agency, Volume I, EPA600/P–99/002aF and Volume II, EPA600/P–99/ 002bF, October 2004, p. 8–318.
[14] Control of Emissions of Air Pollution From Locomotive Engines and Marine Compression-Ignition Engines Less Than 30 Liters per Cylinder; Proposed Rule,'' 72 FR 15937–15986, 15958, *http://www.epa.gov/oms/locomotv.htm*, April 3, 2007.

additional research is needed to more fully establish underlying mechanisms by which such effects occur.[15]

There is also no reason to distinguish between the rural and urban area source engines that are subject to management practices. There is nothing limiting owners and operators of existing stationary CI engines located in rural areas from following the management practices specified in the final rule.

In response to requests that agricultural stationary engines should be treated differently from other engines and should be allowed special provisions, EPA is of the understanding that the majority of stationary engines used for agricultural purposes are below 300 HP. Several commenters representing agricultural interests, including commenters 140, 147, and 174, have made the statement to EPA that most of their engines are below 300 HP. As previously discussed in this response, EPA is not issuing requirements that are based on the application of aftertreatment controls in the final rule, but is finalizing management practices for engines less than or equal to 300 HP. Therefore, it is not expected that many stationary agricultural engines will be required to put on controls. Agricultural engines less than or equal to 300 HP at rural and urban area sources would be required to follow the management practices specified in the final rule. Management practices will ensure that emissions are reduced and engines are properly operated.

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[15] Detailed information regarding the health effects of ozone[0] is provided in: ''Air Quality Criteria for Ozone and Related Photochemical Oxidants (Final),'' U.S. Environmental Protection Agency, EPA/600/R–05/004aF–cF, 2006, pp. 7–97 and 8–78; ''Review of the National Ambient Air Quality Standards for Ozone: Policy Assessment of Scientific and Technical Information, OAQPS Staff Paper,'' U.S. Environmental Protection Agency, EPA–452/R–07–003, January 2007; and ''National Ambient Air Quality Standards for Ozone: Proposed Rule,'' 72 FR 37818–37919, 37844 and 37836, *http://www.epa.gov/air/ozonepollution/ actions.html*, July 11, 2007.

Consistent with the proposal and for the reasons discussed, EPA is finalizing national requirements for existing stationary CI engines without a distinction between urban and non-urban areas.

2.1.2 Comment: Five commenters (64, 65, 66, 68, 75) expressed that EPA's proposal would have a significant impact to the State of Alaska, especially with respect to power generation in their rural communities. The commenter (65) explained that Alaska has unique regional circumstances whereby regulated diesel engine emissions in rural Alaska in the same manner as other engines nationwide could have unintended negative consequences. The commenter (65) is concerned about the extension of section 112(k) of the CAA requirements to rural sources, expressing that the purpose of CAA section 112(k) is to address urban issues. The commenter (65) opined that the scale of HAP emissions in rural areas of Alaska is different and should be addressed in a way that is appropriate to the rural conditions that exist there. The commenter (65) expressed that, historically, EPA has recognized the unique aspects of rural Alaska's diesel distribution system and diesel engine use and has allowed Alaska some flexibility (e.g., under the CI NSPS). The commenter (65) requested that EPA assess and consider rural Alaska's situation and allow for flexibility to address the challenges associated with the proposed rule.

Four commenters (64, 66, 68, 75) disagreed with EPA that costs associated with implementing HAP reducing technology are reasonable and justified, and do not believe that MACT requirements are appropriate for rural area sources. The commenters (64, 66, 68, 75) stated that EPA lacks justification to implement MACT requirements for rural Alaska area source generators, when GACT is authorized under section 112(d)(5) of the CAA. The commenters (64, 66, 68, 75) stated a rural Alaska village using a pre-1996 diesel engine and approximately 100,000 gallons of fuel would emit less than 0.03 ton of HAP per year. The commenters (64, 66, 68, 75) estimated the cost effectiveness of adding HAP control would be \$178,000 per ton of HAP reduction, which is twice the EPA estimate of \$72,000 per ton of HAP reduction for a 200 HP engine. Therefore, the commenters (64, 66, 68, 75) believe that management practices should be GACT for area sources in rural Alaska.

Response: The EPA agrees with the commenters that stationary CI engines located in remote areas of Alaska have special challenges that should be taken into consideration. As the commenters noted, over 180 rural communities in Alaska that are not accessible by the Federal Aid Highway System rely on stationary diesel engines and fuel for electricity. They are scattered over long distances in remote areas and are not connected to population centers by road or power grid. They are located in the most severe arctic environments in the United States. Transportation of diesel fuel to these areas is dependent on weather and communities typically pay some of the highest prices for fuel in the United States. Stationary engines located in rural areas of Alaska have different fuel storage and use logistics and higher operating and compliance costs. Many of these communities are accessible only by plane. In light of the comments, EPA believes it is appropriate to treat engines located at area sources in areas of Alaska that are not accessible by the Federal Aid Highway System (FAHS) as a separate subcategory. EPA re-evaluated GACT for the subcategory of stationary engines located at area sources of HAP that are in an area of Alaska that is not accessible by the FAHS. For these engines, EPA determined that GACT is the same management practices as those required for non-emergency CI RICE less than or equal to 300 HP located at area sources. For more discussion of this issue, refer to the memo entitled “MACT Floor Determination for Existing Stationary Non-Emergency CI RICE

Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources." The management practices specify changing the oil and oil filter every 1,000 hours of operation (or 500 hours for emergency engines) or annually, whichever comes first, except that sources can extend the period for changing the oil if the oil is part of an oil analysis program as discussed below and none of the condemning limits are exceeded; inspecting the air cleaner every 1,000 hours of operation or annually, whichever comes first; and inspecting all hoses and belts and replacing as necessary every 500 hours of operation or annually, whichever comes first. Sources also have the option to use an oil change analysis program to extend the oil change frequencies. The analysis program must measure the total base number (TBN), viscosity, and water content. If the TBN is less than 30 percent of the TBN of the oil when new, if the viscosity has changed by more than 20 percent from when the oil was new, or if the percent water content (by volume) is greater than 0.5, the oil must be changed.

2.1.3 Comment: Two commenters (140, 148) suggested alternate ways to delineate major source RICE located in rural areas. Commenter 140 said its engines should not be regulated as major sources. Instead, EPA should clarify that RICE located in rural areas, used for mining or agricultural purposes, and operated for limited hours, will be subject to rules for area sources, even if such RICE are located at a major source. The commenter (140) concluded that there is no reason to impose new testing and emissions requirements on RICE units that, individually and collectively, are a very small source of HAP emissions. Alternatively, EPA could establish a separate subcategory of "rural" RICE under the major source category that would consider geographical location, emissions, and air quality impacts of these engines, the commenter (140) asserted. If established, this subcategory should have standards that are no more stringent than those promulgated for area sources, the commenter (140) said.

Response: EPA has to follow the definitions of a major source and an area source in CAA sections 112(a)(1) and (2). EPA is not at liberty to change those definitions, and EPA must regulate as major sources those stationary engines that are classified as being located at major sources under section 112(a). If a stationary engine is located at a source that has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any HAP or 25 tons per year or more of any combination of HAP, it must be regulated as a major source.

EPA is statutorily required to address HAP emissions from all existing major sources in listed source categories regardless of whether those sources are small or large or whether they are located in rural or urban areas.

2.2 Small Engines

2.2.1 Comment: Numerous commenters (51, 96, 116, 121, 132, 150, 154, 176, 225, 228, 230, 262) said EPA must provide an appropriate applicability cut-off for smaller rated engines.

Contrary to EPA's statement that it does not expect to find engines of this size in the field, several members of the commenter's (121) organization (automotive manufacturing) have engines at this level of HP supporting plant fire suppression or emergency systems. The formaldehyde limit is inappropriate for these CI engines, which cannot meet the limit. Some commenters (121, 154, 228) said that EPA should exercise de minimis authority to exclude smaller engines from the rule. At a minimum, smaller engines used in emergency applications should be excluded, commenter 121 said. The commenter (121) cited court cases supporting EPA's use of such authority. The use of this authority is appropriate given the considerable cost per ton of HAP reduced with add-on controls for these smaller engines, according to commenter 121. If EPA does not exclude such engines, it should at least subcategorize these engines and establish work practice standards, the commenter (121) said.

The commenter (228) stated that the lack of a de minimis threshold sweeps in many facilities that operate a single small RICE, such as a remote repeater station that may rely upon a small RICE for backup power or even small motors used by hobbyists for various purposes. The commenter (228) stated that EPA has not explained how the emissions from these small units contribute significantly to the HAP exposure problem it seeks to redress, while inclusion of these sources creates substantial burdens on the agency, states, other air permitting authorities and enforcement offices. The commenter (228) added that under section 502(a) of the CAA, inclusion of these small sources potentially will require these small sources (e.g., the remote repeater backup power or a hobbyist) to obtain a Title V operating permit and may trigger permitting requirements under existing state and local permitting authority regulations. The commenter (228) stated that an operating permit requirement for such a small source imposes a considerable burden upon both the source and the permitting authority for little environmental gain. The commenter (228) noted that it is well within EPA's discretion to exclude these small sources under its authority in section 112(c)(3) of the CAA.

One commenter (176) reported that the state of Illinois exempts small engines from state permitting requirements when they are not covered from section 112 of the CAA. The commenter (176) asserted that the proposed rule would subject numerous owners and operators, who are not required to have a permit to operate their engines, to state permitting requirements.

The commenter (176) expects that this would contribute to an increased delay in permitting and additional costs for owners and operators to obtain a permit.

One commenter (51) believes that it is more important to regulate larger engines at all sources than to regulate small engines at area sources. One commenter (118) noted the questionable value of regulating small RICE (between 50 and 500 HP) at area sources. The commenter (118) noted that although the costs of the management practices would be minimal, some State rules are written such that they require any equipment subject to a MACT standard obtain a permit regardless how small the equipment may be. The commenter (118) felt that the air quality benefit of regulating these smaller sources is outweighed by the burden placed on area sources where a small engine may be their only equipment, and the administrative burden placed on the state agencies to administer permit programs for the large number of sources who would not otherwise be regulated.

Response: EPA is required to regulate all engines in the stationary engine source category. The source category includes stationary engines of all sizes at major sources of HAP emissions. As discussed in the memorandum entitled "Analysis of the Types of Engines Used to Estimate the CAA Section 112(k) Area Source Inventory for Stationary Reciprocating Internal Combustion Engines" which is in the docket for this rule, EPA has found that existing stationary emergency engines located at residential, commercial, and institutional facilities were not included in the original Urban Air Toxics Strategy inventory and were not included in the listing of urban area sources and are therefore not included in the source category. In the final rule, EPA has specified that those engines are not subject to subpart ZZZZ. However, with regard to other stationary engines, EPA does not agree with the commenter who said that EPA should treat emissions from smaller engines as de minimis. It is unclear whether a de minimis exemption is even possible under section 112(d) of the Act in these circumstances, see National Lime Ass'n v. EPA, 233 F. 3d 625, 640 (D.C. Cir, 2000), but in any case the commenter did not provide enough specific information to justify EPA making such a de minimis finding in this instance. Given the narrow and specific circumstances delineated by the court in Alabama Power v. Costle, 636 F.2d 323 (D.C. Cir. 1979) for making such a finding, and the lack of specific information from the commenter that these circumstances exist in this instance, we do not make a de minimis finding. However, in the final rule, EPA has attempted to minimize the regulatory burden particularly on smaller sized stationary engines. For stationary engines located at area sources, EPA has flexibility to set non-numerical limits in the form of management practices. EPA is promulgating management practices for all emergency stationary engines located at area sources, and for stationary CI engines smaller than 300 HP located at area sources. These management practices are discussed in more detail in section 7.0. For existing stationary CI engines below 100 HP located at major sources, EPA has determined that it is not feasible within the context of this rulemaking to prescribe or enforce a numerical emission standard because the "application of measurement methodology to this class of engine is not practicable due to technological and economic limitations." This determination is discussed in more detail in the memorandum entitled "MACT Floor Determination for Existing Stationary Non-Emergency CI RICE Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources." As a result, existing engines below 100 HP located at major sources will be required to meet work practice standards to meet the maximum achievable control technology requirements for those engines. More information on the work practice standards can be found in the "MACT Floor Determination for

Existing Stationary Non-Emergency CI RICE Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources" memorandum.

Regarding the possibility of regulation under Title V, all stationary engines at area sources are exempted from Title V permit requirements under parts 70 and 71, as long as the sources do not otherwise have to meet such permit requirements. See 40 CFR § 63.6585(d). EPA understands the concerns of commenters regarding state permit requirements, but we believe that these concerns are best provided to the states in question. In addition, section 112(c)(3) and 112(k) require that EPA regulate categories or subcategories of area sources representing 90 percent of the area source emissions of HAP presenting the greatest threat to public health in urban areas. Stationary engines located at area sources were included in that list of categories, and therefore must be regulated under section 112(c)(3).

2.3 Diesel Engines

2.3.1 Comment: Three commenters (179, 183, 242) asked that EPA consider management practices for diesel engines that are run for short periods or at variable loads due to the inability of add-on controls to reach effectiveness under these operating conditions. One example of variable load diesel engines are fixed crane units on offshore platforms and loading docks, where the exhaust may never achieve exhaust temperatures necessary for efficient catalyst operation, the commenter (242) said. In colder climates, such as areas of Alaska, Colorado, and Wyoming for example, there may also be issues with reaching temperatures necessary for maximum control efficiency.

Response: EPA believes that the final emission standards are appropriate for all types of stationary diesel engines. The final standards are based on what is achievable using current control technologies that are available for existing stationary diesel engines. For variable load stationary diesel engines, vendors have developed active catalyst systems that include a heating element or fuel burner that heats the catalyst to the appropriate temperature for efficient HAP reduction. Both EPA and the California Air Resources Board (CARB) have verified HAP control retrofit technologies for existing stationary diesel engines and these technologies are presented on their respective websites. Not all existing diesel engines are subject to emission standards that require aftertreatment. In fact, several stationary diesel engines will be able to comply with the final rule by following management practices only.

2.3.2 Comment: A number of commenters (74, 78, 85, 96, 97, 240, 242) expressed concerns over the proposed limits for stationary diesel engines. Commenter 96 said that the proposed limit is not reasonable for the majority of engines and noted that although EPA stated that it is cost prohibitive to require add-on controls for certain smaller sized stationary diesel engines, EPA has proposed an emission standard achievable only by the best controlled stationary engine without aftertreatment. Therefore, it is obvious that the remaining engines will have to install controls to be able to meet the emission level required, commenter 96 asserted. There is no control setting or engine modification that can be done to improve HAP emissions while at the same time meeting the requirements for NO_x, hydrocarbons (HC) and particulate matter (PM) emissions and therefore the commenter (96) recommended that these engines be subject to only engine manufacturer's maintenance practices.

One commenter (242) said that existing diesel engines will not be able to meet the 40 ppmvd proposed CO limit without applying add-on controls and the commenter is planning to submit test data supporting this claim. If the proposed limits stand, virtually all diesel engines subject to the 40 ppmvd limit for CO will need to apply post-combustion controls, which based on EPA's discussion in the preamble was not the intent, commenter 242 said. According to commenter 242, available test data on four uncontrolled diesel crane engines show that 40 ppmvd for CO is not attainable. The engines are 160 HP and 450 HP in size and had CO emissions of 130, 154, 224, and 480 ppmvd.

One commenter (240) expressed that the CO emission limit of 40 ppmv at 15 percent oxygen (O_2) for stationary CI engines greater than 500 HP is unsupported and legally flawed for the following reasons:

(1) For area sources, EPA has the discretion to set standards at the "MACT" or "GACT" levels. EPA did not conduct a GACT analysis for stationary emergency CI engines less than 500 HP, but rather determined that those engines located in area sources should be subject to the same emission controls as the MACT standards for major sources. The commenter (240) believed that the better approach is to require management practices, as EPA requires for stationary emergency engines between 50 and 500 HP. The commenter (240) further stated that the data EPA relies on for determining the MACT floor was based on 10 tests that were conducted on one make and model of engine over a 3-day period in 1999. EPA reviewed emissions from all CO tests (10 tests) and selected the best performing 12 percent as MACT. The commenter (240) reported that in its evaluation of new engines [subject to the CI NSPS (40 CFR part 60, subpart IIII, which requires that new engines with a rated power greater than 560 KW meet the Tier 2

emission standards in 40 CFR part 89 – Control of Emissions from New and In-use Nonroad CI Engines]) the commenter (240) only found one engine with emissions less than 40 ppmvd at 15 percent O_2, and that the majority of the engines would exceed the CO emission standard. This commenter (240) stated that EPA should have evaluated the complete universe of existing engines to find the "top 12 percent," and that if Tier 2 certified engines cannot meet the numeric limit, it is unlikely that existing engines will be able to without addition of after-treatment controls. Additionally, the commenter (240) opined that it is not clear whether EPA's limited evaluation would be consistent with applicable law as the U.S Court of Appeals for the D.C. Circuit has explained, "to comply with the statute, EPA's method of setting emission floors must reasonably estimate the performance of the relevant best performing [sources]." See Nat'l Lime Asps' v. EPA, 233 F.3d 625, 634 (D.C. Cir. 2000) (citing Sierra Club v. EPA, 167 F.3d 658, 655 (D.C. Cir. 1999)).

(2) The costs to meet the 40 ppmvd CO at 15 percent O_2 standard for greater than 500 HP CI emergency engines are far above what EPA has determined to be acceptable in other GACT regulations. The commenter (240) expressed that, in the GACT standard for chemical manufacturing area sources, EPA rejected a number of control technologies as GACT for based on cost estimates lower than the projected costs of GACT in the RICE NESHAP proposal. See, e.g., 73 FR 58,352, 58,367 (Proposed NESHAP for Chemical Manufacturing Area Sources) (determining that $30,000 per ton of HAP removed is unreasonable for GACT for organic HAP continuous process vents); ($25,000 unreasonable for organic HAP batch process vents, at 73 FR 58,368); ($0.5 million unreasonable for metal HAP process vents, at 73 FR 58,370); ($130,000 unreasonable for

transfer operations, 72 FR 73611, 73618 [Final NESHAP for Hospital Ethylene Oxide Sterilizers]). This commenter (240) reported that EPA claims that the estimated cost of oxidation catalyst per ton for CI 50 ≤HP 500 HP to be "…from $1 million to $2.8 million for emergency CI engines in this size range. For catalyzed diesel particulate filters (CDPF), the estimated cost per ton of HAP reduced for emergency CI engines between 50 and 500 HP ranges from $3.7 million to $8.7 million." The commenter (240) asserted that any costs from $1 million to $8.7 million are too high to support a GACT determination and that add on controls would likely be required to meet the CO limit for CO engines which would lead to such costs.

(3) If the final rule includes a numerical CO emission limit, the commenter (240) is concerned it will cause compliance issues with state and/or local air permitting agencies. The commenter (240) is concerned that permitting agencies may require that sources demonstrate compliance with the numerical limits proposed in the RICE NESHAP, including performance testing and potentially the addition of after-treatment control. This commenter (240) requested that EPA replace the numerical limit with management practices consistent with the proposed management practices for emergency CI engines less than 500 HP.

EPA should increase the CO emission limit, but should also analyze the production add-on controls capacity and potential replacement engines because the commenter (242) questioned whether there will be a sufficient number of new engines and/or add-on control systems available in time necessary to comply with the rule.

One commenter (97) stated that CI engines greater than 500 HP will probably not be able to achieve 40 ppmvd CO because two-stroke engines have emissions higher than 40 ppmvd of

CO and the rule does not distinguish between two-stroke and four-stroke CI engines. In addition, the commenter stated that older engines with mechanical fuel injection or ignition retard technology emit higher levels of CO than newer electronic fuel injection engines.

One commenter (85) asserted that the proposed limit for emergency CI engines greater than 500 HP of 40 ppmvd of CO is too stringent. The commenter (85) believes that most of the current installed emergency generators would need to install retrofit technology to make these units capable of reducing emissions by 90 percent in order to comply with the proposed requirement. The commenter (85) stated that the proposed requirement would impose significant costs for owners of facilities, who maintain these units for emergency purposes, and would have minimal impact upon the health concerns, which motivate the proposed rule. Additionally, the commenter (85) indicated that demand response participants would likely opt out of demand response programs should they be faced with costly installation of retrofit technology, given the current economic climate. The commenter (85) recommended that the emission limit for emergency CI engines greater than 500 HP be revised to 400 ppmvd.

The commenter (85) believes that the proposed limit for emergency CI generators will result in extremely high costs for very little environmental benefit because these CI engines have limited operation, except for the few hours of testing annually and in operation hours only associated with Independent System Operators/Regional Transmission Operators (ISO/RTOs) electric power grid emergencies. The commenter (85) also believes that installation of retrofit technology on these engines is bound to have a negative impact upon the operation of these RICE units, which will diminish the value of the RICE units as a backup source. The commenter (85) added that it is important to consider that RICE units are installed in many locations where life-saving functions are critical. The commenter (85) believes it is not in the best interest of the public to compromise their ability to supply such a critical service.

Two commenters (74, 78) addressed EPA's proposed GACT standard for both emergency and non-emergency CI engines greater than 500 HP. The commenters (74, 78) said EPA needs to broaden its database of uncontrolled CO emissions for engines of this size to more realistically evaluate compliance feasibility, costs, and cost effectiveness. The data set is very limited, and it does not include emissions data from AP-42. The commenters (74, 78) said CO emissions data for existing stationary CI engines in Hawaii can be obtained from the State of Hawaii Department of Health, Clean Air Branch. This readily-available CO emissions data should be considered in developing GACT emissions limits for CI engines at area sources. Commenter 78 described an example where CO emissions are limited by permit to levels well above the 40 ppm CO emission rate that EPA is assuming for its uncontrolled emissions rate. A 90 percent reduction from these engines would still be above the 4 ppmvd limit. The commenter (78) also described an example for untested units with no emission limits where annual emissions are based on AP-42 emission factors for large stationary diesel engines. This emission rate is equivalent to nearly 10 times higher than EPA's assumed uncontrolled rate of 40 ppmvd.

Response: The emission standard of 40 ppmvd for CO that EPA proposed for stationary non-emergency diesel engines less than or equal to 300 HP at major sources and certain stationary emergency diesel engines at major and area sources was based on the emissions data available at the time of the proposal. EPA used the RICE Population Database and the RICE Emissions Database to set the proposed MACT floors. Based on information from those two sources, EPA found it appropriate to propose a 40 ppmvd CO limit. The limit was not expected to require engine retrofits. As summarized in this comment, several commenters indicated that the diesel engines would not be able to meet the proposed CO limits without aftertreatment. During the post-proposal period, EPA received additional emissions test data for stationary CI engines, which has been incorporated into the MACT floor analysis. From this analysis, EPA determined that the MACT floor for existing non-emergency engines 100-300 HP is 230 ppmvd CO. EPA recognizes that not all existing engines are likely to meet this emission limitation without the use of add-on controls and has incorporated this into the cost analysis for the final rule. EPA is required to set an emission standard for these non-emergency engines at major sources that is equivalent to the MACT floor. In response to the concerns expressed by commenters regarding the emission limits for stationary emergency CI engines at area sources, EPA has reevaluated the GACT analysis for these engines and determined that management practices are more appropriate for these engines than numerical emission limitations. As discussed in much greater detail in comment 5.3.1, the final rule requires emergency engines at major sources to meet work practice standards. For non-emergency stationary CI engines above 300 HP, EPA does not agree with the commenters that the cost of emission control is too high compared to the reductions that can be achieved. While the emission standard in the final rule for these engines is based on the use of oxidation catalyst control, similar to proposal, EPA did incorporate the additional data received in the MACT floor and MACT analysis and determined that the emission standard is 49 ppmvd CO or 70 percent reduction, which is not as stringent as the proposed emission limitation. This is discussed in more detail in the memorandum entitled "MACT Floor and MACT Determination for Existing Stationary Non-Emergency CI RICE Greater Than or Equal to 100 HP Located at Major Sources."

2.3.3 Comment: Two commenters (183, 242) said that EPA should not promulgate standards for existing diesel engines at area sources that are more stringent than standards for new stationary diesel engines at area sources. The commenter (242) said that doing so does not appear to be warranted under CAA provisions for establishing GACT and in order to fix this issue, EPA should promulgate standards that are equal to those currently required under 40 CFR part 60, subpart IIII for new units. Otherwise, EPA should present a more thorough and improved analysis and justification for requiring more stringent limits for existing units, commenter 242 said. Commenter 183 recommends that EPA establish CO limits greater than those required for new engines for any existing CI RICE subject to numerical CO limits.

Response: EPA does not agree that the final standards that apply to existing stationary diesel engines at area sources must be less stringent than those that apply to new stationary diesel engines at area sources, which were promulgated at a different time. However, EPA points out that new stationary diesel engines at area sources must meet the final CI NSPS phase-in standards that in most cases will require CDPF controls in Tier 4 certified engines. EPA anticipates significant HAP reductions to be achieved through the use of CDPF under the stationary CI NSPS. In addition, the final standards for all stationary CI engines, and particularly for CI engines below 500 hp and emergency engines above 500 hp at area sources, are all less stringent than the proposed standards. For that reason, EPA does not agree with the commenter that the final standards for new diesel engines at area sources are necessarily less stringent than the ones EPA proposed for existing stationary diesel engines. The most stringent standards for existing stationary diesel engines are based on the use of oxidation catalyst, where, as discussed above, the standards for most new stationary diesel engines will require the application of CDPF.

2.3.4 Comment: Two commenters (96, 215) agreed with the proposed cutoff of 300 HP as the above-the-floor threshold for non-emergency diesel engines, however, commenter 215 also encouraged EPA to reduce emissions from diesel engines smaller than 300 HP. In information submitted by the commenter (96) on the diesel engine ANPRM, the commenter stated that nearly 60 percent of total PM emissions from the country's diesel engines are from diesel engines above 300 HP installed prior to 1996 and that 80 percent of all diesel engines are used for emergency purposes, which operate infrequently and consequently contribute little to the total HAP and PM inventory. Therefore, the commenter (96) agrees with EPA's threshold of 300 HP for above-the-floor standards. Further, the commenter (96) added that non-emergency diesel engines above 300 HP can be retrofitted with controls cost-effectively and can achieve significant reductions.

The commenter (215) pointed out the ANPRM estimated 72 percent of the HAP emissions, 66 percent of the total PM emissions, and 62 percent of the total NO_X emissions are from existing non-emergency engines greater than 300 HP. The commenter (215) agreed that diesel engines greater than 300 HP cover the majority of emissions from diesel engines, but the commenter also believes that EPA should set standards for the smaller categories of engines, possibly on an extended schedule. The commenter (215) noted that areas across the country that are marginal or nonattainment may need the additional reductions that can be achieved by regulating diesel engines less than 300 HP. A study produced by the commenter (215) showed that people in close proximity to emergency or back-up generators are exposed to more harmful diesel emissions than those living and working further away. In the study, the commenter (215) chose a threshold of one in a million excess cancer risk and found back-up generators operating less than 100 hrs/yr produced a risk zone of 63 to 118 acres. In addition, the commenter's study found the population within the back-up generator risk zone is more likely to be low income, elderly, and of a racial minority. Based on these results, the commenter (215) recommends that EPA seriously consider establishing more stringent emission standards for diesel engines less than 300 HP, even if it is on a delayed schedule to reduce human exposures to diesel exhaust and to help states achieve clean air goals.

Response: As EPA discussed in the January 24, 2008 ANPRM for stationary diesel engines and as commenter 215 indicated in its comments, the majority of stationary diesel toxic and PM emissions are emitted from larger and older non-emergency diesel engines. The cost and feasibility of applying retrofit controls are also more favorable the larger the stationary engine. EPA specifically solicited comment on the appropriate group of stationary diesel engines, including what the most reasonable size cutoff would be, in the January 2008 ANRPMN. Several commenters indicated that they agreed with EPA's proposal to focus on non-emergency stationary diesel engines greater than 300 HP. In addition, during the development of the ANPRM, EPA worked with commenters 96 and 215 in order to determine the best approach for controlling emissions from existing stationary diesel engines. The proposed cutoff of 300 HP is consistent with the results of that effort. EPA notes that we do expect reductions in emissions as a result of this rule from stationary engines below 300 HP. Non-emergency engines between 100-300 hp at major sources are subject to numerical emission standards equal to the average of the best controlled 12 percent of engines in that subcategory. Given that many engines are not expected to meet that standard without some emission control, and some engines may need to put on aftertreatment to meet that standard, some amount of quantifiable emission reduction is likely to occur for such engines. It is more difficult to quantify emission reductions for stationary engines that are meeting standards through work or management practices, but EPA believes that requiring engines to meet such requirements will also ensure reductions in emissions compared to engines that are not required to meet such practices.

2.3.5 Comment: Three commenters (76, 96, 246) expressed that there may be issues with applying CDPF to older stationary diesel engines. One commenter (96) agrees with EPA's decision to rely on oxidation catalyst and ultra low sulfur diesel (ULSD) to reduce emissions from non-emergency stationary diesel engines above 300 HP. The majority of diesel engines above 300 HP are pre-1996 model year engines that are pre-Tier 1 engines with few or no emissions controls, according to commenter 96. The emissions profile of these older engines do not allow for the use of CDPF and the only technically feasible option is to use lower sulfur fuel and oxidation catalyst, the commenter (96) said. Particulate filters can only be applied to certain older engines with specific emissions, e.g., a certain engine-out PM level, proper duty-cycle with an adequate exhaust temperature, and that can operate on ULSD, which typically means that filters cannot be applied to pre-1996 model year engines. In addition, the commenter (96) said that CDPF cost more to install and operate than oxidation catalyst and although application of CDPF could lead to a higher reduction, technical and cost limitations prevent implementing such controls.

One commenter (76) believes that the operation of existing engines, 10 to 20 years old, may be impacted by the installation of CDPF. The commenter (76) stated that the there is not enough data to establish if CDPF can be retrofit on these older engines. Therefore, the commenter (76) asked that EPA allow a waiver that states that CDPF is not technically or economically feasible on older engines, and these engines should be exempt for control requirements, and owner or operators should only be allowed to submit a certification prior to the compliance date. The commenter (76) asked if older engines can be retrofit with control technology, and if owner or operators are required to purchase a new engine if an existing engine cannot be retrofit with control technology.

One commenter (246) feels that the proposed regulation for the application of oxidation catalysts to lean burn engines is appropriate based on the expected high levels of CO and HAP reduction from an oxidation catalyst in addition to the moderate levels of particulate reduction achieved, and states that this can generally be accomplished with low capital cost, low backpressure and a relatively small footprint relative to the application of a CDPF to an existing engine. Further, this commenter (246) adds that most existing diesel engines face backpressure limitations which could be exceeded if the regulation were to call for the mandatory application of a CDPF to an older engine, and that even if the installation of a CDPF alone did not cause backpressure issues, it could preclude the future application of NO_x control technology such as selective catalytic reduction (SCR) based on the backpressure resulting from the combination of the existing silencer and exhaust duct with a retrofitted CDPF and SCR.

Citing expected backpressure increases of 1 to 3 inches water column from a oxidation catalyst plus 4 to 5 inches water column from an added SCR, versus 15 to 20 inches water column for a clean DPF, commenter 246 asserted that the combination of SCR and oxidation catalyst can address CO, HAP, PM and NO_x emissions while generally remaining within backpressure limitations of existing older engines. Commenter 246 added that a study of backpressure limitations on existing engines would need to be undertaken prior to mandating a technology such as CDPF that potentially increased backpressure by 15 to 20 inches water column.

Commenter 246 has evaluated a number of existing engines and found them unable to accept the backpressure increase from a CDPF. In contrast, the commenter (246) has applied the combination of SCR and oxidation catalyst to four 1965 vintage 2.2 megawatt (MW) diesel engines to achieve high levels of NO_x and CO control. Commenter 246 adds that the combination of SCR followed by an oxidation catalyst has the benefit of reducing nitrogen dioxide (NO_2) formation (by reducing NO_x prior to the oxidation catalyst) and also reduces potential ammonia slip from the SCR.

Commenter (246) claimed the mandatory application of CDPF technology to a broad base of existing engines could preclude the ability to apply retrofit NO_x controls to existing engines based on cost, space and backpressure limitations. Further, given the need for NO_x reduction in many ozone non-attainment regions of the country and that NO_x emissions far exceed the current level of PM emissions from existing lean burn engines, commenter 246 asserts that a regulation that mandates a PM control strategy, which in turn prevents application of a NO_x control strategy, may not be in the best interest of overall public health and welfare. Commenter 246 concluded that since the HAP reduction performance is suggested to be similar for a oxidation catalyst or a CDPF, the proposed rule should not mandate the further control of PM with a CDPF, especially given that neither PM or NO_x is specifically covered as a HAP.

Finally, commenter 246 added that performance and operating range of the oxidation catalyst and/or SCR will be enhanced through the proposed requirement for ULSD fuel

<u>Response</u>: In the final rule, EPA is basing the emission standards on the use of oxidation catalyst controls for existing non-emergency diesel engines above 300 HP. EPA does not believe it is necessary to grant the request to allow a waiver for older engines that commenter 76 asked for

because the emission limits are not based on CDPF. Further, EPA is not mandating a specific control technology to be used to meet the final emission limits either, so the affected source could apply any means of control in order to comply with the emission limits. Since the proposed regulation is an air toxics-based rule, EPA did not consider the use of SCR on existing stationary diesel engines. This rule addresses HAP emissions and SCR is typically used to control the emissions of NO_x, a criteria pollutant that is not the focus of this rulemaking.

2.3.6 Comment: One commenter (193) believed that EPA should refrain from promulgating a standard that requires the installation of CDPF on existing stationary diesel engines, to abate “black carbon emissions.” The commenter (193) cites CAA sections 112(c)(2) and 112(d)(1) which require the Administrator to “promulgate regulations establishing emission standards for each category or subcategory of major sources and area sources of hazardous air pollutants listed for regulation pursuant to subsection (c)…” CAA section 112(c)(1) instructs EPA to establish emission standards for source categories and subcategories with pollutants listed in section 112(b) of the CAA. The EPA has listed both major and area source RICE as source categories for regulation pursuant to 112(c)(1) of the CAA. The commenter (193) notes that black carbon was not listed by Congress as a CAA section 112(b)(1) hazardous air pollutant and EPA has not added it to the 112(b)(1) listing of HAP, by rule, as required by CAA section 112(b)(2). EPA’s stated purpose for this rulemaking is “to meet its statutory obligation to address HAP emissions from these sources under sections 112(d), 112(c)(3) and 112(k) of the CAA.” The commenter (193) believes the establishment of a control technology standard for black carbon using this rulemaking as EPA’s vehicle for obtaining reductions in black carbon emissions is inconsistent with the stated purpose of this rulemaking and its underlying statute. There is no indication that

EPA has made the requisite findings that black carbon presents, or may present, "through inhalation or other routes of exposure, a threat of adverse human health ….," nor has EPA amended the list of HAP in accordance with section 112(b)(2) to add black carbon to the list.

Response: EPA is not establishing emission standards for black carbon in the final rule. EPA is not mandating a specific control technology in the final rule to be used to comply with the emission standards. EPA is finalizing national requirements to address HAP emissions from existing stationary engines in order to meet its statutory obligations under sections 112(d), 112(c)(3), and 112(k) of the CAA.

2.3.7 Comment: One commenter (215) noted that CDPF is more expensive than oxidation catalyst; however the fact that a control may cost more is not a sufficient basis for EPA to reject it. The commenter 215 also stated that the CAA does not authorize EPA to consider cost effectiveness in setting beyond-the-floor MACT standards. The commenter (215) asserted that cost is not cost effectiveness and said that nowhere does section 112 of the CAA mention cost effectiveness. Commenter 215 noted that EPA may allow engines that are unable to be retrofit with CDPF to use alternate standards, similar to what was adopted by California in the Air Toxics Control Measure for stationary diesel engines.

Response: EPA has not rejected CDPF as a possible emission control strategy for this rule. If a source can feasibly use CDPF and can meet the standards using CDPF, the source may use it. EPA does not generally, and does not in this rule for its numerical emission standards, require sources to use any particular emission control strategy to meet the standards. Any strategy that can be used to meet the requirements of the rule may be used. However, EPA does determine beyond-the-floor standards based on the emissions expected from using the type of controls that it believes is MACT. Section 112(d)(2) of the CAA states that the Administrator may take into account the cost of achieving emission reductions in setting standards beyond the MACT floor. EPA also does not agree that EPA cannot consider the cost-effectiveness in setting beyond-the-floor standards. Cost-effectiveness is computed by merely dividing cost by the emission reductions expected. It would be strange indeed if section 112(d) of the CAA allowed us to use the cost of an emission control, but not the level of emissions reduced by the control, in determining a standard whose main purpose is the control of emissions. The EPA is justified in taking into account the emissions reductions that can be achieved in determining MACT, and therefore is justified in taking into account cost-effectiveness. Moreover, the commenter fails to show that CDPF technology is feasible for most existing stationary engines or actually achieves greater HAP emission reductions compared to diesel oxidation catalysts.

2.4 Other

2.4.1 Comment: One commenter (242) said that the rule will require all existing engines to obtain an NSR permit. Exemptions that have existed in NSR programs for minor sources will no longer be available for sources having NESHAP requirements and the commenter (242) said that EPA has not taken into account the burden associated with obtaining NSR permits for these sources. These costs should be included in EPA's benefit analysis, the commenter (242) said.

Response: The costs of compliance with NSR are not clear and result from operation of those regulations. They are outside the scope of this rulemaking. The decision to regulate stationary engines located at area sources came through operation of section 112(c)(3) and 112(k) of the CAA and was decided in the urban air toxics rule, not this rule.

2.4.2 Comment: One commenter (136) noted that there is no limit on construction date for existing RICE in the proposed rule. The commenter (136) stated that older engines were never designed to comply with these stringent emissions and some are not easily retrofitted with catalysts, if it can be done at all. The commenter (136) added that the expectation for older RICE to meet the MACT Floor or Beyond the MACT Floor will not be possible in many cases, and there is no data in the docket to support that these emission limits are achievable. The commenter (136) believes that industry could be faced with replacing thousands of existing engines that will not be able to comply with the emission limits in this proposed rule.

Response: EPA proposed emission standards for certain existing stationary engines based on the use of add-on controls. In those cases, EPA expects that owners/operators would be able to retrofit their existing engines with readily available control technologies such as oxidation catalyst. Based on available information at the time of proposal, there was no indication that the aftertreatment controls that the proposed emission standards were based on for a certain subcategory of stationary engines, would not be feasible to apply to older engines. Oxidation catalyst has been used for many years on existing and new stationary CI engines.

The commenter claims that the proposed emission standards that are based on retrofitting engines may not be achievable on older engines. The commenter does not define what is meant by older engines and further does not support the claim that the standards are not feasible. No details are provided as to why the proposed standards are not achievable, in the commenter's opinion.

2.4.3 Comment: One commenter (121) said EPA should exempt RICE used in product development, research, and testing operations at both major and area sources. For example, members of the commenter's (121) organization employs engines to test transmissions, subsystems, and powertrain configuration using dynamometer facilities. EPA has traditionally excluded research activities from applicability of MACT standards, the commenter (121) said.

Similarly, commenter 230 recommended modifying 63.6590(a) of the proposed rule to exclude stationary RICE used for research and testing because research engines operate for limited periods of time, and represent an insignificant source of emissions compared to the population of interest to EPA.

Response: EPA does not agree that stationary CI engines used in product development, research, and testing operations should be exempted from subpart ZZZZ. The commenter did not provide any data to show that the emissions and operation from these engines are different and would justify exempting them from the rule.

2.4.4 Comment: Two commenters (167, 213) thought that existing stationary engines should not be addressed in this rulemaking. One commenter (167) stated that existing stationary engines are already adequately regulated. The commenter (167) cited State and local permitting programs, other ordinances, and national standards such as those established by the National Fire Protection

Association (NFPA) as evidence to support this statement. One commenter (213) said that it did not believe that EPA's analysis on costs and benefits was detailed enough and the commenter asked that a more thorough analysis is necessary as it relates to the economic impacts of controlling HAP emissions. The commenter (213) thought that enhanced monitoring, recordkeeping and reporting to ensure improved compliance of engines already subject to rulemakings would be more instrumental and recommended that until further benefits of HAP reductions associated with existing engines can be proven, the proposed rule only be subject to new or reconstructed engines and existing engines remain subject to already promulgated requirements until they are no longer in service.

Response: EPA is obligated by statutory requirements to develop regulations for all stationary engines. EPA has previously issued regulations for existing stationary engines greater than 500 HP located at major sources of HAP emissions and is with this regulation finalizing regulations for the remainder of existing stationary engines not covered in the original RICE NESHAP regulation, i.e, existing stationary engines located at area sources of HAP emissions and existing stationary engines less than or equal to 500 HP located at major sources of HAP emissions. Therefore, EPA does not agree that existing stationary engines have already been adequately regulated since this is the first time EPA is addressing HAP emissions from these engines. What State programs and various other regulatory agencies across the country have done in the past to regulate existing stationary engines does not change EPA's statutory requirements in this matter.

2.4.5 Comment: One commenter (125) encouraged EPA to consider including an "off-ramp" from inappropriate requirements for facilities that can demonstrate that the additional controls will not provide any significant reduction in human health risk. The commenter (125) presented HEM-3 (AERMOD mode) modeling results for two diesel-fired peaking generator units located at the Outer Banks, NC that are used to provide power during peak times as well as for reliability and emergency conditions. The commenter's (125) modeling results for the units (with conservative modeling inputs) show cancer risk of 1.1×10^{-7} and 1.5×10^{-7}, total chronic hazard index values of 4.5×10^{-3} and $5.9 \times 10 \times 10^{-3}$, and acute hazard index values less than 1.0, which commenter claims are below applicable EPA health criteria. The commenter (125) recommended that EPA provide alternative compliance options in certain cases where the risks posed by the emissions are very small, similar to health-based approaches in other MACT standards. The commenter (125) claimed that without such a health-risk approach, his example client would be required to pay $500,000 capital costs + about $66,000 in annual costs for emissions controls, plus additional costs related compliance such as recordkeeping and reporting requirements, performance tests, permit modifications, fuel-handling modifications, etc., all without any measurable reduction in human health-risk or accomplish any of the objectives stated in the proposed rule.

Response: EPA does not agree that it would be appropriate to include a risk-based approach in the final rule. EPA has included several provisions in the final rule that it believes will alleviate the burden on owners and operators of existing stationary emergency engines that the commenter is concerned about. Existing stationary residential, institutional and commercial emergency engines located at area sources are not subject to the final rule. EPA has also specified in the final rule that emergency stationary CI engines and non-emergency stationary CI engines less than 300 HP located at area sources are not subject to emission limitations and will comply with management practices, which reduces the burden of the rule on those units. EPA notes that section 112(d) of the CAA provides few possible methods of allowing sources to avoid regulation based on risk and the commenter does not provide sufficient argument regarding how any such provision could be used for these engines.

2.4.6 Comment: One commenter (228) recommended that the rule provide a method for a source to convert an engine from emergency to non-emergency classification and vice versa. The commenter (228) stated that sources will not know of the need to convert from emergency to some other use until the incident requiring the conversion occurs. The commenter (228) stated there needs to be a way to establish the time and requirements for conversion, and recommended that the source keep a log book of its RICE, their status, and submit a notice to the permitting authority administering the program within 30 days of any change in status. The commenter (228) stated that the new requirements would go into effect 30 days after mailing of the notice (e.g., new recordkeeping requirement start on the 30^{th} day after mailing; an initial performance test would be due 210 days after mailing the notice).

Response: EPA cannot provide guidelines in the final rule for what the commenter is requesting in terms of emergency to non-emergency engine conversions and vice versa. This question will be answered on a case-by-case basis. The commenter is advised to be familiar with the definition of emergency engine and to be in conformance either with that definition or with the requirements applicable to non-emergency engines when these regulations become applicable to the source.

2.4.7 Comment: Two commenters (179 and 183) wanted clarification on whether the rule affects temporary replacement engines. One commenter (183) stated that EPA should clarify for temporary replacement engines that are considered stationary because that replace permanent engines at stationary sources may meet requirements of the NESHAP either by meeting the otherwise applicable requirements for stationary sources or by meeting the requirements for nonroad engines, including the use of certified engines. Two commenters (179, 183) stated that EPA should clarify in the preamble for temporary portable engines that do not trigger provisions in the definition of nonroad engine are not considered stationary engines and therefore would not be covered by the NESHAP.

Response: This comment is similar to comment we received in the rule promulgating New Source Performance Standards for stationary SI engines and NESHAP for most new stationary engines. In the Response to Comments to that rule, we stated the following: "Portable electric generating engines that remain in one location for less than 12 consecutive months are considered nonroad engines and are subject to requirements for nonroad engines. Conversely, portable engines that are kept at one location for more than 1 year are considered stationary engines while they remain at the location, even if, as is possible for emergency engines, they are not used… There is an exception for replacement units that take the place of existing stationary units. Portable engines that replace existing stationary engines on a temporary basis would be considered stationary engines. This is an important provision in that it allows the permitting authority to count the emissions of the temporary unit in the emissions from the stationary source, as it would for the permanent unit. This prevents major sources from avoiding the counting of such units in its projected or actual emissions." In the new engine rule, we allowed compliance by new temporary replacement engines with the nonroad engine standards to also be compliance with the standards for new stationary engines being promulgated in that rule. In that context, this allowance was sensible, since EPA had already determined that for the new engines being regulated, compliance with the nonroad engine standards also met the requirements for new stationary engines. However, in this context, we cannot make that determination, since many of the existing engines being regulated in this rule were never subject to regulation under the nonroad engine rule. Therefore, we have no assurance that compliance with nonroad engine regulations will also meet the requirements, in particular those requirements mandated by statute, that are applicable to existing stationary engines under section 112(d), and under the regulations promulgated in this action. We therefore cannot add the language requested by the commenters.

3.0 Startup, Shutdown, and Malfunction

3.1 <u>Comment</u>: Several commenters (63, 74, 76, 78, 87, 89, 96, 97, 98, 99, 101, 103, 104, 112, 121, 122, 124, 126, 129, 130, 131, 132, 134, 139, 146, 148, 150, 151, 152, 154, 155, 156, 157, 160, 162, 167, 168, 175, 176, 177, 178, 183, 186, 187, 191, 197, 200, 202, 203, 204, 205, 207, 209, 213, 216, 218, 221, 224, 225, 226, 227, 228, 229, 231, 236, 240, 242, 247, 253, 261, 262, 264) expressed serious concern over the proposed emission standards for periods of SSM. The U.S. Court of Appeals for the District Columbia Circuit vacated the SSM exemption in 40 CFR part 63, subpart A on December 19, 2008. The decision requires the Agency to implement standards that apply at all times, including during SSM periods. Numerous commenters thought the quick response to the December 2008 Court decision on the SSM issue is premature and recommended that EPA wait for a final decision before incorporate elements from this case.

Numerous commenters are of the opinion that EPA has not provided a technical basis for its establishment of SSM limits and that any SSM limits should be replaced with work practice standards and disagreed with the decision to include limits for SSM periods. In addition, several commenters said that emissions during SSM events cannot be measured and therefore cannot be confirmed and limits are not enforceable. One commenter (148) recommended that EPA require a SSM plan similar to the SSM plan currently required under 40 CFR part 63, subpart ZZZZ. The commenter (148) also pointed out that 40 CFR 63.6650(b) in the existing rule requires operators to operate and maintain their equipment in a manner consistent with good air pollution control practices at all times, including periods of SSM. The commenter (148) believes that this requirement in conjunction with a SSM plan will achieve the same goals as the proposed rules in a much more cost effective and logical manner.

Based on CO baseline data presented by commenters (74, 78), EPA must consider a broader database of uncontrolled engines in determining what CO limits can be achieved during SSM periods. One commenter (78) asked how it can limit the concentration of CO to 40 ppmvd or less during startup and shutdown periods when catalytic control would not be effective, when CO emissions currently range for 160 to 382 ppmvd at 15 percent O_2. Commenter 74 provided similar data and reached the same conclusion as commenter 78.

Many commenters, including commenters 112, 155, 236, 242 and 247 recommended that EPA consider other alternatives to implement during SSM periods, such as possibly requiring work practice standards, which the commenters believe is the most reasonable approach and is justified under the CAA. Commenter 242 believes that work practices standards that minimize the emissions during of SSM periods is the most practical method of keeping HAP emissions from engines as low as possible. Commenter 242 offered to provide additional assistance and input in order to come up with reasonable work practices to include in the final rule. The commenter (155) also recommended that EPA describe the SSM requirements in the rule itself rather than in the GP. Alternatively, the commenter (155) recommended that the GP be revised due to confusing and conflicting requirements.

Several commenters, including commenters 96, 99, 156, and 242 said that there is no method to determine compliance during SSM periods. Commenter 242 said that it will be difficult or impossible to design a test program to describe emissions during SSM events, e.g., the commenter is not sure how a malfunction would be defined considering the unexpected and anomalous nature of the event. Therefore, emissions during these periods cannot be confirmed, commenter 242 said. Similarly, commenters 96 and 99 believe that it is not reasonable to set numerical limits during startup because there are no available or repeatable test methods or procedures for measuring emissions during startup or malfunction, plus there is no prescribed definition of what constitutes startup of an engine, which can vary significantly for a number of reasons such as engine and catalyst type, fuel, climatic conditions, application and load.

Several commenters (63, 96, 104, 129, 139, 150, 162, 178, 191, 197, 242) expressed concern over the feasibility of measuring emissions during SSM events. One commenter (242) said that if EPA retains the SSM limits in the final rule that EPA must provide methodologies and details on how to determine compliance with the emission standards during these SSM events. The commenter (242) has previously stated its objection to SSM limits and favors work practice standards instead. However, if SSM limits are retained, two commenters (76, 242) said that EPA must specify how compliance is determined, e.g., the commenter (242) wondered how does a source determine compliance for SSM events that are short (which the majority of SSM events are) and less (e.g., 1 hour for warm startup) than the performance test length requirement of the average of three 1-hour tests. One commenter (96) said that this methodology (average of three 1-hour tests) is impossible to execute since startups usually take 30 minutes to complete. If EPA used Method 320 (FTIR) for short duration events, EPA should discuss any intent to modify the compliance method of taking the average of three 1-hour tests and state the length of a new tests, the commenter (242) said. The commenter (242) added that FTIR has the capability of taking short-term minute average concentration readings.

One commenter (76) said that the rule should specify that concentration limit should be based on the time period of the startup or malfunction or a 1-hour period, whichever is longer.

Another commenter (242) added that time is needed for catalyst elements to warm up and stabilize before CO and HAP are effectively reduced and uncontrolled or partially controlled emissions cannot comply with the proposed startup emission limits. Regarding malfunctions, the commenter (242) asserted that no assurance can ever be made in terms of emission limit compliance. The malfunction, by nature, is not predictable, unknown and undefined, of unknown frequency, and emissions cannot be predicted, implied or measured, the commenter (242) said and again urged EPA to adopt work practice standards that minimizes emissions during SSM events.

Finally, the commenter (242) noted that Title V operators would not be able to meet their obligation for compliance certification if the proposed SSM limits remain because affected sources would be required to show compliance with limits that have not been technically justified and will lead to implementation issues in the field.

Since the rule offers no means of determining compliance during startup, one commenter (150) stated that clarification is needed on this issue.

One commenter (129) stated that for a source that is not monitoring emissions with a CEMS, it is impossible to determine whether SSM limitations are being met. The commenter (129) added that the monitoring/testing requirements will not allow an operator to make a knowledgeable determination of compliance during SSM using available data.

One commenter (99) said that there are no viable measurement methods available to measure CO, formaldehyde or VOC during transient operation and a review conducted by the commenter of Table 4 in the proposed rule shows the inconsistencies related to transient measurement acceptability with respect to stack gas moisture and flow rate, delays in the actual response of analyzers, issues in obtaining an accurate measurement during a transient test due to an axial diffusion function in long gaseous emissions sample lines, and field gaseous emission measurements require stack traverse as well for the emissions under measurement, per methods 7, 10, 25, etc., which eliminates the possibility of getting an accurate measurement during transient events such as a startup.

One commenter (152) claimed that issuance of numerical limits for SSM based on the emissions of the "best controlled sources prior to full warm up of the catalytic control" fails to consider emissions during malfunction of the engines themselves. The commenter (152) asserts that while EPA appropriately determined that during a control device malfunction, the floor and standard cannot be set assuming operation of the control device, EPA errs in limiting its analysis solely to operation of the controls since emissions can increase as a result of engine malfunctions as well. The commenter (152) noted that its experience is consistent with EPA's statements that emissions during an engine malfunction may increase due to the effects on exhaust temperatures and composition. The commenter (152) concluded that emission limits would need to be based on the emissions level from the best performing sources without control while the engine is malfunctioning. Commenter 96 added that it does not make sense to set any numerical standards during a malfunction of an engine because inherent in the concept of a malfunction is that emissions will be malfunctioning as well. It is also not logical to apply the concept of "best performing" malfunctioning engine, the commenter (96) said. For these reasons, it is unreasonable for EPA to promulgate numerical emission limits for periods of malfunction, in the commenter's (96) opinion. Emission testing for malfunctions would be near impossible to conduct given the sporadic and unpredictable nature of the events, the commenter (121) said. Commenter 154 said that the nature of malfunctions means it is not feasible to predict or simulate emissions that occur during periods of malfunctions.

The commenter (152) asserted that with respect to engines, it is not technologically or economically feasible to apply measurement methodology for the emissions during SSM periods and further, that it is unreasonable for the Agency in the face of the lack of accurate emission measurements to simply set the standard at the level for normal operations (e.g., for sources not using a control device). The commenter (152) stated that this situation is precisely the circumstance in which Congress envisioned that a work practice standard would be established, and urged EPA to adopt a work practice standard applicable to malfunction and startup periods for engines consistent with section 112(h) of the CAA and not to apply the numerical limits for normal operations.

One commenter (157) believes that the startup and malfunction emission standards for RICE using catalytic controls should include maintenance checks and readiness testing, which are typically short in duration. Therefore, the commenter stated that the catalytic controls would not reach the required temperature for effective control.

One commenter (134) stated that EPA solicited comment on the level of specificity needed to define the periods of startup and malfunction. The commenter (134) believes the responses differ based on whether the event is a startup or malfunction. The commenter (134) noted that startup of an engine begins with the start of fuel flow to the engine and ends when the engine has achieved normal operating temperature and air to fuel flows as indicated by the manufacturers' specifications, and while the initiation of a startup is predictable, its conclusion is not time-determined, but operationally-determined. The commenter (134) noted where a catalyst is used to control emissions; startup does not end until the required catalyst bed temperature has been achieved, however, this may happen before the engine air and fuel flows are normal and thus catalyst bed temperature is not the exclusive criterion that defines the end of the startup period. The commenter (134) noted that the start of the malfunction should be defined as when the normal operation emission limit is exceeded and the end of the malfunction should be set as when the normal operation emission limit is restored or the engine is shutdown. The commenter (134) noted that malfunctions often require shutdown to address, but such shutdowns can be delayed because immediate engine shutdown would cause other upsets. Therefore, the commenter (134) believes it would not be reasonable to set any specific time limits on either startup or malfunction periods, because their duration can be a function of operational need. Similarly, one commenter (96) disagreed that it would be appropriate to set a specific limit on the time allowed for startup because not all engines experience the same type of startup and malfunction. The length of startup will depend on many factors including engine type, size, fuel type and duty cycle, plus the frequency of required startups will also vary greatly among engines because some engines are only used for intermittent operation.

Some commenters, including commenters 74, 78, 96 and 99 thought that limiting the engine startup time is a reasonable method to limit emissions. Commenter 99 added that the most effective way to control emissions during startup for engines with catalysts is to limit the amount of time it takes to warm up the exhaust to initialize the catalyzation process and startup time can be easily monitored. The commenter (99) added that the time to be monitored at startup be defined as from the initial engine in-cylinder combustion, corresponding with continuous operation, up to the point that a defined catalyst inlet temperature is reached. The commenter (99) also recommended that owners/operators be able to request additional startup time if necessary in special circumstances, e.g., in extremely cold climates or where sufficient load cannot be reached within 30 minutes. Commenters 74, 78 recommended a limit of 1 hour for startup and 30 minutes for shutdown. The rule should not include a time limit for malfunctions, as the length of time during which an engine will be out of compliance would depend on the type of malfunction, the commenters (74, 78) said. The commenters (74, 78) suggested that each affected source would be required to prepare a SSM plan, which would have to address appropriate actions and time limits for malfunctions. Commenter 112 suggested that for engine startups, the work practice should require loading the engine to normal operating load as soon as practicable so that the catalytic controls are within operating range as soon as practicable. Commenter 96 provided the following language to address the startup issue:

“RICE startup operations, which constitute the time period from engine ignition to the time when the catalyst temperature is sufficient to enable effective catalyst operation, shall be minimized. Startup time shall not exceed 30 minutes or the manufacturer’s startup recommendations, unless the Administrator approves a longer time for certain engine classes or approves a longer startup time to address special conditions and requirements (e.g., cold weather installations) in response to a petition from the owner/operator. During initial commissioning of the engine/equipment installation, additional time may be required for the set-up procedures before normal catalyst operation can be expected. Malfunctioning RICE shall be shut down and repaired as soon as practicable based on the engine's application and use."

Commenters (121, 154) do not support setting the same limits for SSM periods as for normal operations. Commenter (121) said that for engines with add-on controls, given that the catalysts have to reach a certain temperature to be effective, emissions during startup would be higher than during normal, steady state operation. The commenter (121) noted that EPA has a separate cold-start test with emission limits different from those required during the Federal Test Procedure. The commenter (121) attached a technical paper that illustrates the increased emissions during startup. Commenter (154) said there is no record support for this option and that any diesel engine could be expected to have different emissions as it starts up. Bag sampling by one industry member indicates CO emissions during startup are significantly higher (as much as double) than during steady state.

Commenters (121, 154) also objected to EPA's proposed second option. Commenter (121) said the data are apparently derived from the best controlled engines not using catalytic controls. The commenter (121) said that emissions data from steady-state operation of uncontrolled engines does not account for the cooler engine and fuel temperature conditions during startup. Nor does the second option properly account for malfunctions.

Two commenters (150, 154) said that EPA has not supported its assertion that emissions should not be different during periods of shutdown compared to normal operations. According the commenter (154), EPA has created no record to substantiate its assertion. The commenter (154) asserts that data would likely reveal variation among RICE shutdown emissions. For example, for RICE where there is a cool down period where the engine operates for a period of time (10 to 15 minutes) at reduced load and revolutions per minute, these conclusions could be wrong. All existing data has been acquired at 100 percent speed and load conditions, +/- 10 percent. Normal operation can cover a wide range of speed and load conditions for which pre- and post-catalyst data do not exist. Without hard data at “off point” conditions, no defensible conclusion can be drawn, which makes EPA’s unsupported assertion arbitrary. The commenter (154) believes the best approach is for sources to follow appropriate operational procedures during shutdown periods. EPA should use section 112(h) of the CAA to allow facilities to establish source-appropriate procedures during shutdown, the commenter (154) said.

One commenter (154) stressed that EPA needs to evaluate each source category independently regarding the time required for shutting down equipment in a controlled fashion and the emission control equipment effectiveness during the shutdown period.

After the conclusion of litigation, if EPA pursues SSM limits for this category, it should consider precedents in the mobile source counterparts and the NSPS, according to commenter 121. These engines are already well-controlled through other standards set by EPA, and additional requirements or changes are unnecessary under the RICE MACT, in the commenter’s (121) opinion. Another difficulty is defining the exact time period for “startup,” the commenter (121) noted. For new engines, the commenter (121) recommends that EPA and engine manufacturers work together to determine whether startup emissions can be addressed in the certification process.

Commenter 154 proposed two options for EPA to address emissions during SSM events, both of which are fully supported by law and could be fully supported through data. Alternative 1 would be to treat SSM emissions as de minimis, using the D.C. Circuit rationale in Alabama

Power Co. v. Costle. The commenter (154) noted that catalyst systems do not perform at low temperatures, and the SSM periods vary in duration and intensity, which can significantly impact actual emissions profiles. The commenter (154) provided examples of why an assumption that SSM emissions are identical to normal stable operations emissions is erroneous and a gross over-simplification of unit operations.

Commenter 162 said EPA should explain the justification behind setting CO and formaldehyde emission limits during periods of SSM. The commenter (162) does not see how one can assure compliance with an emission limit during a malfunction and does not know of any test methods that can be conducted during the relatively short periods of startup or shutdown. The commenter (162) asserted the compliance with SSM plans will ensure emissions are minimized during these times. By imposing emission limits during periods of SSM, RICE owner/operators will have to report deviations for each instance, even if the owner/operators took actions in compliance with their SSM plan, because a reliable compliance demonstration is not available for existing equipment, according to commenter 162.

Five commenters (89, 101, 151, 221, 231) stated that SSM emission limits are unproven and cause compliance uncertainty. The commenters (89, 101, 151, 221, 231) indicated that EPA set the SSM emission limits assuming that emissions during SSM periods are the same as steady state engine operation before the catalyst. According to the commenters (89, 101, 151, 221, 231), HAP emissions during SSM activities have not been studied, but are definitely not stable over hourly averages like the proposed standard assumes. With today's knowledge, the commenters (89, 101, 151, 221, 231) believe that SSM emissions standards are not feasible.

Two commenters (112, 225) stated that operators of facilities with Title V permits may have concerns about the annual compliance certifications since compliance with the standards is unknown during startup and malfunction since emissions are rapidly changing during startup. One of these commenters (112) asserted that the SSM standards are instantaneous standards, not hourly averages, but no one knows if the proposed instantaneous limits can be met without test data. This commenter (112) indicated that compliance certifications for Title V permits may necessitate testing, which is not included in EPA's cost analysis.

The commenter (150) believes that a clarification is needed regarding the co-proposal associated with Table 3 of the preamble (74 FR 9703). The commenter (150) believes that EPA is suggesting an amendment to existing regulations for certain categories of engines in order to set limits during periods of startup and malfunction, but the commenter finds the scope and possible applicability of this co-proposal unclear. If EPA is proposing that standards be relaxed during SSM events, the commenter (150) would support such a concept.

Commenter 240 said that in contrast to other subcategories that allow for higher emission limits during periods of startup and malfunction, EPA requires that emergency CI engines meet the same 40 ppmvd CO at 15 percent O_2 standard at all times. This commenter (240) looked at manufacturer specifications for new engines that show higher CO emissions at lower loads, with decreasing emissions as the engine progresses to higher loads. In addition to lower loads that may occur during a startup or malfunction event, good engineering practice for these engines is not to operate at full loads during normal operations or startup and malfunction.

One commenter (76) noted that the NFPA Code 24 requires emergency diesel fire pump engines to be operated for 30 minutes per week to readiness testing purposes. It will raise difficult questions for the owners/operators of these engines if EPA requires emission limits during startup times, e.g., what should the owner do if the engine is unable to reach the required limits within the 30 minutes startup, the commenter (76) asked. The commenter (76) asked if the owner would be required to run the engine for longer e.g., up to 1 hour in order to reach steady state conditions. Even if the owner does not meet the limits, the owner will still have to conduct the weekly test under NFPA code and replacing emergency diesel fire pumps in a short timeframe is not practical, the commenter (76) said. Therefore, the commenter (76) indicated that it may not be able to comply with both the EPA and NFPA requirements for emergency diesel engines.

Two commenters (103, 154) responded to EPA's request on how to define a startup and malfunction. One commenter (154) said that EPA's request reveals the profound lack of foundation that EPA has to propose rulemaking options for regulation of RICE SSM emissions. The commenter (154) will be pleased to assist EPA in developing a record for a future rulemaking to address SSM and noted that such an effort should also address the health and safety implications of regulating SSM events.

Response: EPA received extensive comments on the proposed requirements applicable to existing stationary engines during SSM. Consistent with the recent Court decision that vacated the exemption in 40 C.F.R. 63.6(f)(1) and (h)(1) for SSM (Sierra Club v. EPA, 551 F.3d 1019), EPA has established standards in this rule that apply at all times. EPA disagrees with those comments suggesting that EPA was premature in proposing standards during periods of startup, shutdown and malfunction. The United States Court of Appeals for the District of Columbia Circuit issued its opinion vacating the SSM exemption in December 2008, and we appropriately accounted for that decision in proposing the rule in February 2009. EPA does not believe it is appropriate to promulgate final rules that are inconsistent with the decision of the D.C. Circuit.

EPA has determined that the emissions from stationary CI engines during startup are significantly different than the emissions during normal operation. During startup, incomplete combustion of the diesel fuel causes variations in the pollutant concentrations and fluctuations in the flow rate of the exhaust gas. Incomplete combustion is due to cold areas of the cylinder walls that cause the temperature to be too low for efficient combustion. As the engine continues to operate, these cold regions begin to heat up and allow for more complete combustion of the diesel fuel and stabilization of the exhaust flow rate and pollutant concentrations. In addition, the engine experiences extreme transient conditions during startup, including variations in speed and load, poor atomization of the fuel injection, which leads to variable engine and engine exhaust temperatures, variable exhaust gas flow rates, and variable diluent pollutant concentration. Note for example the brief time spent at different load conditions as shown in Figure 1 of the attachment to EMA's letter dated February 17, 2009 (EPA-HQ-OAR-2008-0708-0019), which illustrates the transient nature of the engine startup phase. Other factors that cause emissions to be higher during startup, including for engines that are not equipped with oxidation catalyst, are a higher propensity for engine misfire and poorer atomization of the fuel spray during startup. After-treatment technologies like oxidation catalysts and CDPFs must also reach a threshold temperature in order to reduce emissions effectively. In the February 17, 2009, EMA letter, EMA provided various graphs illustrating sample engine startup profiles and graphs demonstrating the effect of engine exhaust temperature on catalyst efficiency. Figure 6 of the attachment to EMA's letter (EPA-HQ-OAR-2008-0708-0019.1) shows how the CO efficiency is a function of the catalyst inlet temperature.

EPA has evaluated the criteria in section 112(h) and carefully considered and reviewed the comments on this issue. EPA has determined that it is not feasible to prescribe a numerical emission standard for stationary CI engines during periods of startup because the application of measurement methodology to these engines is not practicable due to the technological and economic limitations described below.

EPA test methods (e.g., 40 CFR part 60, appendix A, Methods 2, 3A, 4, and 10) do not respond adequately to the relatively short term and highly variable exhaust gas characteristics occurring during these periods. The innate and substantial changes in the engine operations during startup operations create rapid variations in exhaust gas flow rate as well as changes in both pollutant and diluent gas concentrations. Correlating the exhaust gas flow rates and the gas components concentration data for each fraction of time over the entire period of a startup operation is necessary to apportion the values appropriately and to determine representative average emissions concentrations or total mass emissions rate.

Measuring flow and concentration data in the types of rapidly changing exhaust gas conditions characteristic of stationary CI engines is unachievable with current technologies applicable to stack emissions testing. For example, application of Method 2 to measure stack flow rate requires collecting data for velocity pressure and stack temperature at each of 12 traverse points and a corresponding stack moisture and oxygen concentration (for molecular weight determination). This traverse operation requires about 30 minutes to complete to produce a single value for the test period, which is approximately the same amount of time as the engine startup period. Clearly a single flow rate value would not sufficiently represent the variable flow conditions nor allow appropriate apportioning of the pollutant concentration measurements over that same period for calculating a representative average emissions value. Even if the start-up period is longer than 30 minutes, the stack flow rate test period could not be short enough to represent the short term (e.g., minute-by-minute) result necessary for representative emissions calculations. These findings lead us to conclude that correlating the flow and concentration data as necessary to determine appropriate proportional contributions to the emissions rates or concentrations in calculating representative emissions over these short highly variable conditions with currently available field testing procedures is problematic for stationary CI engines. In addition, even were it technically feasible to measure emissions during startups for stationary CI engines, the cost of doing so for every startup at every covered engine would impose a substantial economic burden. There are approximately 936,000 existing stationary CI engines that are subject to this rule; the cost for testing every one of these engines during engine startup could be more than $1 billion.

EPA is therefore finalizing an operational standard in lieu of a numerical emission limit during periods of startup in accordance with section 112(h) of the CAA. EPA is limited to the information before it, which, of course, includes any information provided by the commenters. See 112(d)(3)(A). In this case, EPA carefully analyzed all of the information before it, including that provided by commenters, and determined that this standard complies with the requirements of sections 112(d) and 112(h). The final rule requires that owners and operators of stationary engines limit the startup time to 30 minutes or less. Engine startup is defined as the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation. For stationary engine with catalytic controls, engine startup means the time from initial start until applied load and engine and associated equipment reaches steady state or normal operation, including the catalyst. Based on information received from engine producers and operators of stationary existing CI engines, EPA believes that limiting the engine startup time to 30 minutes or less is representative of the best controlled engines' operation during startup. EPA expects that this amount of time is consistent with the warm-up time needed and would be sufficient in most cases. EPA believes that 30 minutes is reflective of what the best controlled existing stationary CI engines are currently doing in order to reduce HAP emissions during periods of startup. Therefore, the final rule requires that owners and operators of stationary engines limit the startup time to 30 minutes or less. EPA is also including a requirement in the final rule to minimize the engine's time spent at idle and minimize the engine's startup time at startup to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the otherwise applicable emission standards apply. As with any work practice, CAA section 112(h)(3) and EPA's implementing regulations at 40 CFR 63.6(g) provide that major sources can petition the Administrator for approval of an alternative work practice, which must be at least as stringent as what is required in the regulation.

Regarding shutdown, EPA determined that it was not necessary to establish different standards that would be applicable during shutdown for stationary CI engines. The commenters did not provide any information that shows emissions would be higher during shutdown than during normal operation. In addition, commenters are incorrect that compliance with the standards must be instantaneous. Compliance with these emission standards has always been based on the results of testing that is conducted over a three-hour period; EPA has made this more explicit in this rule. Since the shutdown period for stationary CI engines is typically only a matter of minutes, it is believed that even if a shutdown occurred during the performance test, the engine would still be able to comply with the emission limitation. In a letter dated February 17, 2009 (EPA-HQ-OAR-2008-0708-0019), EMA indicates that HAP emissions will be sufficiently controlled during periods of shutdown. EMA stated in its letter that according to manufacturers, emissions control equipment would most likely continue to reduce emissions as designed throughout the shutdown period. According to EMA, this is because engine emissions control systems and equipment are, during the start of an engine shutdown, at high enough temperatures to control HAP emissions and will continue to be sufficiently high until the engine shuts down. This trend is illustrated in the attachment to EMA's February 17, 2009, letter to EPA, where EMA provided two graphs with sample engine shutdown profiles. Figure 2 of the attachment to EMA's letter (EPA-HQ-OAR-2008-0708-0019.1) shows catalyst temperatures versus minutes during engine shutdown and illustrate stable catalyst temperatures.

In establishing the standards in this rule, EPA has taken into account startup periods and, for the reasons explained above, has established different standards for those periods. With respect to malfunctions, EPA proposed two options for subcategories where the proposed emission standard was based on the use of catalytic controls. The first proposed option was to have the same standards apply during normal operation and malfunctions. The second proposed option was that standards during malfunctions be based on emissions expected from the best controlled sources prior to the full warm-up of the catalytic control. For subcategories where the proposed emission standard was not based on the use of catalytic controls, we proposed the same emission limitations apply during malfunctions and periods of normal operations. EPA is finalizing the first option described above, which is that the same standards apply during normal operation and malfunctions. In the proposed rule, EPA expressed the view that there are different modes of operation for any stationary source, and that these modes generally include startup, normal operations, shutdown, and malfunctions. However, after considering the issue of malfunctions more carefully, EPA believes that malfunctions are distinguishable from startup, shutdown and normal operations. Periods of startup, normal operations, and shutdown are all predictable and routine aspects of a source's operations. However, by contrast, malfunction is defined as a "sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment or a process to operate in a normal or usual manner * * * ''(40 CFR 63.2). EPA has determined that malfunctions should not be viewed as a distinct operating mode and, therefore, any emissions that occur at such times do not need to be factored into development of CAA section 112(d) standards, which, once promulgated, apply at all times. For example, we note that Section 112 uses the concept of "best performing" sources in defining MACT, the level of stringency that major source standards must meet. One commenter expressed the view that it is not logical to apply the concept of "best performing" to a source that is malfunctioning. Indeed, the goal of best performing sources is to operate in such a way as to avoid malfunctions of their units. Similarly, although standards for area sources are not required to be set based on "best performers," we believe that what is "generally available" should not be based on periods in which there is a "failure to operate." Moreover, even if malfunctions were considered a distinct operating mode, we believe it would be impracticable to take malfunctions into account in setting CAA section 112(d) standards for stationary CI engines. As noted above, by definition, malfunctions are sudden and unexpected events and it would be difficult to set a standard that takes into account the myriad different types of malfunctions that can occur across all sources. Moreover, malfunctions can vary in frequency, degree, and duration, further complicating standard setting.

Finally, EPA believes that malfunctions will not cause stationary CI engines to violate the standard that applies during normal operations. Stationary CI engines would in most cases shut down immediately or with very little delay in the event of a malfunction. Because the standard is expressed as the average of three one-hour runs, or a work or management practice, any emissions that occur prior to engine shutdown should not affect a source's ability to comply with the standard. Commenters' concerns regarding compliance certifications should not be a concern for this same reason. This approach will also encourage shutdowns as soon as practicable when a malfunction that affects emissions occurs. In the unlikely event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. EPA would also consider whether the source's failure to comply with the CAA section 112(d) standard was, in fact, “sudden, infrequent, not reasonably preventable” and was not instead “caused in part by poor maintenance or careless operation.” 40 C.F.R. § 63.2 (definition of malfunction).

EPA does not agree with the commenter who said that EPA should treat SSM emissions as de minimis. It is doubtful whether a de minimis exemption is even possible under section 112(d) of the Act in these circumstances, see National Lime Ass’n v. EPA, 233 F. 3d 625, 640 (D.C. Cir, 2000), but in any case the commenter provides no specific information to justify EPA making such a de minimis finding in this instance. Given the very narrow and specific circumstances delineated by the court in Alabama Power v. Costle, 636 F.2d 323 (D.C. Cir. 1979) for making such a finding, and the lack of specific information from the commenter that these circumstances exist in this instance, we do not make a de minimis finding.

While commenters 74 and 78 do not provide emissions tests to verify the emissions they claim for their engines, EPA notes that, as discussed elsewhere in this document, it has revised its standards for existing stationary CI engines based on a broader database of engines, as suggested by the commenters, at various speed and load conditions, and this will affect the standards in place during periods of shutdown and malfunction.

3.2 Comment: One commenter (99) said that it agrees with EPA that HAP emissions during shutdown are controlled by existing methods and technologies for engines that use catalysts because the exhaust will most likely be at a sufficient temperature for HAP control.

Response: No response is needed.

3.3 Comment: One commenter (134) believes the final rule must allow actions designed to prevent unsafe operations during SSM periods. The commenter (134) believes that by imposing numerical emission limits during startup and malfunction periods, this proposal could discourage sources from taking appropriate actions to respond to non-engine related emergencies since such actions could result in an emission noncompliance on the unit. The commenter (134) requested that the EPA include a provision in the final rule that allows sources to take actions necessary to protect life and property. The commenter (134) requested specific language be included in the final rule that allows an owner/operator of a RICE to take all appropriate actions when required to avoid unsafe conditions. The commenter (134) noted that this principle has been included in past rulemakings, e.g., 40 CFR §63.2450(p) of the Miscellaneous Organic NESHAP, as follows: "opening a safety device or taking other actions is allowed at any time conditions require it to avoid unsafe conditions."

Response: EPA shares the commenters' concerns that engines must be operated safely. As EPA notes above, EPA believes the standard response to malfunction will usually be a fairly rapid shutdown of the engine, and given the fact that compliance is based on the average of three one-hour tests, emissions during malfunction will not likely have a significant effect on compliance.

In the highly unlikely event that a source fails to comply with the applicable CAA section 112(d) standards as a result of a malfunction event, EPA would determine an appropriate response based on, among other things, the good faith efforts of the source to minimize emissions during malfunction periods, including preventative and corrective actions, as well as root cause analyses to ascertain and rectify excess emissions. EPA does not think that any of the provisions in the final rule would preclude engine owners and operators from taking actions necessary to protect life and property.

3.4 Comment: One commenter (228) believes that any numeric standards should have averaging times established consistent with the engine manufacturers' averaging time for engine steady state operation. The commenter (228) noted that most engines are designed to operate under relatively steady-state conditions; however it may take some time for the engines to achieve that steady-state of operation. The commenter (228) stated that unless the SSM issues are resolved, EPA will need to ensure that there is an adequate averaging period to encompass both the startup period and the steady state period needed to stabilize engine emissions performance before expecting the engine to be able to demonstrate compliance with a standard based solely upon steady state conditions, which it appears that EPA's emission database represents.

Response: EPA is not finalizing numerical emission standards in the final rule for periods of startup. For the emission standards that are applicable during other operations, EPA has clarified that the standards are based on the average of three one-hour runs. This provides an adequate averaging period for compliance demonstrations during periods other than startup.

3.5 Comment: One commenter (112) suggested that EPA make it clear that emission limitations do not apply during maintenance activities, such as tuning of the air-to-fuel ratio controller (AFRC) and engine timing adjustments. The commenter (112) believes that EPA can find under CAA section 112(h)(1) that it is infeasible to prescribe or enforce an emission standard for control of HAP during such periods.

Response: The commenter has not provided any data to demonstrate the need for a different emission limitation during maintenance activities. Nonetheless, EPA believes that performance testing during maintenance would not be optimal since operation during maintenance activities may not be sufficiently continuous and lengthy enough for the time needed to conduct the performance testing.

4.0 Emissions

4.1 RICE Emissions Database

4.1.1 Comment: Multiple commenters (57, 78, 90, 96, 97, 103, 118, 124, 126, 130, 131,132, 150, 155, 174, 175, 176, 178, 187, 205, 226, 241, 242, 247) believe that the emissions data for engines is not adequate to conduct an appropriate MACT floor analysis. EPA should collect additional data and redo the MACT floor analysis, according to numerous commenters. The commenters (155, 241, 242, 247) believe that the data EPA used to develop the MACT floor is deficient and that certain data should be excluded from the analysis. The commenters (155, 187, 241, 242, 247) also stated that EPA did not consider emissions variability in setting the MACT floor. Commenter (78) stressed than an accurate inventory of engines by size is needed to accurately evaluate the costs, benefits, and feasibility of a proposed regulation. This is particularly important in evaluating the feasibility of CDPF on larger engines. Several commenters offered to work with EPA to address the lack of data and determine where additional data can be supplemented.

Two commenters (155, 242) stated that the MACT floors should not be based on data using single measurements, when three measurements are a standard requirement for demonstrating compliance. In the absence of multiple measurements, outliers and erroneous errors cannot be caught, according to the commenters (155, 242).

The commenters (96, 155, 242) said that EPA should use data from units of similar size to set standards for sources of the same size, e.g., emissions from a large engine should not be used to set standards for a 100 HP engine unless EPA can demonstrate that such an assumption is justified. The commenters (96, 155, 242) are concerned that the data EPA has used for the MACT floor analysis is not representative of the current population of engines.

Three commenters (90, 118, and 178) criticized the applicability and use of the RICE emissions database as representative of the engines being regulated. One commenter (118) noted that the 40 ppmvd numerical emissions limit for CO appears to be based on 10 tests of only one make and model of engine (Caterpiller, Model No. 3508) over a 3-day period in the Research and Development Laboratory of CSU in 1999 (Docket No. EPA-HQ-OAR-2008-0708-0006). The commenter (118) states that according to the engine population data presented in the impacts document in the docket (Docket No. EPA-HQ-OAR-2008-0798-0028) the promulgated rule would impose limits on more than 50,000 CI engines. The commenter (118) believed that basing the limit on such a small and unrepresentative sample jeopardizes the accuracy of any assumptions made about the operational conditions or performance of the regulated population as well as the accuracy of any cost of compliance estimates, and leads to an underestimation of the impact of the rule.

Two other commenters (90 and 178) also noted that the data has no indication of whether the engines are used as emergency or non-emergency engines. One commenter (178) noted that that the pool of data included compliance tests conducted in the state of California, but that CARB does not subject emergency units to testing requirements. Both commenters (90, 178) concluded the data should not be used to set the MACT floor for emergency and/or limited use units.

One commenter (90) noted that the data actually shows that the emergency units cannot be expected to meet the CO numerical limit of 40 ppmvd without control devices even though the impacts document (a memorandum dated February 25, 2009 "Impacts Associated with NESHAP for Existing Stationary RICE") states that it is expected that owners and operators of emergency CI engines will be able to meet the emissions limitation without any aftertreatment controls and that no control costs were estimated for them. The commenter (90) cited a review of their file information and the EPA database as showing that there is no evidence that a 5-year old CI engine is likely to meet the CO limit without control. The commenter (90) noted that the rigorous NSPS standards and the replacement of units after their operating lifetime is adequate for emergency units that due to their few operating hours, emit a small fraction of HAP emitted from the source category.

Response: Section 112(d)(3) of the CAA requires EPA to set MACT standards based on the test data that is available to the Agency and this is what EPA did at proposal. EPA recognizes that it had limited emissions test data at the time it developed the proposed rule. However, EPA notes that it used the data that was available at the time of proposal. EPA requested additional test data to supplement the emissions database during the development of previous rules for stationary engines and also in an advance notice of proposed rulemaking for this rule and did not receive any data. EPA again requested additional test data during the comment period for the current engine rulemaking and made an additional effort post-proposal to reach out to industry and other sources in order to supplement the existing emission data set. EPA did receive additional emissions data for stationary CI engines during the post-proposal period for this rulemaking. The additional data include tests for 13 stationary engines, ranging in size from 160 HP to 3,570 HP. The inclusion of this additional data in the MACT floor analysis for the final rule addresses the commenters' concerns about using data for one large engine to set the MACT floor for smaller engines.

EPA understands the concerns of commenters with regard to whether the MACT floor analysis for the proposed rule took emissions variability appropriately into account. EPA did take emissions variability into account when conducting the MACT floor analysis for the final rule. For engines where EPA had data for multiple tests on the same engine, EPA used the highest test run concentration as the representative emissions for that engine. EPA also used the lowest percent reduction observed in determining the percent reduction expected from applicable aftertreatment in determining beyond-the-floor MACT standards. Therefore, the variability in emissions from the engine was factored into the MACT floor analysis and beyond-the-floor MACT analysis.

The commenters are correct that EPA used data from single runs from the same engine in setting MACT floors. EPA appropriately used this data. The testing was conducted at steady state conditions in a controlled setting and it is believed that the data are representative of the emissions and that the results would not be different if a longer sampling time was used.

In response to comments about there being no indication whether diesel engines in EPA's MACT Floor analysis were being used for emergency or non-emergency purposes, EPA explained in supporting documentation to the proposed rule that there is not expected to be a difference between emissions from a stationary emergency and non-emergency engine on a non-cumulative basis. EPA determined that the emissions from stationary non-emergency engines are comparable to the emissions from emergency engines in terms of the per-engine concentration emissions. Therefore, EPA believes that it is appropriate to use non-emergency engine data to develop emission standards for emergency engines. Regarding the comment that emergency engines cannot meet the numerical limit for CO without control devices, as discussed in more detail in comment 5.3.1, the final rule contains work or management practice requirements for emergency engines and does not include numeric emission limitations for emergency engines.

4.1.2 Comment: Two commenters (265, 268) referred to EPA's Method 10 that went into effect in May of 2006 as being more stringent that previous requirements, and specifies that stratification measurements must be performed on the exhaust stack to ensure that emission sampling is not conducted in areas of the stack that have lower levels of CO. In addition, the commenters (265, 268) reported that the analyzer is used to measure CO must be certified to demonstrate it can pass an interference test to ensure that it is not biased by the presence of other components in the exhaust gas. This commenters (265, 268) stated that the use of source data that pre-dates the use of Method 10 testing requirements may not be as accurate (or reliable) for use in the developing of standards, especially since the proposed rule compliance demonstrations will be required to adhere to the revised 2006 CO testing procedures.

Response: Method 10 has always required interference checks for NO_x, CO_2, and SO_2. The addition to the method was a requirement for the tester to identify any additional compounds present in the gas stream that might be an interference and to demonstrate that these additional compounds did not bias the test results. It is unlikely that there are significant additional interferences present in the exhaust from RICE that would cause a negative bias in the measured CO using Method 10. While measuring emissions from a stratified stack at a single point could significantly affect the results of a particular test, it is equally likely to bias the results high as it is low so that the average result from many tests is unlikely to be biased. Therefore, the overall effect of failing to account for stratification when using Method 10 on the emissions from RICE would be unlikely to bias the results in either direction.

4.1.3 Comment: One commenter (121) reviewed the supporting data and determined that EPA failed to specify the actual RICE units from the Emissions Database comprising the top 12 percent for the various floors. While the database can be queried, in some cases the data entries do not directly correspond to the subcategory name. A query for CO will not produce any results. In other cases, it is impossible to know whether the query results are the correct list of engines relied on by EPA in developing the floor. The commenter (121) gave specific examples of these issues.

Response: All of the data used to calculate the MACT floor could be queried from the Emissions Database; however, EPA agrees that it was difficult to determine the exact data that was used to calculate the MACT floor. EPA has provided more documentation to the final rule to clearly show the data that was used to determine the emission standards. This documentation includes the top 12 percent of facilities that are used to establish the floors for the various subcategories. This is shown in the memorandum, "MACT Floor and MACT Determination for Existing Stationary Non-Emergency CI RICE Greater Than or Equal to 100 HP Located at Major Sources." This memorandum includes the steps that were taken to develop the MACT floor for all the subcategories.

4.2 Surrogates

4.2.1 Comment: One commenter (90) suggested that for emergency and limited use CI units, that operate only a small number of hrs/yr, the HAP surrogate of operating hours is more appropriate than CO. These engines are frequently limited to an operating hour level by permits in order to limit NO_x.

Response: EPA disagrees with the commenter. Operating hours cannot be used as a HAP surrogate for any emission source. While there obviously is a connection between the number of operating hours and total emissions from a particular source, operating hours do not correlate to emissions of HAP or maximum achievable control technology. Therefore, EPA believes that operating hours are not an appropriate surrogate for HAP emissions.

4.2.2 Comment: One commenter (215) stated that the use of CO as a surrogate for HAP emissions from stationary diesel engines is flawed and does not meet the D.C. Courts three part test for reasonableness. According to the commenter, the D.C. Court surrogate three part test requires EPA to demonstrate each of the following: 1) HAP from the source must be "invariantly present" in the surrogate; 2) control technology that reduces the surrogate must "indiscriminately capture" HAP from the source; and 3) control of the surrogate is the only means to control HAP from the source. Commenter 215 pointed out that EPA admitted that CO may not be an adequate surrogate for metallic HAP emissions in the current proposal. Commenter 215 argued that oxidation catalyst is only capable of 30 percent reduction of PM, thus allowing 70 percent of the PM, including metallic and semi-volatile HAP to be emitted to the atmosphere. In addition, commenter 215 pointed out that technologies that control CO are not the only means by which a source can achieve reductions in HAP emitted from stationary diesel engines. The commenter (215) believes that based on the D.C. Court's three tests, final standards are not appropriate, and recommended that EPA adopt standards based on PM rather than CO reductions.

Response: EPA believes that CO emissions are an appropriate surrogate for HAP emissions for stationary CI engines. EPA has demonstrated the relationship between CO emissions and HAP emissions in previous rulemakings for stationary engines. EPA does not have any data to support a relationship between PM emissions and HAP emissions for stationary CI engines, nor did the commenter provide any data to support such a relationship for this source category. It is clear that there are methods for reducing PM emissions, like reducing sulfur from fuel, that may not lead to a reduction in HAP. In addition, it is not clear that reductions in PM would reduce emissions of all HAP emitted from stationary engines, particularly emissions of formaldehyde, acetaldehyde, etc., that represent the vast majority of the HAP emissions from this source category. Therefore, for this particular source category, use of PM as a surrogate for HAP is not appropriate. The commenter also did not provide any data from testing of stationary CI engines to show that CO is not a good surrogate for metallic HAP. CO is also a better surrogate for HAP emitted from stationary CI engines than PM because PM is more difficult and expensive to measure than CO for this source category. For semi-volatile HAP, the testing conducted by EPA at Colorado State University showed that an oxidation catalyst reduced PAH emissions by greater than 90 percent for most of the PAH that were tested, and that CO level reductions correlated with level reductions in such HAP.

In addition, EPA is taking an additional action pursuant to its authority under section 112(d)(2)(B) and (C) for further control of metallic HAP. EPA determined that the most effective and achievable method for controlling metallic HAP emissions from existing stationary CI engines is through the use of crankcase emission control systems. Combustion gases and oil mist that are vented from the engine crankcase are believed to be a substantial source of any metallic HAP emissions from stationary CI engines. Existing stationary CI engines are equipped with either an open crankcase or a closed crankcase. The open and closed crankcase on an existing stationary CI engine is used to relieve pressure from the crankcase due to blow-by gases from the pistons. These blow-by gases are a mixture of combustion gases, oil, and metals that escape around the pistons during the combustion process to the engine crankcase. Most existing stationary CI engines have open crankcases that vent the crankcase emissions directly to the atmosphere through a vent in the crankcase. For existing stationary CI engines with closed crankcases, the crankcase emissions are directed to a separator that removes oil mist before the crankcase gas is routed to the intake manifold to be used as combustion air. The metals in the blow-by gases are a result of the wear of the piston moving up and down in the combustion chamber and are considered the primary source of metallic HAP emissions from existing stationary engines.

EPA notes that even if we accepted the commenter's view that CO was not an appropriate surrogate for metallic HAP, EPA would promulgate the requirements discussed below as equipment or work practice requirements for control of such HAP for stationary CI engines at major sources. It would not be practicable to measure the metallic HAP emissions from an open crankcase for an existing stationary CI engine since the crankcase is open directly to the atmosphere rather than vented to the engine exhaust. Capturing these emissions using EPA Method 29 would be difficult due to the sporadic flowrate of the blow-by gases, making isokinetic sampling of the crankcase exhaust difficult. In addition, testing for metallic HAP is very costly and the emission levels from stationary CI engines are likely to be below method detection limits. Consequently, EPA believes that it would be infeasible to prescribe a numerical emission standard for metallic HAP.

EPA is promulgating a further requirement pursuant to its authority under section 112(d)(2)(B) and (C) that requires stationary non-emergency diesel engines greater than 300 HP to install either an open or closed crankcase filtration emission control system if the engine is not already equipped with one. The open or closed crankcase filtration emission control system reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates, and metals. EPA expects the filter will remove nearly 98 percent of the metallic HAP and other particulates from the crankcase exhaust stream, based on comparable filtration systems for other processes (e.g., baghouses and cartridge filtration systems). Existing stationary engines with an open crankcase vent the filtered gas to the atmosphere, whereas the closed crankcase filtration system routes the filtered gas back to the intake manifold to be used as combustion gas. Oil collected by the filtration system for both open and closed crankcases is either collected and disposed of properly or routed back to the oil pan. The filter with the collected metallic HAP and other particulate in both the open and closed crankcase filtration system is replaced periodically and the used filter is disposed of properly. EPA believes this management practice will effectively reduce metallic HAP from the existing stationary CI engine emissions. As discussed in the memo "MACT Floor and MACT Determination for Existing Stationary Non-Emergency CI RICE Greater Than or Equal to 100 HP Located at Major Sources" EPA does not believe it is appropriate to require beyond-the-floor controls for engines below 300 HP.

4.3 Engine Test Data

4.3.1 Comment: One commenter (141) provided stack test results for uncontrolled diesel engines and diesel engines with SCR. The data showed CO levels ranging from 31 to 112 ppmvd at 15 percent O_2 for diesel engines.

Response: EPA contacted the commenter and asked if they could provide EPA with the source test reports for the stack test data that were summarized in a table their comment, as EPA could not use the data without having the source test report. The commenter responded that they did not have the resources to provide copies of the documents to EPA. Since EPA did not have the test reports and could not review the data, EPA was unable to use the data submitted by the commenter in the MACT floor analysis.

5.0 Emission Limits

5.1 Major Sources

5.1.1 MACT Floor

5.1.1.1 Comment: Multiple commenters (89, 101, 103, 112, 122, 126, 150, 151, 155, 167, 187, 205, 221, 225, 227, 228, 231, 242, 261) were concerned with how EPA set the MACT floor for the proposed rule. Several commenters, including 155, 205, 227, and 242 said that EPA has not considered variability in setting the MACT floor for the proposed rule. The commenter (155) cited the recent Brick MACT ruling which indicated that "floors may legitimately account for variability [in the best performing sources that are the MACT floor basis] because "each [source] must meet the [specified] standard every day and under all operating conditions." The commenters (155, 242) stated EPA's data set is not sufficient in covering variability. The commenters (155, 242) expressed that it is willing to work with EPA to resolve the issue, but efforts may be hindered by the limited timeframe for finalizing the rule. It is necessary to collect additional data and conduct a thoughtful and scientifically sound review and analysis process, several commenters said (including commenters 122, 155, and 242).

In terms of a variability analysis, the commenters (155, 242) specifically suggested as one alternative that EPA identify the top 12 percent of engines based on average emissions operating at high load. Then, EPA could use lower load of other non-optimum operating emissions data to assess variability in the best performers, i.e., the MACT floor must be set less stringent than the highest data point for the best performers and lead to a less stringent standard. Alternatively, EPA could use all data in the average calculation meaning that data from all loads would be included, however, this is complicated due to the lack of low load data or data from various operating conditions for most tests. Lack of data is also an issue with the first suggested approach, the commenters (155, 242) said. In any event, the scarcity of data may necessitate additional, focused testing. Both commenters (155 and 242) are willing to work with EPA to resolve this issue.

One commenter (261) noted that the Courts have been critical of EPA's process for setting minimum allowable emission limits. The commenter (261) stated that EPA set the emission limits by averaging the best 12 percent of all performance tests for each subcategory, but did not consider operational variations of the units. The commenter (261) recommended that EPA set emission limits at the emissions level that is actually achieved under the worst reasonably foreseeable circumstances for the best performing 12 percent as allowed by the Courts in the Cement Kiln MACT and Brick Kiln MACT decisions.

The commenter (126) acknowledged the difficulties with obtaining test data for RICE, however EPA cannot rely on the absence of emissions data to justify its proposed limits. The commenter (126) stated that EPA should have issued information collection requests to obtain adequate emission data for promulgating standards.

Multiple commenters (97, 124, 132, 155, 175, 191, 224) suggested that EPA should consider a scenario under which lower temperatures and reduced catalyst efficiencies may occur due to reduced engine speed or load, resulting in lower temperatures and consider an alternative work practice under section 112(h) of the CAA for the situation.

Two commenters (155, 224) noted that the emission standards in the proposed rule apply at all times, but that there is no data or information in the rulemaking docket that supports the proposed limits at low loads or at operating conditions other than high load. The commenters (155, 224) expressed that EPA should provide data and analysis that supports requiring emission limits to be met at all times. The commenter (155) said that it is inaccurate to assume that emission levels observed at one operating condition can be met at a different operation condition, e.g., high load emissions are not the same as low load emissions. The commenter (155) recommended that EPA consider technical and economic feasibility of requiring and enforcing emission limits at operating conditions where measurements are not technologically and/or economically feasible. If emission limits are based on high load emissions data and compliance is validated at high load, operating, design or work practices should be considered as an alternative way to demonstrate compliance under other operating scenarios, the commenter (155) said. Otherwise, the commenter (155) said that EPA needs to undertake a significant effort to add emissions data to the docket to support a standard that applies at all times.

Again, the commenter (155) stated that it could not locate any information in the docket that is supportive of requiring emission standards to apply at all times and that the lack of data and analysis is a serious oversight on EPA's part. In terms of compliance, the commenter (155) indicated that EPA needs to explain how this would be determined. One question the commenter (155) had is what happens if an exceedance happens during a malfunction lasting only minutes. In such a case, the commenter (155) asked how that affects compliance. Also, for compliance at all times, the commenter (155) asked what averaging times apply. The commenter (155) noted that there are several other similar questions that need to be answered. In the commenter's (155) opinion, these compliance issues challenge the enforceability of the emission standards and therefore section 112(h) of the CAA applies. The commenter (155) believes that emission standards would still apply at high load and the performance test is performed at high load, but that for other operating conditions, section 112(h) of the CAA would form the basis for alternative compliance demonstrations through work or management practices.

Commenter (140) said there will be little or no environmental benefit to imposing an emission limit on CI engines with a power rating between 50 to 300 HP. If, as EPA notes, existing engines are expected to comply, there is no reason to impose additional regulatory burdens and costs. The requirement for a single initial performance test with no follow up testing renders the emission limit moot. The commenter (140) said that O&M requirements, similar to other engine types, should be set in lieu of emission limits.

Response: EPA agrees that emissions variability should be better incorporated and has provided for variability in the final MACT floor analysis. The final emission standards are based on test data collected from stationary engines produced by different engine manufacturers, operating at various loads and other conditions, and located in various types of service and locations. The engines range in size from 160 HP to 3,570 HP. The data includes engines operating at loads from 25-100 percent. To the extent commenters believed further data would have beneficial to EPA, EPA must make its determinations based on the information available to it. EPA asked for further data, and EPA did receive further data following the proposal, which led to changes in the final regulations. For engines operating at reduced speed or loads resulting in a reduced exhaust temperature, EPA believes that numerical emission requirements are still appropriate and there is no justification to only require work practice standards during these situations. We do not believe that the provisions of section 112(h) of the CAA are met (except as discussed elsewhere with regard to periods of start-up, emergency engines, and engines below 100 HP) because testing is not economically and technologically impractical and the emissions can be readily routed through a conveyance for purposes of emission testing. EPA believes that the final emission standards will be achievable at all times covered by the standards, and will reflect the numerous engine models and operating scenarios that can be expected from stationary engines.

Regarding the comment asking about the averaging times that apply, EPA has clarified in the final rule that the emission standards are based on the average of three one-hour runs.

5.1.1.2 Comment: Two commenters (121, 154) were concerned with how the floor was determined for existing CI emergency engines. One commenter (121) said that the floor data for existing CI emergency engines of 300 to 500 HP located at major sources do not correspond to the subcategory, and work practices better address emissions from this subcategory. The MACT floor memo does not specify which individual data points comprise the best performing top 12 percent from which the 40 ppmvd CO limit is derived. The commenter (121) described the difficulty of conducting a database query to independently verify the source units, but concluded that the limit appears to be the result of 10 data points from one test of a 1,000 HP Caterpillar engine run at 70 to 100 percent load. If this is the case, the HP of the engine in the database is significantly higher than those engines covered by the subcategory and the tests consist of a single run of one engine (which would not be a valid test for MACT purposes) at steady state. Furthermore, EPA looked only at the single lowest number, which is not the floor setting approach for existing sources.

Commenter 154 said the test results show that the engine that was used to establish the emission limit would not be able to comply with the 40 ppm standard. Commenter 154 added that EPA does not sufficiently justify that the MACT floor determination, based on a 1000 HP unit, is applicable to emissions from smaller CI units and emergency units. The commenter concluded that additional data are needed to properly conduct a MACT floor analysis if numeric emission limits are to be established for smaller non-emergency CI engines under 500 HP.

Response: The proposed MACT Floor for existing stationary CI emergency engines above 300 HP was based on the data that EPA had available at the time of proposal. Unfortunately, EPA had limited emissions data at the time the rule was developed, as acknowledged several times, but EPA believes that it was justified in proposing the emission limits it did.

The MACT floor for non-emergency stationary CI engines above 300 HP was 4 ppmvd of CO or 90 percent CO reduction at proposal. The commenter is correct that the proposed emission standard was based on emissions data from the study conducted at CSU on a 1,000 HP Caterpillar engine. It is true that the engine tested at CSU is larger than the engines included in the subcategory. Nevertheless and as previously stated, test data from this engine represented the only available data at the time of proposal and was therefore utilized to set the MACT Floor for this engine subcategory. EPA made an effort after the proposed rule was published to obtain additional test data for stationary CI engines to supplement the limited data set. The new data included emissions data from several stationary CI engines smaller than 500 HP, which has been incorporated into the MACT floor analysis. The MACT floor analysis for non-emergency engine greater than 300 HP but less than or equal to 500 HP was determined to be 137 ppmvd CO corrected to 15 percent O_2, and is based on the test results from two 450 HP CI engines. For non-emergency engines between 100 and 300 HP, the MACT floor was determined to be 230 ppmvd CO corrected to 15 percent O_2, and is based on test results from engines in that size range. This addresses the concerns expressed by the commenter regarding using the emissions from one large engine to set standards for smaller size stationary engines.

As discussed in greater detail in the response to comment 5.3.1 and 5.4.1, EPA reanalyzed MACT for stationary emergency engines at major sources and stationary engines smaller than 100 HP at major sources, and determined that it is not feasible to prescribe or enforce numerical emission standards for these subcategories of engines is and thus EPA is promulgating work practice standards for these subcategories. Thus, the commenters' concerns regarding the data used to set the floor for these engines are no longer relevant.

5.1.1.3 Comment: One commenter (155) said that EPA should allow alternatives under section 112(h) of the CAA for demonstrating compliance at reduced load and other reduced temperature operating conditions where catalytic control is required. The commenter (155) believes that it is not possible to set a standard based on add-on catalyst control that is applicable at all times. The performance of the catalyst is dependent on the load, engine type, engine make or model, catalyst formulation, catalyst age, and so on, and so therefore, it is infeasible to define a standard as a function of load and temperature, according to the commenter (155). The commenter (155) recommended that EPA consider a work practice standard to be used at reduced load or other reduced temperature conditions where aftertreatment is required to meet the standard. Alternatively, if EPA finalizes a catalyst-based standard that applies at all times, such a standard must be well rationalized and supported with data and a clear presentation of how the analysis was conducted, the commenter (155) said.

Response: EPA agrees that it is appropriate to consider variability in developing the final rule. The final emission standards account for operational variability of the stationary engine. This includes engines operating at low loads and other reduced operating temperatures. EPA has also specified in the final rule that performance tests can be conducted during normal operating conditions. The final standards and other requirements are well explained and detailed documentation of how the analysis was conducted is included in the docket material. EPA does not believe that it would be justified in using the provision in 112(h) to establish work practice standards in lieu of emission limits since it is not technically or economically infeasible to measure emissions during the operating conditions discussed by the commenter.

5.1.1.4 Comment: One commenter (98) stated that emissions limits for new or reconstructed CI stationary RICE greater than 500 HP located at major sources should be developed using the "Tier" standard approach for CO emissions that is currently used by EPA. The commenter (98) indicated that new non-road CI engines greater than 500 HP are currently required to meet Tier 2 / Tier 3 CO emission standard of 3.5 g/KW-hr. In lieu of the proposed requirement to reduce CO emissions by a minimum of 70 percent for new or reconstructed CI engines, the commenter (98) believes that EPA should consult with CI engine manufacturers to determine a new Tier standard that can be obtained based on operation of RICE with manufacturer's controls in place, which would allow emission limits to be based on demonstrated RICE emissions using procedures already employed by EPA.

The commenter (98) stated that emission limits for existing stationary non-emergency CI RICE located at major sources are too stringent when compared with existing emission standards for these types of units. The commenter (98) asserted that comparing emission limits presented in Table 2c of the proposed RICE MACT (40 CFR part 63, subpart ZZZZ) with the Tier 2 / Tier 3 CO standard for CI engines less than 500 HP (40 CFR 89.112) shows considerable difference and demonstrates that emission limits included in this proposed rule for nonemergency CI RICE 50≤HP≤300 and > 300 HP located at major sources of HAP emissions are too stringent and should be revised. The commenter (98) explained that the referenced Tier 2 / Tier 3 CO standard (3.5 g/KW-hr) equates to a CO emission rate of 21.2 lb/hr for a nominal 2.75 MW (30 MMBtu/hr) diesel-fired generator. According to the commenter (98), a 90 percent reduction from this value yields a CO emission rate of 2.1 lb/hr, or an equivalent CO concentration of 30 ppmv at 15 percent O_2 for a nominal 30 MMBtu/hr diesel-fired generator. Consequently, the commenter (98) believes that EPA should revise the maximum CO concentration required at all times except during periods of startup and malfunction from 4 to 30 ppmv at 15 percent O_2.

Response: EPA is not developing requirements for any new or reconstructed stationary engines with this rulemaking. New and reconstructed engines were the subject of prior regulations issued by EPA, namely the original 2004 RICE NESHAP, which addressed HAP emissions from existing, new and reconstructed stationary engines greater than 500 HP located at major sources, the CI NSPS, and the 2008 rule that promulgated the SI NSPS and the NESHAP for all new and reconstructed stationary engines not covered in the 2004 rule. It appears the commenter may be addressing requirements that have already been promulgated years ago and EPA is not taking comment on those pre-existing requirements at this time. EPA will be conducting the required 8-year review in 2012 and will at that time review the emission standards applicable under the 2004 RICE NESHAP.

Regarding emission standards for existing stationary engines, the CAA requires that EPA develop an emission control floor based on the average emission limitation achieved by the top 12 percent of existing sources. Therefore, basing a stationary engine standard directly on standards for nonroad engines is not an option that EPA has available for setting the final emission standards, if the nonroad standards are less stringent than the MACT floor. EPA must set an emission standard that is at least as stringent as the MACT floor, and this analysis must be based on emissions data for stationary engines and cannot take into consideration the emission standards for nonroad engines which are set under a different section of the CAA. EPA notes that its regulations for nonroad engines promulgate standards for new nonroad engines, and that EPA regulations do not cover many of the older nonroad engines that would be the basis of comparison to the existing engines regulated in this rule.

However, based on further information that EPA received since the proposal, EPA did revise its standards for existing stationary CI engines. The final standard for non-emergency engines is 230 ppmvd CO corrected to 15 percent O_2 for engines 100-300 HP; 49 ppmvd CO corrected to 15 percent O_2 or 70 percent CO reduction for engines 300-500 HP; and 23 ppmvd CO corrected to 15 percent O_2 or 70 percent CO reduction for engines above 500 HP. These standards are considerably closer, and in some cases less stringent than the standard suggested by the commenter.

5.1.1.5 Comment: One commenter (215) stated that EPA determined the MACT floor based on the average CO emission from the best performing 12 percent of stationary diesel engines without add-on control. To properly meet the CAA requirement that 112 standards achieve the "maximum degree of reduction in emissions," commenter 215 believes that EPA should have reviewed emissions of HAP in the particulate phase, or that condense on particles, as well as those in the gaseous form.

Response: EPA believes that the final standards developed using test data from the top 12 percent of emission sources meet the CAA requirements, and no additional review of HAP in the particulate phase or condensed on particulates needs to be evaluated. The commenter provides no data to show that average CO emissions could not also be used as a surrogate for HAP in particulate phase and EPA continues to believe that CO is an adequate surrogate for all HAP. However, EPA has reviewed metallic HAP separately from other HAP to determine if further reasonable controls are appropriate under section 112(d). As discussed more fully in the memorandum titled, "MACT Floor and MACT Determination for Existing Stationary Non-Emergency CI RICE Greater Than or Equal to 100 HP Located at Major Sources," EPA is promulgating separate requirements to reduce emissions from the crankcase because EPA believes that this will reduce metallic HAP in particular. EPA has discussed crankcase emissions and published crankcase emission factors (however, note that such data is based on limited information) in AP-42 section 3 for stationary diesel engines.[16] There is also some information available on crankcase emissions from nonroad engines published by OTAQ in documentation published for the NONROAD model.[17] Information from Donaldson provides

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[16] AP-42, Fifth Edition, Volume I Chapter 3: Stationary Internal Combustion Sources, section 3.3 Gasoline and Diesel Industrial Engines, http://www.epa.gov/ttn/chief/ap42/ch03/final/c03s03.pdf and http://www.epa.gov/ttn/chief/ap42/ch03/bgdocs/b03s03.pdf.

[17] Exhaust and Crankcase Emission Factors for Nonroad Engine Modeling – Compression Ignition. EPA420-P-04-009. April 2004. NR-009c. http://www.epa.gov/oms/models/nonrdmdl/nonrdmdl2004/420p04009.pdf.

some information on how much of total emissions the crankcase emissions account.[18] Information on crankcase emissions can also be found in a paper on emissions from heavy-duty diesel engines published by the Society of Automotive Engineers (SAE)[19] and in a paper on locomotive PM crankcase emissions published by the American Society of Mechanical Engineers (ASME).[20]

5.1.2 Subcategories

5.1.2.1 Comment: One commenter (242) noted that a subcategory is justified for engines located on offshore platforms and in cold weather regions. According to commenter 242, due to space constraints on platforms, installation of add-on controls is expensive and/or impossible. In extreme cold weather it is difficult and sometimes impossible to maintain the exhaust hot enough for catalyst operation, particularly for emergency, limited use and intermittently used engines, the commenter (242) said. For these reasons, commenter 242 believes that it is reasonable that EPA create subcategories for non-continental areas/offshore platforms and for cold weather regions, i.e., less than 0°F as was done in 40 CFR part 60, subpart KKKK for stationary combustion turbines. The commenter (242) recommended that these special category engines only be subject to work practice standards.

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[18] Donaldson Filtration Solutions. Filtration System from Open and Closed Engine Crankcase Vents. Brochure No. F111118 (10/09).
[19] SAE International. A Study of the Emissions of Chemical Species from Heavy-Duty Diesel Engines and the Effects of Modern Aftertreatment Technology. 2009-01-1084.
[20] ASME 2009. Proceedings of the ASME Internal Combustion Engine Division 2009 Fall Technical Conference. ICEF 2009. September 20-24, 2009, Lucerne, Switzerland. Crankcase Emission Contributions to PM for Two Tier 2 Line-Haul Locomotives. ICEF2009-14021.

Response: The EPA does not agree that it would not be feasible to install add-on controls on offshore platforms. Catalyst manufacturers have had many experiences with installing controls in situations where space is a concern, for example in mobile source engines. Regarding engines located in cold weather regions, the commenter did not submit any data to show that the emission limitations could not be achieved by these engines. A subcategory for turbines located north of the Arctic Circle was created in subpart KKKK because the emission controls that are inherent to the turbines themselves did not operate as well in the cold weather, not because post-combustion controls such as oxidation catalyst were not feasible in these areas.

5.1.2.2 Comment: Two commenters (78, 96) expressed concern over EPA not establishing additional subcategories for diesel engines beyond 300 HP. One commenter (96) said that EPA has not considered the very large diesel engines that exist and that having non-emergency diesel engines in the range of 300 to 500 HP as the largest category and representative of the entire range of large stationary engines is not appropriate nor consistent with the subcategorization scheme in the CI NSPS. A separate subcategory of engines with a displacement above 30 liters per cylinder (l/cyl) was created in the CI NSPS and the same subcategory should be established for this rulemaking, commenter 96 said. Very large CI engines are vastly different from smaller diesel engines that are often derived from mobile applications and the proposed rule inappropriately does not take this into account, the commenter (96) said. These very large engines utilize different fuels, are mostly derived from larger marine engines, can be several MW in size operating at low to medium speeds, and cannot rely on the same type of add-on controls as smaller diesel engines, according to commenter 96. The emission standards required in the proposed rule for diesel engines are not technically feasible for engines above 30 l/cyl, according to commenter 96. The commenter (96) said that not all very large engines can use ULSD, particularly those that are older engines, a key factor in potentially achieving lower emissions. Typical control devices applied to smaller engines like CDPF and oxidation catalyst are not applicable for very large engines because the control devices are either physically incompatible with large engines and exhaust flows, or, have not been demonstrated on very large engines, which is the case for oxidation catalysts and any technology that is required must be available, feasible and cost effective, the commenter (96) said. Closed crankcase ventilation typical on smaller engines is not recommended for large liquid-fueled engines because of risk associated with compressor fouling and negative impact on engine performance and reliability, the commenter (96) stated.

One commenter (78) said EPA should divide the largest engine category into additional categories, as was done for the compression-ignition NSPS and for the locomotive and marine engine standards. The commenter (78) noted that a 300 HP engine is relatively small and that the smallest of the commenter's (78) engines is six time this size, while the largest are over 25 times this size. In order to fully evaluate the technical feasibility and cost-effectiveness of the proposed regulation, more size categories are needed.

Response: In order to establish different requirements for large stationary CI engines, EPA would need information to show that these emissions and operation of these engines are sufficiently different to warrant subcategorization. The commenter has not provided any emissions or operating data to show that the emission limits are not achievable for these engines.

5.1.2.3 Comment: One commenter (88) stated that EPA could establish an additional subcategory of engine types to address unique circumstances of nuclear emergency diesel generators as well as other power plant emergency diesel generators that operate for only a limited number of hrs/yr. For example, EPA could create a subcategory of engines that operate under 200 hrs/yr on the basis that these units rarely operate sufficiently long enough to reach the necessary temperature window to begin the control equipment's optimal function. For these limited-use engines, EPA could require that they comply with good management practices.

Response: EPA agrees that emergency stationary engines should be a different subcategory than non-emergency engines. For emergency CI engines located at area sources, EPA has in the final rule established management practice standards, consistent with the commenters recommendation. For emergency CI engines at major sources, EPA has determined that work practice standards are appropriate for those engines.

5.3 Emergency Stationary Engines

5.3.1 Comment: Several commenters (36, 48, 74, 77, 79, 81, 86, 88, 90, 96, 97, 99, 112, 118, 119, 121, 139, 140, 155, 157, 160, 161, 162, 167, 171, 173, 175, 176, 181, 196, 201, 209, 213, 216, 220, 223, 224, 227, 229, 247, 249, 253, 256) expressed concern with the proposed limits for emergency engines at both area and major sources. Numerous commenters stated that EPA should adopt management practices for emergency engines at area sources and not require emission limits from these engines. Commenters stated that emergency engines need special consideration, due to minimal operation, and commenters 121 and 154 said that EPA should apply section 112(h) of the CAA for emergency engines at major sources because of this limited operation. Several commenters recommended that emergency engines be subject to only work practice standards that limit the number of hours allowed for operation during non-emergency events.

For many existing engines in the field, add-on control technology is not feasible and not compatible with the engine and will cause potential performance problems as well as compromising functionality, commenter 121 said. Commenter 154 said that the numeric emission limits are not appropriate for emergency engines, because they cannot be met by most emergency engines as shown by available emissions test data on emergency engines. If EPA keeps emission limits for emergency engines, the commenter (155) thinks that EPA needs to provide justification as to the basis for such limits. Commenter 96 said that it is unreasonable to require existing emergency engines to meet numerical limits based on the best performing 12 percent of sources, which consequentially leads to 88 percent of the engines not being able to meet the limits without installing some form of controls. EPA correctly concluded that add-on controls are inappropriate and too costly for emergency engines, some commenters said, including commenters 96 and 253, but the actual rule imposes limits not achievable in many cases without add-on controls, therefore forcing emergency engines to add emissions controls or be replaced, which was not the Agency's intent. Commenter 96 provided in its comments various charts for different engine categories of where it has shaded several areas where it believes that EPA should replace limits with operational hour limits.

Commenter 99 said that if EPA decides to go final with emission standards for emergency engines, the standards must be such that all properly maintained emergency engines can comply. As discussed above, as proposed, emergency engines cannot comply with the standards by altering operating characteristics and the commenter 99 explained that there are no "knobs" available to "turn down" HAP emissions. The commenter (99) expressed that if EPA finalizes the proposed standard for emergency engines it would obsolete many engines in this group leading to loss of reliable emergency power, which would be unacceptable to the public, will jeopardize public safety, will directly interfere with existing building codes, and a lead to a high cost to industry in lost production during emergencies.

One commenter (88) recommended that EPA require management practices rather than a numerical emission limit for emergency diesel generators greater than 500 HP at area sources. The commenter (88) suggested that such management practices could replace the existing proposed emission standard requirements for emergency CI engines greater than 500 HP that are identified in line 7 of Table 2d of the proposed rule. The commenter (88) stated that the proposed rule and related docket indicates that CI emergency diesel engines can achieve a 40 ppmvd CO emission standard for both normal operations and startup or malfunction periods without add-on technology.[21] The commenter (88) suggested that EPA may not have considered the following:

- Two-stroke engines emit higher levels of CO than 40 ppmvd, but the proposed rule does not distinguish between two-stroke and four-stroke CI engines.
- Older engines with mechanical fuel injection or ignition retard technology emit higher levels of CO than newer electronic fuel injection engines.

[21] EPA Docket No. EPA-HQ-OAR-2008-0708-0028, Memorandum from Bradley Nelson, EC/R, Inc. and Tanya Parise, Alpha-Gamma Technologies, Inc. to Jaime Pagan, EPA OAQPS/SPPD/ESG, RE: Impacts Associated with NESHAP for Existing Stationary RICE (February 25, 2009).

- The rationale for 40 ppmvd CO during startup only acknowledged that controls, such as an oxidation catalyst, could not be used until the engine is up to temperature. In reality, CO levels are substantially higher during startup while the engine is cold and combustion of diesel fuel is more incomplete.

One commenter (209) believes that the emission standards for emergency CI engines at area sources is flawed because it is based on the flawed MACT determination for CO, which has not been properly and lawfully established as MACT and likewise should not be used as GACT.

One commenter (112) requested that EPA modify emission limits on emergency engines at major sources based on a redetermination of the MACT floor. The commenter (112) stated the opinion that EPA can account for the worst reasonably expected operating conditions of the best performing 12 percent of engines, and EPA should use that flexibility provided by Congress and the Courts. The commenter (112) believes that even with this adjustment, such a standard will effectively require many operators to replace or add catalytic control to emergency engines, contradicting industry standards for engines in emergency service.

Two commenters (121, 162) said the proposed emission standards for existing emergency RICE are overly stringent. Commenter 121 added the proposed standards do not reflect what existing engines in this subcategory achieve in practice. The limits are significantly lower than the emission limits established for new engines in the 2008 NSPS and in some cases, they appear to be more stringent than standards established for comparable future nonroad engines, the commenter (121) said. The proposed standards also lack the flexibility of the nonroad programs, which typically provide for a selection of engine families and/or emission averaging and trading and engine certification, the commenter (121) added.

Without seeing which engines are in the specific floors, one commenter (121) was unable to perform an effective assessment of whether the proposed MACT limits appropriately reflect the average of the top 12 percent. However, test data from several existing emergency engines in the commenters' (121) industry (automotive manufacturing) indicated they are unlikely to meet the proposed limits because they either pre-date or were produced to meet the established non-road engine standards or similar standards that are less stringent than those proposed. The commenter (121) said it is likely that these engines will have to be replaced.

Commenter 74 raised concerns regarding the GACT standard for existing emergency CI engines greater than 500 HP. The commenter (74) said the proposed rulemaking does not provide any basis for the proposed standards for emergency engines of this size range, and the GACT determination has not been properly established for these engines. In particular, according to the commenters, subsection 1 of section IV.B. of the proposed rule, which is cited in subsection 2 as the basis for the area source standards for large CI engines, does not appear to include any discussion of emission controls for emergency CI engines greater than 500 HP. In the absence of such justification, the commenters state that the MACT floor for these large engines is no controls. The commenter acknowledged that such a no control argument may not be acceptable under the MACT because of the Brick MACT court case, but the commenters stated that there is no such limitation in making GACT determinations. Commenter (74) was concerned that establishing an emission standard for large emergency CI engines would establish requirements for the installation of add-on controls for some, if not most of the sources in that category. EPA needs to conduct a regulatory analysis and assessment of the costs of these controls. The commenter (74) gave an example of the impact of an emission limit and the impact of installing controls on one of his units. The commenter (74) concluded that because of the unit's limited operation, an oxidation catalyst control will have limited, if any, control effectiveness in actual use.

One commenter (171) requested that EPA include a general exemption from the 40 ppm CO limit for emergency engines, where emergency engines are defined as engines that operate up to 50 hrs/yr for maintenance and testing. The commenter (171) provided that current CO emission control devices must operate within specific temperature ranges to be effective and that they test the emergency engines for only 30 to 60 minutes every 2 weeks to ensure that they will operate reliably during emergencies. As a result, the commenter (171) asserted that startup emissions would remain largely uncontrolled and should be exempted from the 40 ppm CO limit.

Commenter (121) said that despite EPA's claims that the agency is not requiring performance tests of emergency engines, major sources with existing emergency engines appear to have an implicit testing requirement to demonstrate that they comply with concentration limits. Such testing could significantly increase the time the typical emergency engine would be used in year and impose additional environmental impact and costs. The commenter (121) said EPA needs to resolve the conflict between the preamble and the regulatory language and replace the emission limits for emergency engines with work practices. Commenter (154) raised similar concerns about the apparent requirement for performance testing of emergency RICE due to ambiguous rule language and said it should be clarified to explicitly state that such testing is not required. Commenter (74) said the rule would require not only initial performance testing, but testing every 3 years. Because engine operation for performance testing would likely exceed typical operation for operational testing and maintenance, these testing requirements would result in increased operation of the engine with a corresponding significant increase in operating costs and emissions of other pollutants such as NO_x.

If EPA regulates emergency generators, the numerical limit for emergency engines rated greater than 500 HP must be eliminated, according to one commenter (81). It is not reasonable for EPA to propose emissions limits for equipment and then state it does not require or expect owners of regulated equipment to test equipment to assure that it meets the those limits. This puts the regulated community in a precarious position, and it may cause owners to test their engines rather than risk a regulatory inspection that discovers that their equipment is not meeting required emission limits.

Commenter (119) said the proposed numerical emission limit on which emergency RICE greater than 500 HP relates to the use of emission data which is not representative of the engines being regulated to develop the numerical emissions limit for CI engines greater than 500 HP. The commenter (119) said it appears the 40 ppmvd emission limit was based on 10 tests, and that all tests were conducted on one make and model of engine over a 3-day period in 1999. The commenter (119) said these data are not representative of the existing engines of various makes, models and ages in operation throughout the U.S. Commenter (121) expressed similar concerns and added that the proposed limit is significantly more stringent than the NSPS for CI engines and the CO standards in Tier 1 through 3 for similar non-road engines. Two commenters (183, 209) said that the MACT floor determination for emergency CI engines is flawed because it is based on limited testing of one engine. Also, this engine had been overhauled and was expected to operate like a new engine. Further, EPA is attempting to use Reference Method Testing, but the test in question only consisted of one run vs. three runs for each test. Thus, even this limited data is not valid Reference Method data on which to establish a standard. Since EPA only has data for one source, if it wants to use this source to establish the MACT floor, then it must use all of the 10 stack tests and determine the Upper Predicted Level (UPL). The commenter (209) contends that EPA could obtain a much more robust data set with reasonable effort, but the commenter (209) believes that work practice standards are more appropriate than numerical emission standards for emergency use engines.

One commenter (183) stated that the CO emission concentration of 40 ppmv corrected to 15 percent O_2 listed in Table 2d for emergency engines greater than 500 HP appears to be based on data from a single engine test conducted in a laboratory. The commenter (183) noted that based on this analysis, EPA concluded that all emergency engines could meet this standard without add-on controls. The commenter (183) gathered data from CI engines in AP-42 background document and from sources in Wyoming and Alaska and found that 80 percent of the engines would be unable to meet this limit even at full load. The commenter (183) further stated that controls would need to be retrofit to these engines, and using the EPA cost estimation procedures, the HAP cost per ton would be $519,730 per ton of HAP removed, which the commenter believes is excessive. In addition, the commenter (183) stated the proposed 4 ppmvd or 90 percent control for CI engines greater than 300 HP would be unable to be achieved in all cases, even with control technology. The commenter (183) pointed out that data in the docket showed only 70 percent control efficiency for CO for one engine.

Commenter 209 said emergency engines are used only during emergencies, other than short (less than ½ hour) weekly tests to assure the engines will perform. According to the commenter, performance tests (initial or every 3 years) consisting of three 1-hour runs typically cost about $10,000 each and are not justified for limited use engines, the tests alone would add substantially to the fuel use of these engines are result in additional and unnecessary emissions and work practice standards under section 112(h) are more appropriate due to “technological and economic limitations.”

One commenter (121) disputed EPA's claim that add-on controls are reasonable and justified for existing emergency engines. The commenter (121) said a mandate for add-on controls would impose significant costs on engines that are run only an average of 26 hrs/yr. Commenter 48 pointed out that the proposed rule was too expensive and of limited benefit noting that emergency engines only run during emergencies. Instead, EPA should set management practices such as requirements to perform and record routine maintenance, retain copies of the engine manufacturer's approved maintenance schedule or similar maintenance schedule, and mirror those requirements for engines located at major sources, according to commenter 121.

One commenter (81) also disputed the rationale that established a numeric limit that EPA expects all emergency engines can meet without installing after treatment controls and, therefore, provides no additional environmental benefit. The commenter (81) concluded that EPA should exempt all emergency engines at area sources. Other commenters (119) pointed to the minimal environmental benefit of regulating emergency engines and the unreasonable administrative burden of regulating such sources.

Based on EPA's apparent intent that emergency CI engines greater than 500 HP located for area sources can meet the emission standard without add-on controls, commenter 79 said that EPA should instead establish management practices. These management practices should be consistent with manufacturer recommendations, nuclear industry guidance for maintaining high emergency diesel generator reliability and Nuclear Regulatory Commission (NRC) requirements, the commenter (79) said. Similar management practices have been proposed for other area source categories, the commenter (79) added.

One commenter (81) added that if add-on controls are required to meet the limit, the short operating periods of emergency units would not trigger the usefulness of add-on controls.

One commenter (121) said EPA should allow owners or operators the option to follow either the engine manufacturers' recommended maintenance schedules or the specific maintenance requirements proposed by EPA and that this provision apply to engines at either area sources or major sources.

One commenter (201) stated that EPA's reasoning used to apply the MACT for engines at major sources as GACT for larger engines at area sources was deeply inconsistent in the case of large emergency engines at area sources. The commenter (201) pointed out that EPA decided not to require after-treatment controls for emergency engines under 500 HP located at major sources because of the low average annual operating time (50 hrs/yr), but did not make the same decision for larger emergency engines at area sources despite the same low average annual operating times. The commenter stated that setting the GACT for large emergency engines at area sources the same as the MACT for non-emergency engines could not be justified given the high cost of the controls (estimated by the commenter (201) to be $4,000 to $20,000 per engine) and the low average annual operating time (estimated by the commenter (201) to be 25 to 50 hrs/yr). The commenter (201) recommended that EPA eliminate numeric emission standards for emergency engines greater than 500 HP located at area sources and instead use the management practices and associated recordkeeping requirements proposed for small emergency engines located at area sources.

One commenter (223) stated that EPA generators located at area sources should not be subject to emission standards under 40 CFR part 63, subpart ZZZZ. The commenter (223) stated that EPA is not required to promulgate emission standards for source categories located at area sources. The commenter (223) acknowledged the D.C. Court of Appeals ruling (Sierra Club v. EPA, 479 F.3d 875, 883 (2007)) on the NESHAP for Brick and Structural Clay Manufacturing and Clay Ceramics Manufacturing (which was vacated). The D.C. Court of Appeals ruling concluded that EPA's use of work practice standards instead of emissions floors for certain subcategories of ceramic kilns located at major sources was not permitted under section 112(h) of the CAA and that EPA's failure to set emissions reductions floors for certain major source brick kiln that do not use pollution control technology violated section 112(d)(3) of the CAA. This commenter (223) stated that for area sources under section 112(d)(5) of the CAA, EPA is allowed to promulgate alternative standards for "categories and subcategories of area sources….the Administrator may, in lieu of the authorities provided in [sections 112(d)(2) and (f) of the CAA, which provide, among other things, for the promulgation of emission standards for each category or subcategory of major sources and area sources,] elect to promulgate standards or requirements applicable to sources in such categories or subcategories which provide for the use of generally available control technologies [("GACT")] or management practices by such sources to reduce emissions of hazardous air pollutants" (emphasis added). The commenter (223) stated that consistent with the Court's finding in <u>Sierra Club</u> v. <u>EPA</u>, which applied to major sources only, EPA is not required under section 112 of the CAA to promulgate standards for listed source categories located at area sources, and emergency generators located at area sources should not be subject to emissions standards.

This commenter (223) further stated that it believes it is appropriate to subcategorize emergency generators located at area sources under 40 CFR part 63, subpart ZZZZ. The commenter (223) cited section 112(d) of the CAA as stating that "[t]he Administrator may distinguish among classes, types, and sizes of sources within a category or subcategory in establishing…standards" as support. This commenter (223) believes that significant operational and economic circumstances governing emergency generators warrant the promulgation of a standard for these generators based on management practices rather than emission limits. The commenter (223) listed the following circumstances as support for its position:

- Unlike non-emergency engines, emergency generators are only used during emergency situations (provided examples).
- Because emergency generators are only used during unforeseen and typically infrequent emergency situations, their annual emissions are meaningfully lower than those from non-emergency engines. Noted that the annual NO_x emission from the four emergency generators at its West Chester facility, for example, are capped by permit, ensuring that such emissions remain below 7.63 tons NO_x on an annual basis.
- Emergency generators located at area sources are not subject to air quality permitting in many cases. The application of an emission standard under 40 CFR part 63, subpart ZZZZ could change a state's current permitting approach toward emergency generators. State or interstate permitting authorities may establish more stringent Title V permitting requirements than mandated by the CAA, and therefore subject area sources to Title V permitting requirements. Furthermore, even in States that elect not to impose Title V permitting requirements on these sources, the mere fact that a source is subject to the NESHAP program could trigger State-level construction and operating permit requirements that otherwise would not apply.
- It is economically infeasible for large emergency generators located at area sources to meet the applicable emission standards in the proposed rule. Table 2b of the proposed rule indicates that owners and operators of area source emergency generators greater than 500 HP are required to limit the concentration of CO in the unit's exhaust to 40 ppmvd or less at 15 percent O_2 (including during periods of startup or malfunction). 74 FR 9723.

> Most of these generators would not be able to meet this standard without installing costly add-on control devices. The commenter's (223) generators would need to add-on diesel oxidation catalyst technology that would be resistant to damage from mechanical or thermal shock and metallurgic erosion typically caused by engines. The cost of reducing CO emissions to 40 ppmvd using diesel oxidation catalyst technology for the commenter's four emergency generators (whose combined emissions are limited to 7.63 tons) would be approximately $33,000 per ton removed. Most facilities do not have the ability to account for the additional costs of installing and operating emissions control equipment as typical costs of doing business as they typically comprise of facilities that rely on emergency generators for critical systems during emergencies and are not involved in manufacturing-based operations (e.g., hospital, commercial office buildings, and data centers).

Based on the aforementioned circumstances, the commenter (223) concluded that EPA failed to recognize that facilities that depend on emergency generators to provide power for critical systems during emergencies would be burdened by having to comply with the proposed emission standards applicable to emergency generators greater than 500 HP, unlike their counterparts in the manufacturing/industrial sector. This commenter (223) asserted that, as with other engines that EPA concluded GACT to be management practices, these engines should also be subcategorized and GACT should be management practices.

Finally, this commenter (223) expressed that EPA failed to evaluate existing emergency RICE located at area sources in determining the basis and level of the proposed emission standards. The commenter (223) opined that if EPA had evaluated emergency RICE as a subcategory of engines at area sources (rather than by engine size and selected industry-type, without considering the costs of compliance specific to emergency engines), EPA would not have been able to have identified an appropriate emission standard for emergency RICE at area sources.

Commenter (121) asserted that emergency engines are required by local ordinances and national standards (e.g., NFPA) to keep these engines in good running condition. The commenter (121) argued that an emission limit is unnecessary and would necessitate performance testing. This is a redundant requirement and would result in additional operation, with no environmental benefit. The commenter (121) recommended that EPA only impose routine maintenance requirements on these older engines.

For certain older emergency CI engines that may be capable of meeting the recent NSPS limits even though they were produced prior to the promulgation of the NSPS, the commenter (121) said that regular maintenance of these engines to ensure they operate during an emergency should be adequate for compliance with the RICE MACT. As an alternative, EPA should allow the owner or operator to retain records showing that the engine can meet emission levels comparable to the NSPS in lieu of a separate MACT emission limit for these engines. This is similar to the approach for new or reconstructed emergency engines less than or equal to 500 HP in the 2008 RICE MACT amendments.

Commenter 88 stated that some engines serving electric sector facilities that play a role in maintaining reliable electric power supply and delivery, such as distribution company service buildings, customer call centers, and information technology data centers typically operate less than 200 hrs/yr and have low permitted capacity factors. The commenter (88) opined that emergency power at these facilities is critical to public safety and national security and should therefore not be subject to numerical emission limits, but to management practices instead.

One commenter (181) stated that as the rule currently reads, the emergency diesel generators and smaller emergency generators would require installation of CDPF to meet emission requirements. The commenter (181) stated that installing control equipment is not cost effective and would impact the facility in the following ways:

- Retrofit requirements will limit emergency diesel generator capacity potentially putting the facility out of compliance with NRC Reliability and Availability standards for the emergency diesel generators;
- Retrofit requirements will limit the smaller emergency generators capacity potentially putting the facility out of compliance with NRC required Emergency and Security Plans for the smaller emergency generators; and
- Retrofit costs far exceed the potential reduction in emissions.

The commenter (181) stated that all emergency generators located at the facility run short periods (1-2 hours per month) for operational checks and preventative maintenance. The commenter (181) stated that the annual hours of operation for both the emergency diesel generators and the smaller emergency generators are so low that emission control retrofit costs associated with the compliance of this rule would be prohibitively large, and produce insignificant benefits to the environment. The commenter (181) attached to their comment an emission assessment of the emergency diesel generators that provide background information regarding the complexity of the issues surrounding emergency diesel generators at nuclear power plants. The commenter (181) believes that in reviewing the complex issues associated with the emergency diesel generators, it is clear that the EPA's cost estimates for complying with this proposed rule drastically underestimate the costs that could be incurred at nuclear power plants. The commenter (181) stated in addition to the evaluation of risk, other evaluations would be required thereby creating undue cost burdens not considered by the EPA, specifically, EPA has not considered the effect of backpressure created by a catalyzed particulate filter on the emergency generators. The commenter (181) stated that the emergency diesel generators are rated at 5500 KW, and the NRC site requirements for each emergency diesel generator during an emergency are 5432 KW. The commenter (181) pointed out that the difference between the rated output of the emergency diesel generators and the electrical output required by the NRC is less than one percent. The commenter (181) noted that increased backpressure would have a negative effect on electrical output, and prevent the facility from being able to meet electrical demand during an emergency. In addition, the commenter (181) stated that the impact of backpressure would decrease the reliability of the emergency diesel generators to a level not suitable for NRC regulations. The commenter (181) also added that control equipment would require further maintenance and repair downtime resulting in a decrease in availability of the emergency diesel generators, and the operational burden of control equipment has the potential to create a situation where the facility would not be able to meet current prerequisites for emergency electrical power. The commenter stated that the increase in electrical output that would be required to offset backpressure created by control equipment also impacts the smaller emergency generators, which would not be capable of meeting the added electrical demand and be out of compliance with NRC required Emergency and Security Plans.

One commenter (79) said that emergency diesel generators CO emissions are inherently variable both during steady state and SSM operations based on a variety of factors, such as engine manufacturer, vintage of emergency diesel generators, and the operating practices and characteristics of existing emergency generators. Based on this variability, CO emissions may be higher or lower than the 40 ppmvd standard proposed for emergency CI greater than 500 HP located at area sources. The commenter (79) stated that one example where variable operating conditions occur is emergency diesel generators at nuclear power plants.

Response: EPA reviewed the information submitted by the commenters and determined that it would be appropriate to require management practices for all emergency stationary CI engines at area sources. Because these engines are typically used only a few number of hours per year, the costs of emission control are not warranted when compared to the emission reductions that would be achieved. The proposed numeric emission levels are not GACT for emergency engines at area sources. Such engines rarely if ever use the type of emission controls that might have been necessary for many engines to meet the numeric standard, and such engines are rarely if ever subjected to emissions testing. Therefore, EPA determined that GACT for all stationary emergency engines at area sources is the use of management practices.

EPA also analyzed the types of engines that were included in the area source category listing for stationary RICE. As a result of this analysis, EPA determined that emissions from existing stationary emergency engines located at residential, commercial, and institutional facilities that are area sources of HAP were not included in the 1990 baseline emissions inventory that was used as the basis for the listing of source categories needed to ensure that 90 percent of area source emissions are regulated. Existing stationary emergency engines located at residential, commercial, and institutional facilities that are area sources are therefore not subject to this regulation.

For stationary emergency engines at major sources, EPA determined that it is not feasible to prescribe or enforce an emission standard because the application of measurement methodology to this class of engines is impracticable due to technological and economic limitations. A more detailed discussion of this determination can be found in the memorandum entitled "MACT Floor Determination for Existing Stationary Non-Emergency CI RICE Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources." EPA determined that it is impracticable to test stationary CI emergency engines using the test procedures specified in subpart ZZZZ because using these procedures would increase the required number of hours of operation beyond the routinely scheduled reliability testing and maintenance operation, thereby increasing emissions. While emergency engines have periods of operation for scheduled maintenance and reliability testing, those periods are usually several hours shorter than the number of hours that would be required to run the necessary emissions tests under subpart ZZZZ. CARB conducted a survey of stationary emergency diesel engines in 2002[22] to determine the average number of hours that stationary emergency diesel engines operate. The average hours of operation for maintenance and testing were 22 hours per year, which is less than two hours per month. For the engines that CARB surveyed, 86 percent operated less than 30 hours/year for testing and maintenance. Thirty percent operated less than 10 hours/year. National Fire Protection Association (NFPA) codes require that stationary diesel engines that are used for emergency purposes are run 30 minutes per week (27 hours per year) for maintenance and testing purposes. It is impracticable to test emergency stationary engines as a result of emergency operation because emergencies are unplanned events and implementation of the procedures specified in subpart ZZZZ require advance planning before tests are conducted. In an emergency, the owner/operator does not have the advance planning time necessary to implement

[22] California Air Resources Board Staff Report: Initial Statement of Reasons for Proposed Rulemaking. Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Stationary Source Division, Emissions Assessment Branch. September 2003.

subpart ZZZZ. It is also impracticable to test stationary CI emergency engines at major sources because of the large population of these engines. EPA estimates that there are over 200,000 existing stationary CI engines from 100-500 HP at major sources that are subject to this rulemaking. There are only approximately 300-400 testing firms and these stationary engines are not the only sources that are required to be tested, so if testing were required for these engines, it would take many years to test all of these engines. The cost for testing all of these engines would also be approximately $200 million, which would be unreasonable.

EPA expects that these changes from the proposed rule address the concerns expressed by the commenters about the requirements for stationary emergency CI engines. Regarding the comments pertaining to performance testing for emergency engines, EPA did not intend for the rule to require performance testing for emergency engines. The final rule does not contain any performance testing requirements for emergency engines.

5.3.2 Comment: One commenter (96) pointed out that there are no standards for emergency engines above 500 HP at major sources, but that emergency engines less than 500 HP and emergency engines above 500 HP at area sources have emissions requirements. The commenter (96) asserted that any standards or work practices applicable to emergency engines should be consistent across size classes and should not include emission standards during startup operations.

Response: This rulemaking and the one developed in 2004 for stationary engines above 500 HP at major sources were developed at different times. While EPA has attempted, to the degree possible and justified, to maintain consistency across rulemakings affecting the same or similar engines, recent court decisions regarding the way that MACT floors are determined and the startup/shutdown/malfunction exemptions in NESHAP have affected the way EPA develops and sets standards since the standards for stationary emergency engines above 500 HP at major sources were promulgated in 2004. For stationary emergency engines at area sources and less than 500 HP at major sources, EPA is statutorily required to set requirements. As discussed in the response to comment 5.3.1, stationary emergency engines have to meet management or work practice requirements in the final rule.

5.3.3 Comment: One commenter (121) argued that older, existing CI emergency engines should not be treated any differently than their mobile source counterparts. In the mobile source context, engines produced in a particular model year must be certified to an emission standard that corresponds to that model year, and there is no federal mandate to retrofit these older engines. According to the commenter (121), many older engines are incapable of being retrofitted, and even if they were, it is uncertain that the newly controlled engine would function properly or comply with the proposed standard. In some situations, existing engines are incorporated into generator sets, which cannot physically accommodate add-on controls. Also, many older engines are already regulated by state permitting programs through limits on fuel usage or limits based on emission factors in construction and operating permits.

Response: EPA must regulate stationary source engines differently than mobile source engines because stationary engines are regulated under a different section of the CAA. Section 112(d)(2) of the CAA specifies that NESHAP for existing stationary sources must reflect the maximum degree of reduction in HAP emissions that is achievable, taking into account the cost of achieving the emissions reductions, any non-air quality health and environmental benefits, and energy requirements. This level of control is commonly referred to as MACT. Section 112(d)(3) of the CAA defines the minimum level of control or floor allowed for NESHAP. In essence, the MACT floor ensures that all affected sources achieve the level of control at least as stringent as that already achieved by the better-controlled and lower emitting sources in each source category or subcategory. The MACT standards for existing sources cannot be less stringent that the average emission limitation achieved by the best-performing 12 percent of existing sources in the category or subcategory. Mobile source engines are not subject to MACT standards and therefore it is not appropriate to compare the requirements for stationary engines to those for mobile source engines. Further, mobile source engines typically have different duty cycles than stationary engines.

5.3.4 Comment: One commenter (76) supports the determination of emission limits without add-on controls for emergency CI engines between 50 and 500 HP located at major sources.

Response: No response is needed.

5.3.5 Comment: One commenter (226) stated that emergency engines only operate for short periods of time, and for many small businesses, it would be very expensive for a consulting firm to visit a remote site in order to perform emissions testing. Therefore, the commenter (226) believes replacing emissions testing with management practices is an appropriate way to reduce emissions for engines managed by small firms.

Response: EPA did not propose to require performance testing for existing stationary emergency engines, see page 9711 of the proposed rule Federal Register notice. The final rule does not require performance testing of stationary emergency engines, which is consistent with what EPA proposed, and additionally does not require existing stationary emergency engines to meet numerical limits.

5.4 Small Engines

5.4.1 Comment: Several commenters (96, 157, 216, 262) expressed opposition to EPA's proposal to have emission standards apply to small engines at major sources. Three commenters (96, 157, 216) said that EPA should not finalize emission limits for engines less than 100 HP. One commenter (157) supported EPA's proposed no compliance requirements beyond complying with the manufacturer's instructions and no testing requirements for these engines. One commenter (96) argued that stationary engines that are less than 100 HP should be exempted from numerical HAP emission standards for some of the same reasons as those discussed by the commenter on the issue of emergency engine standards. In the commenter's (96) opinion, it is not cost effective to install add-on controls on small engines or to purchase a new engine. According to the commenter, the majority of engines in this size range are operated for intermittent household or other infrequent use and emissions are naturally limited, the commenter (96) said, and low emissions do not justify the costs associated with requiring a numerical HAP limit. As stated, commenter 96 is opposed to numerical emission limits for engines less than 100 HP and provided in its comments charts for different engine categories of where it has shaded several areas where it believes that EPA should replace limits with manufacturer's engine maintenance. Finally, commenter 96 added that a 2 ppmvd limit for formaldehyde is not achievable by diesel engines with a catalyst operating at 90 percent efficiency, catalysts are not cost effective for small engines, and 2 ppmvd is difficult to measure in lab conditions and impracticable in field measurements.

One commenter (262) stated that because of how EPA conducted its MACT floor analysis, small engines may be forced to install add-on controls because the MACT floor was determined by the best 12 percent of engines. The commenter (228) is concerned that the proposed standards for RICE less than 50 HP will not meet the District of Columbia Circuit's test for "work practice standards" set forth in the Sierra Club v. EPA (Brick Indus.), 479 F.3d 875 (D.C. Cir. 2007), which allows work practice standards "only if measuring emission levels is technologically or economically impracticable." The commenter (228) stated that emissions measurement likely meets these standards, but does not believe that measurement is economically practicable for a small unit as the cost of testing will likely exceed the value of the engine itself. The commenter (228) urged EPA to exclude small sources from the category.

Response: EPA has reanalyzed its proposed standards based on the information and data presented and EPA concludes that it is not feasible within the context of this rulemaking to prescribe emission limitations for existing stationary CI engines smaller than 100 HP located at major sources, because the measurement of emissions from these engines is not practicable due to technological and economic limitations. In order to measure the emissions from these engines on a ppmvd at 15 percent O_2 basis, the following test methods are required: EPA Method 1 or 1A for selection of sampling ports; EPA Method 3, 3A, or 3B for determining the O_2 concentration; EPA Method 4 for measuring the moisture content, and EPA Method 10 or

ASTM D6522-00 (2005) for measuring the CO concentration. These test methods require the sample point to be a certain distance between the engine and the exhaust. Because engines below 100 HP often have exhaust pipes with very small diameters and lengths, stack testing using these methods could require a modification or extension of the exhaust pipe to accomplish the test. The cost to do the testing ranges from approximately $1,000-$5,000 depending on the method used. Generally, 100 HP engines cost around $5,000-$7,000 dollars and 50 HP engines cost approximately $4,000-$5,000, so the cost of performance testing could approach the cost of the engine itself. Given the cost of the testing itself, the physical adjustments necessary to accomplish the test, and the particular circumstances pertaining to stationary engines below 100 HP, we believe that the application of measurement methodology to this class of engines is not practicable due to technological and economic limitations. Therefore, EPA is promulgating work practice standards for these engines. Additional detail regarding this analysis can be found in the memorandum entitled "MACT Floor Determination for Existing Stationary Non-Emergency CI RICE Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources."

5.5 Diesel Engines

5.5.1 Comment: One commenter (116) recommended that the standard require CDPF or a combination of oxidation catalysts and CDPF for new or existing non-emergency diesel RICE. The commenter (116) stated that EPA's proposal calls for oxidation catalysts on non-emergency CI engines, which EPA reports will result in a 90 percent reduction in CO and 30 percent reduction in PM, whereas CDPF would result in greater reductions in PM (90 percent reductions or greater).

Another commenter (141) reported that it had conducted risk assessment evaluations for diesel particulate emissions from non-emergency diesel engines and found that the diesel particulate emissions from non-emergency diesel engines and found that the diesel particulate emissions often create a significant cancer risk even when there is a 30 percent PM reduction. The commenter (141) recommended that EPA base standards on CDPF or a combination of oxidation catalyst and CDPF, for existing and new non-emergency diesel engines.

Response: The standards that EPA proposed and that EPA is finalizing do not require a particular control technology. For the proposed rule, EPA's beyond-the-floor analysis resulted in standards that were based on the use of oxidation catalyst control for stationary non-emergency diesel engines above 300 HP; EPA has made the same determination for the beyond-the-floor standards in the final rule. EPA determined that the MACT standards should be based on oxidation catalyst rather than CDPF because we do not have any data that shows that CDPF get greater reductions of HAP than oxidation catalysts on stationary engines, and CDPF are approximately four times as costly as oxidation catalyst.[23] EPA also has concerns regarding the technical feasibility of CDPF for existing stationary diesel engines. Many existing diesel engines are not electronically controlled, and PM emissions from older engines are often too high for efficient operation of a CDPF. Further, engine exhaust temperatures are often not high enough for regeneration of the CDPF filter substrate. EPA notes that owners and operators are free to

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[23] California Air Resources Board Staff Report: Initial Statement of Reasons for Proposed Rulemaking. Airborne Toxic Control Measure for Stationary Compression Ignition Engines. Stationary Source Division, Emissions Assessment Branch. September 2003.

choose whichever control technology, which could be oxidation catalyst or CDPF, as long as they meet the final standards. EPA is not addressing new diesel engines in this rulemaking.

5.5.2 Comment: One commenter (264) provided that, when California implemented rules to control HAP emissions from diesel engines, the commenter contracted certified providers of add-on controls to determine the feasibility of such measures in order to comply with California standards. This commenter (264) discovered the following three issues in trying to apply new emission control to old engines: (1) Manufacturers do not guarantee the device would fit an older unit; (2) Manufacturers do not guarantee there would be any emission reductions; and (3) Manufacturers do not guarantee that the engine would not be damaged from the control device. For these reasons, the commenter (264) recommended that the EPA limit the requirement for installation of CDPF to new engines.

Response: The emission standards that EPA proposed for existing stationary diesel engines that require the installation of add-on controls were based on oxidation catalyst control and not CDPF. Furthermore, EPA is not mandating any particular type of control technology. Affected sources may use whichever controls they choose to be appropriate as long as they meet the applicable emission standards. For the final rule, EPA has not made any changes since proposal in terms of the control technology that is relied upon to meet the emission standards and for existing stationary non-emergency diesel engines above 300 HP the final emission standards are based on the use of oxidation catalyst control.

5.6 Format of Standards and Other Issues Related to Standards

5.6.1 Comment: Two commenters (96, 150) said that EPA should include the flexibility in the final rule of allowing all sources subject to emission standards the option of meeting either the concentration limit or the percent reduction standard. According to commenter 96, including such flexibility is necessary due to the large span in model year of the engines, emission characteristics and location conditions, and it may be more feasible to meet one compliance option over the other or even impossible to meet one of the options.

One commenter (99) asserted that where the percent reduction is available, it is generally attainable, but at a high cost. However, the numerical values proposed by EPA are not achievable, the commenter (99) said.

Response: EPA provided the option of meeting either a concentration standard or a percent reduction for subcategories of engines that were expected to comply with the rule by applying add-on control technology, e.g., for stationary non-emergency CI engines above 300 HP. Including an option to meet a percent reduction does not make sense for sources that are not expected to apply add-on controls, and furthermore, EPA would not know what that percentage would be if the standard was based on levels achievable without aftertreatment. EPA does not agree with the commenters that the emission standards are not achievable. The standards are based on emissions data from existing stationary diesel engines.

5.7 Technology

5.7.1 Comment: One commenter (199) commended the EPA for its continuing efforts to develop and implement effective emission control standards for major sources of air pollution such as this category of engines. The commenter (199) noted that diesel particulate filters (DPF), diesel oxidation catalysts, and flow-through filters (FTF) have been used to reduce diesel PM from stationary diesel engines. The commenter (199) stated that CDPF can reduce PM emissions by 85 percent, CO emissions by 90 percent, and HC emissions by 95 percent. For oxidation catalyst, the commenter (199) stated that PM reductions range from 20 to 50 percent, reduction in HC of 60 to 90 percent, and significant reductions of CO, smoke and odor. The commenter (199) stated that FTF is capable of achieving PM reductions of about 30 to 75 percent. In addition to these technologies, the commenter (199) stated that PM emissions from the engine's crankcase can be substantial (as much as 0.7 g/HP-hr PM during idle conditions) and closed crankcase ventilation (CCV) can reduce these emission by over 90 percent. The commenter (199) noted that the use of ULSD can result in modest PM reductions and enables the optimum use of catalyst-based emission control technologies. The commenter (199) stated these control technologies have been retrofitted on stationary diesel engines and verified by both CARB and EPA to be effective in reducing emissions of PM from diesel engines. The commenter (199) provided cost information from a September 2003 stationary CI engine Air Toxics Control Measure staff report for a typical prime stationary engine (rated at 590 HP operated for 1,040 hrs/yr) retrofitted with a DPF. The report estimated the cost to be $22,400 for equipment and installation, $100 for reporting, and $550 per year for ash cleaning/maintenance. The total cost for the same engine retrofitted with a oxidation catalyst was about $6,250 with no annual maintenance. The commenter (199) noted that these technologies are also effective in reducing black carbon emissions.

The commenter (199) recommended that EPA also consider the benefits of using selective catalytic reduction (SCR) to reduce both HAP and NO_x emissions from both stationary CI and SI engines. The commenter (199) further stated that retrofit SCR systems can reduce NO_x emissions from existing stationary diesel engines by 80 percent or more, and since retrofit SCR systems typically incorporate the use of a diesel oxidation catalyst, these SCR systems can also reduce HAP emissions as well. The commenter (199) noted that one member company has installed over 400 SCR systems worldwide for stationary engines with varying fuel combinations.

The commenter (199) believes DPF should be installed on in-use stationary diesel engines wherever technically feasible and that these engines should be fueled with ULSD to provide the maximum flexibility in the design of effective retrofit DPF emission control solutions. The commenter (199) believes that the use of ULSD in combination with retrofit DPF on existing stationary diesel engines can be implemented in the 2010 timeframe on both prime and emergency stand-by engines with power ratings of 50 HP or greater. The commenter (199) noted that in situations where DPF are not technologically feasible, oxidation catalyst should be considered as an alternative option to help achieve at least a minimum level of PM control from applicable stationary diesel engines.

Response: EPA acknowledges the information regarding applicable control technology that is currently available to apply to existing stationary engines that the commenter provided. EPA generally agrees with the commenter that the technologies identified can be used by at least some existing stationary engines. EPA for the most part also concurs with the commenter's assertions regarding the capabilities of the control technologies discussed as far as which pollutants they reduce and the effectiveness. However, EPA notes that it has not seen any evidence that CDPF are more efficient in reducing HC emissions from stationary diesel engines than oxidation catalysts, which the commenter claims. EPA addressed the comment regarding the installation of DPF on in-use stationary engines in the response to comment 5.5.1

EPA did not specifically consider SCR because this rulemaking focuses on reducing HAP emissions and SCR alone does not reduce emissions of HAP. In order for an SCR to reduce HAP, an oxidation catalyst would have to be part of the aftertreatment package. With that said EPA notes that it does not mandate any specific control technology in the final rule. Owners are free to select whichever control technology they feel is appropriate as long as they demonstrate compliance with the emission standards.

6.0 Exemptions/Special Allowances

6.1 Emergency Engines

6.1.1 Comment: Several commenters (67, 79, 80, 81, 82, 85, 87, 88, 90, 92, 95, 109, 113, 115, 118, 119, 120, 126, 139, 144, 150, 162, 166, 168, 169, 172, 178, 185, 195, 198, 214, 219, 223, 232, 238, 240, 241, 245, 249, 251, 263) voiced concerns regarding potential emission limits for emergency engines and numerous commenters expressed particular concern with their participation in demand response (DR) programs.

Several commenters (82, 88, 92, 95, 185, 198) stated that EPA's proposed definition of emergency is not clear as to whether it includes emergency engines that operate in emergency DR programs. The commenter (82) believed that the record on 40 CFR part 60, subpart IIII, from which the proposed rule definition was drawn, clearly indicates that the 40 CFR part 60, subpart IIII definition was meant to address peak shaving, not emergency engines participating in emergency DR programs. Several commenters (67, 81, 82, 90, 92, 118, 119, 126, 169) requested that EPA modify the proposed definition of emergency engines to enable engines to maintain their status as emergency engines, even though the engines that are used in DR programs are part of a financial agreement and based on the current definition would not be considered emergency engines. Two commenters (118, 119) stated that emergency DR programs should not be confused with economic DR programs (e.g., peak shaving). Emergency DR programs are initiated by the transmission system operators when the threat of power outages is imminent and are critical to maintaining available power during periods of extreme load on the electric power infrastructure, according to commenters 88 and 118. The events are rare and unplanned, out of the control of emergency engine owners/operators, and no power is supplied to the grid, but used at the individual facility, commenter 118 said. Commenter 88 said that emergency DR events during the year are typically limited to no longer than 2 to 6 hours per event, with the number of events per year capped by the regional power pool. The commenter (88) believed that, by establishing a subcategory for generators that serve facilities participating in a DR program and that only operate 200 hrs/yr, including any hours operated for maintenance purposes, EPA could require maintenance practices, and remove any disincentive that may be created over the increased administrative burden and potential post-combustion control retrofit costs if their emergency stationary RICE would be required to be re-characterized as “non-emergency” in order to participate in DR programs. Commenter 79 suggested that a 100 hour operating limit could also be considered as an alternative. Three commenters (95, 185, and 198) stated that they receive many benefits from their participation in the local DR program, and that they use emergency DR events and tests events to replace some of the Joint Commission on Accreditation of Healthcare Organizations' mandated hospital generator tests. According to commenters 95, 113, 85, 198, and 251 the costs that they would have to absorb to meet the proposed emission limits would be prohibitive and that to require facilities to meet rigid emission limits with very little reduction in emissions is not encouraged. Emergency engines are used throughout the U.S. and provide vital safety requirements at hospitals and healthcare institutions, the commenters (95, 185, and 198) said. Two commenters (113, 251) indicated that many healthcare institutions are operating in the red and requested that EPA consider the expense required to meet these new standards and take note that any additional financial burden would impact finances available to provide patient care. The definition recommended by several commenter should include the following statement:

"Emergency generator does not include a load-shaving unit or peaking power production unit, but does include the operation of an emergency generator during periods in which the RTO or other local or regional entity responsible for maintaining reliability of electrical operations directs the implementation of emergency demand response procedures."

One commenter (67) provided two examples of situations where the commenter believed that the current definition of emergency engine would prohibit operation from being considered emergency use. The first scenario described by commenter 67 was follows: "Entity 1 owns and operates stationary engines that provide emergency power to critical components like elevators, emergency lighting, and fire pumps of Entity 2 via dedicated transmission lines that are not part of the electric grid. Entity 1 and 2 are separate in a financial sense and there is a Financial Agreement A for Entity 1 to provide emergency power to Entity 2 upon loss of power from the grid. Under Financial Agreement A, the engines are operating in an emergency capacity." The second scenario described by commenter 67 was as follows: “In the case above, Entity 1 enters into a second and separate Financial Agreement B with an RTO. Under Financial Agreement B, Entity 1 agrees to provide electric power to Entity 2 when the RTO initiates their emergency load response program. At no time does Entity 1 send power to the electric grid, but instead provides power using dedicated transmission lines directly to Entity 2, for the purpose of reducing load from the electric grid. Entity 1 supplies power to critical and non-critical components of Entity 2. In this case, the emergency is associated with reliability of the electric grid, as determined by the RTO. Under Financial Agreement B, the engines are operating in an emergency capacity.” The current emergency engine definition would exclude both examples, yet the engines are truly operating in an emergency capacity, according to commenter 67.” Commenter 67 asked that EPA adopt the following language in the final definition of emergency engine: “Stationary ICE used to supply power to an electric grid or which supply non-emergency power as part of a financial arrangement with another entity are not considered to be emergency engines.”

On the recommendation of EPA staff, commenter (82) had submitted a formal Applicability Determination (included as attachment to comment) to EPA Region 1 regarding engines used for emergency DR, but has not received a response. Three commenters (82, 118, 169) stated that emergency engines participating in emergency DR programs provide a critical service in stabilizing the electric grid on the rare occasions when the grid is about to fail. Many states endorse the use of emergency engines participating in emergency DR programs, according to commenter 82. Two commenters (82, 169) cited various DR programs in the New England area that existing engines participate in. A commenter (82) provided detailed discussion of several emergency DR programs across the country, including states in New England, the Mid Atlantic and Midwest, and the South, that are supportive of using emergency engines as part of their emergency DR programs, and that accommodate operation of these engines through various definitions of emergency, or through permitting. The commenter (82) concluded that it is very important that EPA not adopt rules that conflict with how much of the U.S. handles emergency DR.

Response: EPA agrees that it would be appropriate to allow emergency engines to operate as part of emergency demand response programs for a limited number of hours of operation per year in situations where grid failure and a blackout are imminent. In the final rule, EPA has revised the requirements for emergency engines to reflect this. Regarding the first scenario of stationary engine operation that commenter 67 describes, EPA believes this type of operation as described would be considered emergency use and has revised the definition of emergency engine to make clear that financial arrangements limited solely to the provision of emergency power from one entity to other entities does not exclude engines from being emergency engines. As long as the engine operates only for emergency use and testing and maintenance as allowed, the engine would remain classified as an emergency engine and would not be subject to requirements that apply to non-emergency engines.

6.1.2 Comment: One commenter (107) requested that the emergency use definition be expanded to peak shaving or interruptible power programs. Commenter 81 said the final rule should not discourage participation in peak shaving. Although there is a very small financial benefit to these arrangements, in many instances the benefit will not be as great as the cost associated with a loss of emergency generator status. Therefore, the operators of generators will likely forgo participation in such programs. The commenter (81) added that participation in these programs does not necessarily mean that an emergency engine would run for extensive periods of time. In the commenter's (81) experience, these engines typically run less time of peak shaving than time required for annual testing and maintenance. Further, the time engines run for peak shaving serves as an opportunity to fully exercise the emergency power engines under load conditions. The commenter (81) asked EPA to consider allowing emergency engines to run up to 50 hours for peak shaving as long as those hours are counted together with the maintenance and readiness testing runtimes, and do not exceed 100 hour per year.

Response: Peak shaving and normal interruptible power contracts are not limited to emergency situations and can be used to increase load during peak periods of power use. Engines used for peak shaving are part of general power management and do not qualify for treatment as emergency engines. EPA has made minor revisions to deal with demand management contracts that are limited to emergency situations (see response to 6.1.1), but peak shaving and interruptible contracts are not generally limited to emergencies, nor are they limited by the amount of time they can be used. EPA does not intend to prevent the use of peak shaving or interruptible power contracts, but engines using these contracts are not emergency engines and must meet the same requirements as other non-emergency stationary engines. EPA notes that that it does allow emergency engines some amount of time to operate outside of emergency conditions, but not as part of a specific contract designed to operate these engines at periods of peak load, when emissions are already high, and where they are not limited to emergency conditions.

6.1.3 Comment: Another commenter (87) stated that the proposed rule inappropriately imposes an emission standard for certain emergency generators. Commenter 87 cited the exemption provided in the final RICE NESHAP (and retained in the current proposal) for RICE greater than 500 HP located at major sources as the correct approach, and recommends that EPA exempt all emergency generators at major and area sources from the rule. Commenter 87 expressed concern that, unlike the exemption approach taken with larger engines, the EPA appears to have arbitrarily decided to define the emissions level achieved by these uncontrolled units and more specifically, (1) it is not known to what extent variation in emission levels of different brands and models was taken into account in defining this emission level; and (2) by setting an emission level rather than providing an exemption as for larger sources, the agency subjects those smaller units at major sources and equivalent units at area sources to performance testing. According to this commenter, for one site in their industry with more than 23 emergency generators, the cost of initial performance testing would exceed $200,000. Should the Agency not be able to exempt all emergency generators, the commenter (87) recommends that the Agency alternatively apply work practices (rather than emission limits) identified for identical small units at area sources to the small units at major sources, and identify a work practice standard for the RICE larger than 500 HP at area sources.

One commenter (150) believes that all emergency engines should be exempt from the proposed requirements. The commenter (150) stated that regulations on emergency engines would not meet a reasonable cost/benefit test, as the emissions reduction benefits would be minimal compared to the logistical burden and monetary costs associated with compliance. The commenter (150) added that the use of catalytic controls on emergency engines runs contrary to industry standards. Two commenters (150, 241) stated that if EPA places any restrictions on emergency engines, only management practice requirements should be imposed because the limited operating time of emergency units and the limitations in the ability to measure compliance make compliance with numerical limits infeasible.

One commenter (169) stated that the proposed regulations do not clearly identify the compliance requirements that are applicable to emergency CI and emergency SI engines with a site rating of more than 500 HP that are located at area sources. This commenter added that (1) if it is indeed EPA's intent to exempt these engines from performance testing, the rule language should be clarified; and (2) however, if no performance testing is to be required, then the imposition of any emission limits on these emergency engines must be seriously questioned. The second point is of special concern to this commenter (169) because it is believed that many existing emergency engines would not be able to comply with the proposed emission limits and, without performance test results, owners and operators will be unsure of their compliance status and will be unable to certify compliance with Title V permit conditions. Commenter (169) requests that EPA eliminate the emission standards for this source category and substitute management practice standards similar to those that are proposed for smaller emergency engines (rated at less than 500 HP) that are located at area sources.

Commenter 119 said that the requirements in the existing RICE NESHAP, which state that an existing emergency stationary RICE does not have to meet the requirements of 40 CFR 63 subparts ZZZZ and A and no initial notification is required, should be retained. The commenter (119) refers to the limited operating hours of these units and the fact that the existing maintenance procedures in the telecommunications industry are similar to those proposed in the RICE NESHAP. Imposing additional requirements would only add administrative burden and would not achieve any HAP emissions reduction. One commenter (77) supported the definition of stationary emergency RICE found in the present rule and the requirements for maintenance checks and readiness testing in the proposed rule. However, the commenter (77) suggested that the exemption for emergency RICE greater than 500 HP at major sources be extended to all emergency RICE at both major and area sources. The commenter (77) believes that it would simplify the rules and provide equitable treatment if all emergency RICE were treated the same.

Commenter 162 said it is inconsistent and unjustified to exempt existing emergency and limited-use RICE greater than 500 HP from regulation while existing emergency RICE less than 500 HP at both major and area sources will be burdened with meeting emission limits or have to perform the prescribed maintenance requirements.

Commenter 119 said that the numerical limit on RICE greater than 500 HP should be eliminated. The commenter (119) also requested that these engines be exempted from the rule based on the owners' and operators' ability to demonstrate they are following the engines manufacturer's emission relate O&M requirements. If EPA is unwilling to provide a full exemption from the rule for these engines, the commenter (119) recommends that the numerical limit be replaced with management practices, consistent with those proposed for emergency CI less than 500 HP.

<u>Response</u>: EPA is required to address HAP emissions from all existing stationary engines less than or equal to 500 HP at major sources and existing stationary engines at area sources. Due to the recent Brick MACT decision, EPA can no longer set floors of no emission reduction for limited use engines at major sources, or any other engines for that matter, as was done in the 2004 RICE NESHAP that regulated existing and new stationary engines greater than 500 HP at major sources. EPA has determined that residential, commercial, and institutional stationary CI

emergency engines located at area sources are not part of the stationary RICE source category and has not promulgated regulations for them in the final rule. In addition, EPA has required management practices for all emergency engines at area sources in the final rule, including emergency engines greater than 500 HP. For emergency engines at major sources, the final rule requires work practices. This is discussed in more detail in the response to comment number 5.3.1. EPA believes these changes address the concerns expressed by the commenter regarding Title V compliance, as the emergency engines will not have to meet specific numerical emission limitations, and can certify compliance with the required work practices.

6.1.4 Comment: One commenter (175) recommended that EPA establish a 100 hrs/yr threshold under which only recordkeeping would apply. One commenter (79) requested that, if EPA decides to promulgate numeric standards for non-nuclear emergency diesel generators, that EPA provide an exemption from regulation for emergency diesel generators that operate 200 hrs/yr or less.

Response: EPA does not believe that the only requirements that should be applicable to stationary emergency engines that operate less than 100 hours per year are recordkeeping requirements. The commenter did not provide any justification for this claim and EPA believes that the requirements in the final rule for emergency engines are justified. EPA cannot exempt engines from regulation if they are in the source category and does not believe it is appropriate to increase to 200 hours the amount of time engines can operate for testing and maintenance and still be considered emergency engines. EPA has included a provision that would allow for more time if required by another regulatory entity.

6.1.5 Comment: One commenter (81) said applying a NESHAP standard to emergency engines would force some states to require full air emission source permitting for such units or to modify their rules to exempt such engines. Many permitting authorities require permitting for all sources subject to NESHAP rules. This adds administrative burden, and these costs should be considered by EPA as it develops the final rule. The commenter (81) added that even if EPA decides to include only maintenance requirements for emergency engines, it should insert these requirements in a manner that would not automatically trigger state permitting requirements.

One commenter (119) said the air quality benefit realized from regulating emergency engines is outweighed by the burden placed on area sources where a small engine may be their only equipment, and the administrative burden placed on state agencies to administer permit programs for the large number of sources that otherwise would not be regulated.

Response: EPA has no control over what states require. EPA does not require permits for units at area sources and we agree that it would be an unnecessary administrative burden for states to require such permits; however, that is a determination that is made by the state, not EPA.

6.1.6 Comment: Five commenters (90, 118, 139, 172, 178) requested that emergency and limited use RICE be exempted from the rule because of their low emissions due to infrequent usage. One commenter (90), who provides large emergency back-up electrical power supplies to clients in Iowa, South Dakota and Illinois, including grocery stores, schools, data centers, offices, and manufacturing facilities, provided statistics on peak usage and average years. In 2008, which was a high use year due to extreme flooding in their service areas, their units were used an average of 58 hours across the fleet. Some units were used less than 5 hours for the year. In a more typical year, the average annual use may be 30 hours or less. The commenter (90) noted that even a large diesel engine used for emergency purposes in a typical year would emit well below 1 ton per year of CO and even much lower emissions of HAP. Another commenter (178) also cited the infrequent usage as a reason for exemption, stating that RICE units among their membership were used almost exclusively for emergency power and fire pump use and operated very little. The units are tested monthly, for 30 minutes or less per test. One member with multiple emergency engines noted that they are rarely, if ever, operated more than 50 hrs/yr and in most cases no more than 8 to 20 hrs/yr for routine maintenance.

The commenter (178) continued their justification for exempting emergency and limited use engines by referring to how the South Coast Air Quality Management District (SCAQMD) regulate the units. The commenter (178) noted that SCAQMD has one of the most stringent programs in the country for CI engines, yet exempts emergency generators, and limits CO to 250 ppmvd for prime engines. They note that emissions rates specified by the manufacturers of new RICE will not meet EPA's proposed Tier 2/Tier 3 requirements.

One commenter (81) noted the vital role that emergency generation units play in the communications industry and that reliable communications is a critical component of the Emergency Support Function of the Department of Homeland Security's National Response Framework. The commenter (81) said the proposed rule will require communication providers to spend a substantial amount of money to continue to operate these emergency engines, which will be borne by all consumers. However, the commenter (81) agrees with EPA statements in the preamble and docket that air quality benefits will be minimal or nonexistent. The commenter (81) referenced statements from supporting information to the proposal, which document that the operation and maintenance requirements proposed for emergency engines are, as a general rule, already being performed. If this is true, the regulations cannot be expected to result in any appreciable air quality improvements, the commenter (81) said. The commenter (81) added that the costs of complying with the proposed rule could be better spent on other environmental projects. The commenter (81) asked EPA to exempt all emergency engines located at area sources from the rulemaking.

Commenter 81 also disputed the rationale that established a numeric limit that EPA expects all emergency engines can meet without installing after treatment controls and, therefore, provides no additional environmental benefit. The commenter (81) concluded that EPA should exempt all emergency engines at area sources.

Commenter 119 also questioned the values of imposing a numerical standard on emergency CI engines, even if EPA does not require testing. The commenter (119) was concerned that state and/or local regulatory agencies would require testing, and if an engine were unable to demonstrate compliance with the numerical standard, aftertreatment controls would be required. As demonstrated by EPA's analysis, such controls are not cost effective, and EPA's costs are underestimated. The commenter (119) said that the catalyst aftertreatment technology requires elevated temperatures, and emergency generators often operate for short periods of time and may not reach the temperatures required for the oxidation of HAP.

One commenter (81) added that the rule could have the unintended effect of encouraging parties to reduce the size or availability of back-up power units, which are critical during power failures and other emergency situations.

One commenter (139) stated that the proposed rule subjecting emergency RICE at major sources to emission limits is not warranted. The commenter (139) noted that the insignificance of these engines, which are operated infrequently, is illustrated by the compliance and testing requirements proposed by EPA: emergency RICE located at major sources would have no compliance requirements beyond complying with the manufacturer's instructions and no testing requirements whatsoever. Another commenter (118) requested that emergency engines be exempted from the rule based on the owner's/operator's ability to demonstrate they are following the engine manufacturer's emission related O&M requirements.

Response: As discussed in the response to comment 5.3.1, the final rule does not have any numeric emission limitations for emergency engines. Thus, the final rule should not reduce the availability of emergency engines or impose a substantial burden for these engines. Emergency engines are part of the listed source category and EPA cannot exempt them from regulation. We did, however, analyze the engines that were the basis of the source category listing for area sources and determined that residential, commercial, and institutional emergency engines at area sources were not part of the source category. These engines are therefore not subject to the final rule.

6.1.7 Comment: One commenter (122) proposed that the allowance for non-emergency operations of emergency engines be expanded from the proposed 50 hours to 100 hours and that the limit for combined readiness testing and non-emergency operations be expanded from the proposed 100 hours to 200 hours. The commenter (122) operates some CI engines between 300 and 500 HP that are primarily used for emergency purposes but are used between 50 and 100 hrs/yr for non-emergency operations and not more than 200 hrs/yr for all operations. The commenter (122) recognized that those engines that operate above 50 hrs/yr for non-emergency purposes would be classified as non-emergency under the proposed rule and expected to use add-on controls to meet the proposed limits which are based on an above-the-floor MACT determination for non-emergency CI engines between 300 and 500 HP. The commenter (122) noted that the cost analyses conducted to support this determination assumed 1,000 operating hrs/yr to justify the above-the-floor limits and asserted that, for engines operating not more than 200 hrs/yr, the above-the-floor limits would likely not be justified on a cost basis. For this reason, the commenter (122) requested an expansion of the hours allowances for emergency engines so those operated by the commenter (122), and many similar ones operated by other sources, would be classified as emergency engines and not expected to apply costly add-on controls.

Response: EPA does not agree that the allowance for non-emergency operations of stationary emergency engines should be expanded beyond 50 hours. If the owner/operator needs to operate the engine for additional hours beyond the 50 already allowed, and the 100 hours already allowed including testing and maintenance, then the engine should meet the requirements for non-emergency engines.

6.1.8 Comment: One commenter (220) said that HAP emissions from their member's engines are not likely to have any meaningful impact in the areas in which the engines are located. The AP-42 factors for engines show that HAP emissions from these units are miniscule, especially since they are only operated on an as-needed basis (peaking and/or emergency units). Short-term emissions are low, and EPA has offered no evidence that long-term HAP emissions from these types of units are worthy of significant regulation. The commenter (220) added that it is inappropriate for EPA to use a section 112 rulemaking to target non-HAP pollutants.

Response: EPA does not agree with the commenter that these engines are not worthy of regulation. Section 112(d) requires regulation of stationary engines based on MACT or GACT and does not allow individual engines to be exempted. For emergency engines at area sources, EPA has included work practice standards instead of the emissions limitations that were in the proposed rule. This addresses the commenter's concerns regarding the impacts on their emergency engines. Regarding peaking units, EPA does not agree with the commenter that they are not worthy of regulation. These types of units can typically operate for hundreds of hours per year and therefore are not insignificant sources of emissions. EPA is not using a section 112 rulemaking to target non-HAP emissions, rather, it is using CO as a surrogate for HAP emissions.

6.1.9 Comment: Commenter (226) recommended that all emergency generators less than 300 HP be excluded from emission standards, because of the high costs and the small amount of emissions that they generate. The commenter (226) noted that EPA's data shows that PM emissions from an average CI engine is below 10 pounds per year, even less for a smaller engine, would provide little emission reduction from the proposed rule. The commenter (226) noted that EPA has exempted all new emergency engines larger than 500 HP from emission standards, and does not see the merit in applying more stringent standards to smaller existing engines. The commenter (226) stated that EPA should exclude, at a minimum, all emergency RICE below 50

HP to avoid the enforcement and permitting resources that this proposal would require. The commenter (226) also added that homeowners should not be subject to EPA enforcement.

Response: As discussed in the response to comment 5.3.1, emergency generators at both area sources and major sources are not subject to numerical emission limitations in the final rule. In the final rule, EPA has excluded emergency engines that are located at residences that are area sources of HAP. EPA cannot exclude emergency engines at major sources from the rule because they are part of the listed source category.

6.1.10 Comment: One commenter (228) noted that under the proposed rule, major source emergency RICE may operate an unlimited period of time for maintenance checks and readiness testing, while emergency RICE at area sources are limited to 100 hours for such maintenance checks and readiness with a right to petition for more. The commenter (228) stated that EPA has advanced no rationale for the discriminatory approach to area sources, which pose a lower risk to human health and the environment, than major sources. The commenter (228) also noted that major sources, which are presumably more familiar with the regulatory environment, are excused from the need to petition, while the much greater number of less sophisticated area sources are expected to petition.

Response: The unlimited time period for maintenance checks and readiness testing for stationary emergency engines larger than 500 HP located at a major source of HAP was promulgated as part of the original RICE NESHAP action in 2004. In subsequent rulemakings, EPA determined that it would be appropriate to limit the hours for maintenance and testing for emergency engines. EPA has not yet revisited the section 112 requirements for the emergency engines that were subject to the 2004 RICE NESHAP but may do so in the future.

6.2 Limited Use Engines

6.2.1 Comment: Multiple commenters (78, 97, 107, 110, 126, 129, 130, 139, 150, 162, 168, 170, 177, 178, 179, 183, 191, 197, 202, 207, 216, 227, 236, 247, 253) wanted EPA to expand the definition of limited use engines. Several commenters (162, 168, 236) said that a limited use category should be included in this rulemaking for area source engines and engines less than 500 HP, as was included in the rule for engines greater than 500 HP located at major facilities.

Commenters 97, 168 and 236 thought that limited use engines should be exempt from performance testing. According to commenters 97, 168 and 236, limited use engines should only be required to track and report hours of operation.

Commenter 168 asked that limited use be defined as 250 hrs/yr. Commenters 126, 150, 162, 197, 216, 236 and 247 asked EPA to provide 300 hrs/yr for limited use engines. If 300 hrs/yr is not provided, commenter 162 requested clarification that readiness testing and maintenance are excluded from the annual hours of operation. This will allow companies to perform the necessary maintenance and testing requirements without worry of exceeding the 100 hour limit, which could be easily exceeded if a malfunction or repair required diagnosis and/or engine tuning, the commenter (162) said.

Two commenters (177, 253) asked that limited use be defined as 500 hrs/yr. The current rule defines limited use as “any stationary RICE that operates less than 100 hrs/yr.” The commenter believes that because of the low capacity factor (approximately 5.7 percent for an engine that operates 500 hrs/yr), the emissions are inherently low and would not pose a significant health hazard to the public. Similarly, commenter 168 said that its limited use engines, which are predominantly CI engines are inherently low-emitting and would not pose a significant health hazard to the public. Given the short periods of time the commenter's units operate (startup engines for large combustion turbines), imposing emission limits is impractical. Therefore, startup engines should either be included in the definition of emergency stationary RICE, or limited-use RICE should continue to be exempt from emission limitations and additional requirements, according to commenter 162.

Two commenters (126, 247) stated that if EPA declines to exempt the current limited use category to include all limited use engines, then EPA should establish a new subcategory of limited use RICE that are used in electric grid security. The commenters (126, 247) noted there are 500 such engines that operate less than 300 hrs/yr that are used to support the integrity and voltage of various electric utility transmission and distribution grids. The commenter (126) stated that these engines are similar to emergency engines, except they are used to respond to sags in voltage on remote portions of the utility's grid. The commenters (126, 247) noted that the proposed rule would require retrofitting of these engines with catalytic converters, but believes these retrofits in many cases are impractical.

One commenter (226) noted that it was incredulous to require significant regulation for small engines, but determine that larger limited use engines require no regulation. The commenter (226) stated that the Regulatory Flexibility Act requires EPA to consider less burdensome alternatives, and this should be done for the final rule.

One commenter (110) recommended that EPA include a de minimis usage threshold of 50 hours/year, below which, equipment will be exempt from the requirements of the proposed rule. The commenter (110) is concerned that the proposed rule will require a significant investment of resources for testing, personnel training, recordkeeping and reporting relative to the hours of usage for emergency standby generators or other limited use engines that are operated only for exercise or testing for 1 to 2 hours per month or less. The commenter (110) believes that the benefits are insignificant relative to the compliance cost, instead, could have the unintended consequence of generating more emissions as a result of the travel to conduct testing.

One commenter (78) said the cost effectiveness of adding control devices to low-use engines should be evaluated regardless of the size of the engine. The costs associated with the installation and maintenance of a control device on a low use unit can be quite high per ton of pollutant abated.

One commenter (202) recommended that an exemption for engines at an area source that is only used for backup purposes as long as the hours in any particular year do not exceed 500 hours. The commenter (202) explained that it has four engines, each greater than 500 HP, that are maintained as backup units to ensure no digester gas build-up when the combustion turbines are off line.

One commenter (107) proposed that EPA extend the exemption for limited use stationary engines that is currently available for engines above 500 HP at major sources to include existing engines at area sources that are above 300 HP. The commenter (107) noted that most of these engines are located at retail stores or office buildings where there are no other significant sources of HAP emissions and that the majority run less than 100 hrs/yr for backup power, peaking power, and maintenance combined. Additionally, the commenter (107) noted the proposed rule allows for an exemption for limited RICE rated greater than 500 HP at major sources, and the rule for area sources should not be more stringent than for units at major sources.

One commenter (139) strongly supported the creation of a subcategory of limited use RICE, such as those with a 10 percent capacity factor or less. The commenter (139) believed that EPA's rationale for proposing the installation of an oxidation catalyst on engines greater than 300 HP also supported the creation of a subcategory of limited use RICE, because in the proposed rule, EPA evaluates oxidation catalysts on a cost per ton HAP removal basis and concludes that the cost per ton increases as the size of the engine decreases. Similarly, the commenter (139) noted, there is a high cost per ton HAP removal associated with installing an oxidation catalyst on low capacity factor engines. The commenter (139) further noted that these limited use engines most closely resemble emergency RICE in their operation, but fall outside of that category because they do not meet the definition for emergency engines. Additionally, the infrequent use of limited use engines makes the application of pollution controls more difficult and costly.

One commenter (78) said EPA should consider the distinction between baseload and peaking operation in developing the final regulation. Peaking engines typically operate far fewer hours each year than baseload engines (the commenter's (78) peaking engines have capacity factors of 11 to 28 percent, which is typical). Retrofit requirements for engines in peaking operation will be far less cost effective because of the lower emissions benefits received.

Another commenter (191) noted that many CI/diesel "peaker" units are not utilized simply in peak shaving, but more frequently act as "emergency" generation to stabilize the grid when requested by the regional electric Independent System Operator. The commenter (191) disagreed with EPA's assumption of 1,000 hrs/yr operation times for peakers and provided data about their operating hours of peakers. Over the last 15 years, the commenter's (191) 55 peaking units have averaged 40 operating hrs/yr. The maximum annual operating hours for any one site has been 269 hours in a year and the minimum 1 hour. The commenter (191) noted that in this circumstance the cost or emissions controls per ton of pollutant reduced becomes an order of magnitude greater and that EPA should lower the number of operating hours for which controls are not required to 300 per year.

One commenter (130) requested that EPA expand the exemption for limited-use engines to include those used for rice irrigation. The commenter (130) specifically requested that the exemption be extended to area source engines that are less than or equal to 300 HP and that operate for 1,500 hours or less per year and provide that such engines only need to maintain records of annual operating hours to demonstrate that they comply with the limited-use exemption. To support the requested exemption, the commenter (130) noted that engines used for rice irrigation have a low capacity factor and are located in predominantly rural areas, thus presenting no significant health hazard to the public. Furthermore, the commenter (130) pointed out that EPA assumed the limited-use exemption would apply to engines used for electric power peak shaving that operate only during peak energy use periods, typically in the summer months. The commenter (130) asserted that, similarly, the use and operation of rice irrigation engines are different compared to typical engines because they are operated during limited periods of seasonal use and are mostly located in fields in rural areas.

Response: EPA did not propose a category consisting of existing stationary limited use engines less than or equal to 500 HP located at major sources or existing limited use engines located at area sources. EPA did include a limited use category in the 2004 RICE NESHAP for existing and new stationary engines greater than 500 HP at major sources, defined as any stationary engine that operates less than 100 hours per year. However, that was a different rulemaking. It appears that some commenters might be commenting on that previous rule, which is not the subject of this action and EPA is not taking comment on requirements promulgated in 2004. EPA will revisit the 2004 regulation when the 8-year residual risk review must be conducted in 2012.

EPA is required to address HAP emissions from all existing stationary engines less than or equal to 500 HP at major sources and existing stationary engines at area sources. Due to the recent Brick MACT decision, EPA can no longer set floors of no emission reduction for limited use engines at major sources, or any other engines for that matter, as was done in the 2004 RICE NESHAP that regulated existing and new stationary engines greater than 500 HP at major sources.

Various commenters requested that EPA establish a subcategory of limited use engines that would be allowed to operate up to 500 hrs/yr or a 10 percent capacity factor, which based on EPA's estimates could account for the majority of an engine's yearly operation. Commenters argue that based on an engine's limited annual operation that the emissions from the unit are not significant. EPA does not agree with this claim. EPA considered the input and recommendations by commenters on establishing a subcategory of limited use engines, but EPA disagrees that such a subcategory is justified for existing stationary engines less than or equal to 500 HP located at major sources and existing stationary engines located at area sources. Limited use engines are no different than other engines and EPA expects that engines even with low operation would be able to meet the same emission standards that apply to other stationary engines that may be operated more frequently. EPA does not see any reasons precluding limited use engines from applying aftertreatment controls, in those cases where addition control measures are needed to meet the final emission standards. EPA also points out that for stationary engines at major sources rated from 100-300 HP, the final standards are not based on the use of add-on controls and many engines are expected to be able to meet these standards without aftertreatment. Limited use engines are expected to exhibit the same or similar exhaust emissions profile as other stationary engines. In addition, commenters provided strong opinions on creating a limited use subcategory in the final rule, but did not give EPA adequate and persuasive information supporting their opinions. There are an estimated 71,000 stationary CI non-emergency engines less than 500 HP located at a major source of HAP. The total emissions from these engines if they operated 500 hours each are estimated to be 350 tons of HAP and 2,300 tons of PM, so EPA does not agree that emissions from engines running 500 hours a year are insignificant.

6.2.2 Comment: A few commenters (88, 126, 129, 184, 197, 247) were concerned about requirements that might apply to engines that startup turbines. Four commenters (126, 184, 197, 247) suggested that RICE used to startup combustion turbines be exempt from the proposed rule, or deemed to fall under the "emergency" definition in 40 CFR §63.6675. The commenter (197) explained that turbine RICE only run for a few minutes to get the unit started and the total fuel consumption is not significant. The commenter (197) opined that the installation of expensive control equipment on RICE that has limited use does not make sense as the actual emissions for the RICE would be insignificant compared to the combustion turbine (burns more fuel oil in one minute of operation that the RICE would burn all year). Commenter 184 was concerned that the short run-time during each operation may not be long enough to get the filter up to its design temperature for achievement of its removal efficiency (and note that EPA discusses it in the preamble) or that a filter may require additional run time for regeneration. The commenter (184) further noted that the additional run-time required by the three year testing requirement could outstrip the run-time needed to support these combustion turbine peaking unit starting devices just for compliance with the RICE rule. The commenter noted that increased consumption of fuel for rule compliance would be wasting the natural resource and adding emissions for no measurable reduction being gained by the rule.

Two commenters (88, 129) stated that EPA should not require post-combustion controls or emissions monitoring on CI engines serving gas turbine power facilities. The commenters (88, 129) supported this exemption because post-combustion controls will result in reduced dependability and significant cost increases, with little change in actual emissions since these engines rarely run long enough for such controls to reach minimum operating temperatures. Two commenters (88, 129) noted that every major power plant in the United States is required to have black start capability, which typically involves a small combustion turbine equipped with a diesel engine used for startup of the turbine. According to the commenter (129), the diesel starting engine, rated less than 500 HP, generally operates less than 10 minutes per combustion turbine start. The commenter (129) indicated that the majority of black start units only operate during emergencies or unusually high demand days, and that a review of the commenter's company's operating data determined that seven black start units in the system averaged 32 starts per year (which equates to less than 6 hours of operation per year, although some limited additional operation may occur as a result of routine maintenance and readiness testing).

Response: In the final rule EPA has required that stationary engines used to startup combustion turbines meet work practice standards. EPA finds that the short time of operation for these engines (10-15 minutes per start) makes application of measurement methodology for these engines using the required procedures, which require continuous hours of operation, impracticable. Requiring numerical emission standards for these engines would actually require substantially longer operation than would occur normally in use, leading to greater emissions and greater costs. EPA also agrees with the commenters that it would not be appropriate to set emission limits that are based on the use of aftertreatment control for stationary CI engines that are used to startup combustion turbines. Oxidation catalyst control would not be effective for these engines due to their short time of operation (10-15 minutes per start).

6.2.3 Comment: One commenter (127) expressed that it felt that it is unnecessary to limit the use of half of the 100 hours EPA has determined to be an acceptable cap for non-emergency generators under §63.6640 of the proposed rule. The commenter (127) requested that EPA remove the requirement limiting non-emergency operations to 50 hours for non-maintenance or testing purposes. The commenter (127) said that removing the requirement would make it easier for plant maintenance and recordkeeping purposes by allowing flexibility to use the hours (up to 100) for non-emergency use without having to make the distinction of separately tracking and limiting the use of some of those hours.

Response: EPA disagrees with the commenter. EPA has already included flexibility in that stationary emergency engines can maintain their classification as an emergency unit, but are allowed to operate for non-emergency purposes of up to 50 hours per year as long as such operation is not used to generate income for a facility to supply power to an electric grid or otherwise supply power as part of a financial arrangement with another entity. If an emergency engine is operated differently than described, it would be classified as a non-emergency engine and would be subject to different emission standards and compliance requirements. Therefore, EPA must require that operation by emergency engines is tracked and documented to ensure the requirements of the rule are being met. As EPA discussed in the preamble to the proposed rule (74 FR 9712), it is not expected that the recordkeeping requirements associated with emergency engine operation will be a significant burden, plus many stationary emergency engines may already be recording this information. Finally, these requirements are consistent with those finalized for new SI and CI stationary engines.

6.2.4 Comment: One commenter (77) finds the limit of 100 hours in the definition of limited use RICE at 40 CFR 63.6675 to be unduly restrictive. The commenter (77) believes that 100 hours is very close to the amount of time that could be consumed by just the routine "maintenance checks and readiness testing" for similar emergency units.

The commenter (77) noted that the electric utility industry has various blackstart, startup, peaking, and other units that are depended on for grid reliability, and a portion of these units are important for the reliable and safe operation of nuclear and other power plants. According to the commenter (77), some of the latter units provide the capability to restore power to an electric generating facility (of whatever type) that has lost all station power and must rely on itself to restore power and operation of the facility. The commenter (77) added that these units also provide for safety when other station power has failed, which is very important to the nuclear power industry. The commenter (77) stated that some of these RICE may also be able to provide power to the electrical grid, but all of them operate at historically very low capacity factors because of the high cost of operation. The commenter (77) believes that a 3-year average capacity factor of 5.7 percent is a more appropriate limit than 100 hrs/yr. The commenter (77) noted that the 5.7 percent value is more in line with the restriction of 500 hours placed on emergency generators by the State of Ohio. The commenter (77) added that additional controls on this category of units would be extremely cost ineffective due to the low capacity factors and actual tons of emissions that would be reduced. The commenter (77) conceded that the definition of limited use RICE was not a subject of this rulemaking, but believes that it is appropriate to modify the definition since it is used to exempt some facilities from the present proposed rule at 40 CFR 63.6590(b)(3).

Response: The 100 hrs/yr the commenters are referring to with respect to limited use engines is a provision that EPA included in the original RICE NESHAP affecting stationary engines above 500 HP located at major sources that was finalized in 2004. EPA is not taking comment on aspects of that rule at this time. The engines relevant to this proposed rulemaking are existing stationary engines less than or equal to 500 HP located at major sources and existing stationary engines located at area sources. A limited use category was not proposed for these engines, nor will one be included in the final rule. See EPA's response to comment 6.2.1 on this issue.

Because EPA is revising 40 CFR part 63, subpart ZZZZ to add requirements for existing stationary engines less than or equal to 500 HP located at major sources and existing stationary engines located at area sources, it was necessary to modify section 63.6590(b)(3) of the proposed rule amendments in order to continue to exempt existing limited use stationary engines greater than 500 HP located at major sources. However, in terms of limited use engines, that section does not exempt any different or additional existing engines that were not already exempted from the original 40 CFR part 63, subpart ZZZZ promulgated in 2004.

6.3 Nuclear Plants

6.3.1 Comment: A few commenters (77, 79, 88, 139, 168, 203, 207, 216, 227, 236, 247) specifically recommend that EPA create a subcategory for RICE at nuclear generating plants. One commenter (173) believes that the proposal would impose significant additional costs on the industry and is potentially adverse to public safety from a nuclear safety perspective. Commenter 236 stated that RICE at nuclear facilities operate infrequently and are subject to mandatory startup standards that may not allow them to meet the limits in the proposed rule and recommends that the final rule address this subcategory separately with general exemptions for operation under NRC mandated operation.

One commenter (79) said that for any requirements finalized by EPA that could require a physical change for nuclear emergency diesel generators must consider the normal outage schedules of nuclear power plants. The commenter (79) said any changes should be required within 6 years instead of 3 years. The commenter (79) described the nuclear-industry unique qualification requirements for safety-related equipment, and said that extended time is required to complete the design and certification process once a required physical change is identified at a commercial nuclear power plant. The commenter (79) also said that historically nuclear plant emergency generators have been exempted from EPA air emission regulations that might require post-combustion emissions controls in recognition of the need for rapid emergency diesel generators response at nuclear power plants to support critical safety functions. The commenter (79) cited an exemption provided in a 1979 NSPS regulation (44 FR 43156) affecting NO_x from stationary engines, which stated the following:

“Emergency standby engines also require special consideration. These engines operate less than 200 hours per year under all but very unusual circumstances. Consequently, they add relatively little to regional or national total NOx emissions. The largest category of emergency standby units is for nuclear power plants, where these engines provide power for the pumps used for cooling the reactors. These engines must attain a set speed in ten seconds and must assume full rated load in 30 seconds. In some cases, application of the demonstrated NOx control technique limits the responsiveness of these engines in emergency situations. Therefore, all emergency standby engines are exempted from standards of performance.”

The commenter (79) believes that this safety and performance rationale for exempting nuclear emergency diesel generators from post-combustion NO_x controls, or numeric standards that would potentially drive such controls (even if not intended), is also relevant in the HAP context.

Commenter 79 described additional emergency diesel generators operating requirements and regulations at nuclear power plants such as testing requirements, the prohibition for the use of nuclear emergency diesel generators to supply peaking power to the grid, and NRC regulations that add to the costs for making modifications to emergency diesel generators of two to three times greater than at non-NRC regulated emergency diesel generators. The commenter’s (79) preferred recommendation is that EPA should consider requiring good management practices consistent with engine manufacturer maintenance specifications, industry guidance for maintaining high emergency diesel generators reliability, and any relevant NRC requirements. Such practices could replace the existing proposed emission standard requirements. If needed, EPA could establish an additional subcategory of engine type to address the unique circumstances of nuclear emergency diesel generators. The commenter (79) suggested the following management practices for normal operations and SSM:

- Change oil and filter after every 600 hours of operation (or use oil parameter analysis to monitor and trend the performance characteristics of the oil to verify that it remains within specification).
- Inspect air cleaner after every 1,000 hours of operations and replace as necessary.
- Inspect all hoses and belts after every 600 hours of operation and replace as necessary.

Commenter (79) listed several reasons for the recommendation for management practices. Reasons include the fact that some engines might require controls and a management standard would prevent this inadvertent outcome. Installing post-combustion controls on nuclear emergency diesel generators could preclude successful rapid start and load acceptance, which are critical safety features of these engines. The proposal for 600 hour maintenance intervals is consistent with their existing 6-year maintenance program (100 hrs/yr of operation and correlated plant refueling outages). Nuclear emergency diesel generators are prohibited under NRC regulations from operating other than during periods of actual plant emergency or NRC-mandated equipment testing, inherently limited their use. Also, nuclear emergency diesel generators operating hours are typically not more than 200 hrs/yr (75 to 100 hours is most typical). Post-combustion controls would not be cost-effective for HAP removal because annual HAP emissions range from less than 1 pound to 4 pounds per emergency diesel generator per year. These emissions generally occur in rural/remote areas of the country. Because of their critical nuclear safety-related function, the commercial nuclear power industry has invested substantial resources and oversight organizations to ensure emergency diesel generators are maintained to the highest standards of performance and reliability.

If EPA does not agree with the preferred recommendation, the commenter (79) said that EPA should provide an exemption from the regulation for nuclear emergency diesel generators that operate 200 hrs/yr or less.

Requiring nuclear utilities to concurrently comply with two different regulatory regimes for emergency back-up generators used to support safety systems could create substantial operational problems that would not serve the public health and safety, commenter 247 said.

One commenter (203) added that nuclear power plants are required to provide back-up emergency power in case of loss of external electricity (i.e., off-site power) in order to assure the safe shutdown and cooldown of the nuclear reactor. Large emergency diesel generators are the preferred option for such back-up power systems. These emergency diesel generators are required by NRC regulations to be qualified for safety-related service and it is critical that the proposed emissions standards do not interfere with or jeopardize this critical safety function., commenters 203 and 207 said The commenter (203) noted that as required by the NRC-issued license, the emergency diesel generators must be maintained in operable condition during plant operation, and the period of time that the emergency diesel generator may be inoperable is limited. To assure operability of the emergency diesel generator, the license requires periodic testing and surveillance. For example, the diesel generators are started monthly and operate for 1 to 2 hours, diesel fuel oil is tested regularly, during every refueling outage (either every 18 or 24 months) the generators are typically run for 24 hours; however, the diesel generators typically operate less than 100 hrs/yr (1.1 percent of time available) and are not run for the purpose of producing electricity for retail sale. The commenter (203) advised that if the exhaust aftertreatment were to require maintenance during operation of the diesel generator in an emergency, it also could prevent the diesel generator from performing its safety-related function, thus placing the public at risk.

One commenter (139) urged EPA to exclude RICE serving as emergency diesel generators at nuclear plants from NESHAP. Emergency diesel RICE at nuclear plants are essential to providing a safe shutdown, mitigating any potential malfunction, and providing spent fuel pool cooling. The commenter (139) believed the proposed rule would subject these engines to emissions limits that cannot be met without add-on controls; however, due to the configuration of nuclear plants, add-on controls could decrease the reliability of the emergency generators. The emergency engines at nuclear plants are required to start and be ready to accept load in 10 to 15 seconds, with full load reached in 20 to 60 seconds, according to commenters 139 and 227. The short time periods are necessary to mitigate the consequences of a potential loss of reactor coolant, commenters 139 and 227 said. The commenters (139, 227) said that the imposition of aftertreatment controls could slow the time in which the emergency engine is prepared to supply backup power and any such decrease in reliability would violate nuclear safety standards. The commenter (139) also cited short operating periods, when the control equipment may never reach operating temperature before shut down, and costs in justifying the exemption.

Commenter 207 noted that nuclear power plants have been exempted from many EPA regulations in recognition of unique safety and support equipment requirements and existing regulation by the NRC and recommends that the following exemption be added to the proposed rule:

"Exemption for Emergency Engines at Nuclear Facilities. The requirements in 40 CFR part 63 do not apply to any stationary RICE for which one or more of the following criteria are met:

(1) the engine is regulated by the NRC;

(2) the engine is used solely for the safe shutdown and maintenance of a nuclear facility when normal power service fails or is lost; or

(3) the engine is an emergency standby engine.

Further, commenters 207 and 247 said that RICE at nuclear power plants should not should not be subject to operating limits or have any annual restrictions for maintenance and testing that conflict with any current or future NRC requirements. As an example, commenter (207) asserts that emergency RICE at nuclear power plants should not be restricted to 100 hrs/yr or less whenever the required NRC maintenance and reliability testing necessitates longer operation. Nuclear generation facilities maintain records documenting the hours of operation for required maintenance and testing and should not be required to petition for approval to operate more than 100 hours.

Commenter 207 believes EPA should revise the limited use exclusion to include all sizes of engines, area sources in addition to major sources, and expand the definition of limited use to include operation up to 300 hrs/yr, and that such units should also be exempt from performance testing and only be obliged to maintain and report records of annual operating hours to show that they qualify as limited use RICE. Commenter 207 described the main categories of non-emergency "limited-use" engines operated at nuclear power stations:

- RICE that provide black-start capability to the facility,
- RICE that provide back-up power to critical information technology infrastructure,
- RICE used during outages,
- RICE that provide back-up power to emergency support facilities, and
- RICE that provide back-up fire suppression water.

Commenter 207 concluded that RICE installed at nuclear power station should be allowed a "limited use" exemption.

Similar comments were submitted by commenter 88 who indicated that EPA should require management practices rather than a numerical emission limit for emergency diesel generators at nuclear facilities. Emergency engines at nuclear facilities operate less than 200 hrs/yr, according to commenter 88, and under federal licensing requirements, nuclear emergency diesel generators must be tested on a monthly basis (generally for 1 or 2 hours) to ensure their availability. These engines are also subject to biennial endurance tests of up to 24 hours and may also be tested during periodic nuclear plant maintenance outages and after any major overhaul work, as required by the NRC. The commenter (88) argued that meeting the proposed numeric emission standard under such operating requirements mandated by the NRC could be difficult, if not impossible, for some older existing nuclear emergency diesel generators. Even assuming a facility installed post-combustion controls to meet the numeric standard, catalysts typically take time to reach the necessary temperature to begin their optimal function. This timeframe is inconsistent with the required safety performance response time of the emergency diesel generators at nuclear facilities. Additionally, post-combustion controls have the potential to introduce backpressure on the emergency diesel generator that may reduce response time and/or reduce the unit's electric output versus its original technical specification. (Two-stroke CI engines have much less backpressure tolerance than four-stroke CI engines.) Finally, the commenter (88) reported that any modifications to existing emergency diesel generator configurations at nuclear power plants are heavily regulated by the NRC, and capital costs for modifications can run two to three times greater due to additional NRC testing and evaluation requirements than would be the case at a non-nuclear regulated emergency diesel engine.

(Qualification testing required by NRC per Regulatory Guide 1.9 would be approximately $3-10 million dollars per engine type. No engines with catalytic converters qualify under Regulatory Guide 1.9.)

Another commenter (168) urged EPA to create and exempt a subcategory of RICE emergency engines that are required to meet NRC requirements. Commenter's (168) three nuclear plants have CI RICE emergency back-up generators ranging in size from 5,500 to 7,500 HP that are not connected to the grid for energy sales and are mandated by specific NRC requirements for the safe shutdown of the reactors. Further, commenter (168) states that the emergency back-up generators must be capable of full power and be able to accept station electrical loads within 11 seconds, and that the NRC considers these units to be part of the nuclear power plant. Commenter (168) maintains that these emergency back-up generators cannot be subject to any operating limits and it is also imperative that any initial testing under the final subpart ZZZZ rule be consistent with what is allowed under NRC rules. More specifically, commenter (168) states that applicable NRC rules in 10 CFR part 50 and Regulatory Guide 1.9 insure that emergency back-up generators are regularly maintained and that owners conduct sufficient testing, and that any requirement under subpart ZZZZ to retrofit control devices would most likely negatively impact their ability to meet the NRC requirements and be costly and difficult due to space, temperature, and ventilation constraints. Commenter (168) also contends that emergency back-up RICE located at nuclear power plants should not have any annual restrictions for maintenance and testing that would conflict with current or future NRC requirements.

In addition, commenter (168) claimed that the proposed exemption from petitioning EPA for approve to operate more than 100 hrs/yr does not apply on its face to back-up generators at nuclear power plants and stated that it would serve no good purpose to require owners and operators to petition EPA if NRC regulations require more than 100 hrs/yr for maintenance checks and readiness testing.

Response: EPA agrees with the commenters that management practices are appropriate for stationary emergency generators at nuclear power plants that are area sources of HAP emissions. These engines are required to meet management practices in the final rule and have no emission limitation requirements. EPA believes that emergency engines located at nuclear plants that are major sources of HAP will be greater than 500 HP and therefore will not have to meet any requirements under subpart ZZZZ. Therefore, the concerns expressed by the commenters regarding the installation and operation of emission controls on these engines have been addressed. EPA does not agree that these engines should be excluded from the NESHAP. There are specific requirements for exemptions under section 112(d), but the commenters have not provided any information to indicate they would fall under any such exemption. EPA believes that it would be appropriate for operators of these engines to petition for additional operating hours if necessary, and in fact the final rule allows such engines to operate more than 100 hours per year if required by other regulatory authorities, without requesting such additional hours from EPA. EPA does not agree that a specific subcategory is necessary for emergency generators at nuclear power plants; there is no reason that those engines would be unable to meet the same management practice requirements as other types of stationary emergency engines. The final rule includes a provision that allows owners/operators to petition for alternative management practices if necessary. EPA has also included a provision in the final rule that if an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work or management practice requirements on the schedule required in Table 2c of this subpart, the final rule, or if performing the work or management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work or management practice can be delayed until the emergency is over or the unacceptable risk has abated.

6.4 Other Engines

6.4.1 Comment: One commenter (225) noted that there is no limit on construction date for existing RICE in the proposed rule. The commenter (225) stated that older engines were never designed to comply with these stringent emissions and some are not easily retrofitted with catalysts, if it can be done at all. The commenter (225) added that the expectation for old RICE to meet the MACT Floor or beyond-the-floor will be extremely challenging, and there is no data in the docket supporting whether the proposed emission limits are even possible. The commenter (225) believes that industry could be faced with replacing thousands of existing engines (most in rural areas) in order to meet the stringent standards in this proposed rule.

Response: The commenter has not provided sufficient information to support the claim that existing engines cannot be retrofit with catalysts. EPA believes that older engines can use oxidation catalysts and is aware of installations of oxidation catalyst on older engines, both stationary and nonroad. Also, emission limits for many engines in the final rule do not rely on engines having to be retrofitted, but the expectation is that many engines can meet the final emission standards without installing aftertreatment. In fact, for several categories, particularly emergency engines and engines less than 100 HP, EPA is not finalizing numerical emission limits, but is instead adopting management practices, or use restrictions, instead.

6.4.2 Comment: One commenter (200) noted that EPA provides an exemption for fire pump engines, but does not mention other sources that should be similarly exempted. Specifically, the commenter (200) recommended that EPA provide clarifying language to also exempt engines that are in similar service such as for mitigation systems. The commenter (200) said that these pumps are used for release events similar to fire events.

Response: EPA does not provide a specific exemption for fire pump engines. It is possible that the commenter is referring to the fire pump provisions that were included in the final CI NSPS (40 CFR part 60, subpart IIII) finalized in 2006. Fire pump engines are not exempted from the CI NSPS, but have different requirements than other engines. Commenter 200 did not provide compelling evidence supporting why the sources it mentions should be exempted from the rule. EPA cannot exempt these engines from the rule, but if these engines meet the definition of emergency engines, which seems to be what the commenter is stating, the engines would be subject to the same requirements that apply to other existing stationary emergency engines under the final rule.

6.4.3 Comment: One commenter (130) requested that generators used for residential purposes be exempted from the proposed rule. The commenter (130) stated that doing so would significantly lower the true economic impacts of the proposed rule.

Response: In response to this comment, EPA analyzed the types of engines that were included in the area source category listing for stationary RICE. As a result of this analysis, EPA determined that emissions from existing stationary emergency engines located at residential, commercial, and institutional facilities that are area sources of HAP were not included in the 1990 baseline emissions inventory that was used as the basis for the listing of source categories needed to ensure that 90 percent of area source emissions are regulated. Therefore, EPA determined that these stationary engines will not be subject to this area source standard.

6.4.4 Comment: Three commenters (129, 157, 216) urged EPA to exempt all CI RICE that use 100 percent (commenter 157 said 99 percent) biofuels from the requirements of 40 CFR part 63, subparts A and ZZZZ, until further emissions data are available and it is conclusively determined that these engines warrant regulation.

Response: EPA does not agree that stationary CI engines that use biofuels should be exempted from the requirements of subpart ZZZZ. The commenter did not provide any information or emissions data to show that these engines warrant subcategorization or that they are unable to meet the emission limitations for CI engines.

6.4.5 Comment: One commenter (230) recommended that EPA allow state and local air agencies to determine appropriate exemptions from air permitting requirements, including Title V operating permit programs. The commenter cited several examples of state exemptions by engine type, size of engine and number of operating hours. The commenter noted that the proposed rule would require emergency engines to be incorporated into the Title V permit if located at a Title V source. The commenter also stated that states that allow Title V and minor source exemptions for area source RICE not regulated by EPA would no longer apply. The commenter believes the restrictions of hours and fuel types are adequate to limit HAP emissions. The commenter also noted that by EPA not proposing a permanent deferral for Title V area source permit applications, facilities subject to the proposed regulation will have to submit Title V area source applications, which the commenter believes will not enhance compliance and be unnecessarily burdensome.

Response: The provisions in 40 CFR 63.6585(d) indicate that area sources subject to 40 CFR part 63, subpart ZZZZ, would not be subject to permits under 40 CFR parts 70 or 71 solely because of this rule. That provision will apply to the existing stationary engines covered in this rulemaking, including existing stationary emergency engines that the commenter is concerned about. In addition, residential, institutional, and commercial existing stationary emergency engines at area sources are not subject to the final rule.

6.4.6 Comment: One commenter (230) asked EPA to consider adding a provision to the rule that allows implementation of the relevant standards based on technological or economic feasibility similar to the 40 CFR 63 GP for reconstruction.

Response: The requirements in the rule have already been determined to be technologically and economically feasible. Furthermore, affected sources have three years to comply with the rule. Therefore, EPA does not agree that the provision suggested by the commenter is necessary.

7.0 Management Practices

7.1 General Comments

7.1.1 Comment: Several commenters (155, 176, 220, 226, 242, 253) supported EPA's strategy with regards to proposing management practices for certain engines at area sources. Numerous commenters, including commenters 155, 226, and 242 stated that EPA can rely on management practices under GACT provisions for area sources and under section 112(h) of the CAA for major and area sources and several commenters said that EPA should consider applying management practices for additional categories of engines. Commenters claimed that EPA has concluded that where area sources are subject to an emission limit that the limit should be equivalent to MACT, but where the limit is a management practice that the limit can differ from MACT. The commenters (155, 242) said that EPA's basis for this decision is not clear, nor does the docket provide evidence of this decision and what alternatives were considered. The commenters (155, 242) are of the opinion that EPA should consider additional opportunities to rely on management practices to demonstrate compliance for the following reasons:

- Several engines at area sources are in rural locations and are often remotely located and EPA should apply GACT more broadly in those areas. If EPA retains MACT for these sources such a decision should be well-documented and justified;
- Considering the limited and flawed data EPA used for this rulemaking questions the decision to rely on MACT for area sources. Cost effectiveness escalation should be considered for smaller engines when determining the appropriateness of GACT vs. MACT. In addition, EPA needs to take into account that extra costs may be associated

with engines in rural areas due to the lack of electricity and often times unmanned facilities.

One commenter (183) indicated that EPA did not contemplate the maintenance challenges for existing small (less than 50 HP) SI and CI RICE units located in remote unmanned locations. The commenter (183) stated that in Alaska remote locations, frequent visits for oil and filter changes every 200 hours and 500 hour belt inspections are impractical and unsafe. The commenter (183) noted that maintenance has been addressed by installation of large fuel tanks, winterization or expansion of the cooling systems, retrofit of oil reservoirs with 55 gallon reservoirs, and the use of synthetic oils. The commenter (183) proposed that the rule be revised to exempt these types of remote unmanned sites from the maintenance interval requirements, or at least increase the maintenance intervals to an annual basis.

Commenter 175 was also concerned about requiring specific maintenance activities for engines located in remote, unmanned area sources. The commenter (175) also pointed out that its members are developing and promoting new technologies to reduce CO_2 emissions. Some of this new micro distributed energy covers engines less than 30 HP and it appears that these engines could be swept in under the proposed operations and maintenance standard for less than 50 HP engines located at area sources. The commenter (175) said that it particularly worried that the proposed oil and filter replacement standards for such small engines would be overly burdensome, unnecessary and would persuade potential customers to instead install electric air conditioning and furnaces with a much larger carbon footprint and pollutant emissions measured from the source of the power generation (often coal-based) to the end use consumer. This will undermine efforts to reduce the carbon footprint of the commenter's (175) members' customers. The commenter (175) asked that EPA exempt area source engines less than 30 HP.

One commenter (176) recommended that EPA consider allowing owners or operators of engines to utilize management or operating practices in accordance with section 112(h) of the CAA in lieu of requiring beyond GACT for stationary engines at area sources and having emission requirements for smaller engines at major sources.

Similarly, commenter 220 said the proposed rule for area sources is over-inclusive as it regulates engines that have a minimal impact on urban areas and over-controls categories of engines. Instead of essentially requiring MACT, EPA should allow owners or operators of engines to utilize management or operating practices in accordance with sections 112(d)(5) and 112(h) of the CAA.

One commenter (253) agreed with EPA's GACT assessment for smaller (500 HP or less) engines at area sources and believes that management practices to reduce HAP emissions from these engines are appropriate. One commenter (205) encouraged EPA to consider establishing maintenance and work practice standards for additional categories of engines within the proposed rule, particularly those that EPA expects to be able to meet the proposed numeric emission limits without the addition of controls. The commenter (205) stated that benefits of this approach include assuring that engines are being operated in a manner expected to minimize HAP emissions as well as eliminating the commenter's (205) significant concerns regarding the adequacy of the data EPA used to establish the proposed numeric emission limits. While endorsing this approach, the commenter (205) did express some concerns regarding the stringency and frequency of the proposed maintenance and work practices, such as the lack of data supporting a relationship between frequent oil and filter changes (proposed at every 200 hours) and HAP emissions.

Several commenters (77, 118, 119, 129, 157, 205, 240) supported EPA's use of maintenance and work practices standards and certain commenters said the management practices in Table 2d of the proposed rule (40 CFR 63 subpart ZZZZ) are consistent with the proper maintenance of engines, and that the management practices in the proposed RICE NESHAP are sufficient to ensure that the engines are properly maintained.

Response: EPA does not agree with the commenters that management practices are GACT for stationary non-emergency CI engines above 300 HP located at area sources. EPA has evaluated the available control technologies for those engines and determined that GACT based on control of emissions using diesel oxidation catalysts is appropriate for these engines. On a per-engine basis, HAP reductions from a 400 HP non-emergency CI engine would be around 30 lb/yr and from a 600 HP engine the HAP reduced by oxidation catalyst would be approximately 45 lb/yr. Emissions of PM on a per-engine basis would be reduced by 84 and 126 lb/yr for a 400 HP and 600 HP engine, respectively. On a nationwide basis, existing stationary non-emergency CI engines above 300 HP at area sources are estimated to emit on a yearly basis around 1,000 tons of HAP. Applying oxidation catalyst control to these engines would result in HAP reductions of 70 percent or more, or 70 tons of HAP or more annually. Baseline emissions of PM from these engines are estimated at 6,500 tpy and would be reduced by 30 percent or nearly 2,000 tpy through the use of oxidation catalyst control. It is estimated that the benefits per ton are between $330,000 (Pope, 7%) and $790,000 (Laden, 7%) for PM for existing stationary CI engines at area sources. The benefits per ton outweigh the costs of oxidation catalyst control, which are estimated to be at most around $61,000 per ton of PM removed. (Additional information on the benefits associated with this final rule can be found in the Regulatory Impact Analysis. Further discussion of the GACT analysis can be found in the memorandum entitled "MACT Floor Determination for Existing Stationary Non-Emergency CI RICE Less Than 100 HP and Existing Stationary Emergency CI RICE Located at Major Sources and GACT for Existing Stationary CI RICE Located at Area Sources." EPA does agree with the commenters that management practices are GACT for non-emergency CI engines 300 HP and below at area sources and emergency CI engines located at area sources of HAP. EPA also agrees that work practices are appropriate for stationary engines at major sources below 100 HP. Regarding the concerns expressed about the MACT floor data, see the response to comment section 5.1.1.

For the commenters that believed the proposed maintenance practices were not appropriate for their engines, EPA has made several changes to the management and work practice requirements based on such comments (see discussion below) and EPA has also included a provision in the final rule that allows sources to petition for alternative maintenance practices.

7.2 Specific Requirements

7.2.1 Comment: Several commenters (64, 66, 68, 75, 76, 89, 97, 101, 103, 104, 108, 111, 112, 130, 131, 132, 136, 148, 150, 151, 154, 155, 159, 174, 176, 179, 183, 187, 204, 221, 224, 225, 227, 228, 230, 231, 241, 242, 253, 261, 262, 264) did not agree with the specific management practices that EPA has proposed in the rule for area sources or recommended different maintenance practices. According to the commenters (103, 112, 131, 155, 179, 183, 224, 225, 241, 242), the maintenance frequency in the proposed rule exceeds current practices or is not supported in the proposed rule. Several commenters agreed that management practices are appropriate for the proper operation of the engines and is a reasonable means to reduce HAP emissions, however, did not agree with the specific maintenance practices proposed by EPA. Numerous commenters recommended that EPA allow owners/operators to follow engine manufacturers' recommended practices or the owners/operators own site-specific maintenance plan.

One commenter (112) pointed out that operators have a direct interest in maintaining engine oil, hoses, and belts, so the engine runs reliably, but the appropriate frequency for these maintenance practices are specific to engine design and are not "one size fits all."

Ten commenters (89, 101, 103, 104, 150, 151, 155, 221, 231, 242, 264) recommended that EPA revise fixed maintenance (one-size-fits-all) requirements to maintenance plans.

The commenters (89, 101, 151, 221, 231, 261) stated that, while fixed maintenance intervals work well for new mass produced engines similar to those in automobiles, they are inappropriate for the wide variety of existing engines used in the oil and gas, agriculture, and power generation industries across the nation. The commenters (89, 101, 151, 221, 231, 261) pointed out that EPA allows the use of operator-defined maintenance plans that are "consistent with good air pollution control practice for minimizing emissions" to be used in other portions of this same rule, and asserted that EPA should allow the use of operator-defined maintenance plans to greatly reduce cost and allow operators to optimize maintenance for each type of engine.

One of these commenters (221) added that current industry engine maintenance programs are driven by tried-and-true practices and since these practices effectively keep the engines running, they allow the products of the members of the commenter's organization to go to market. The commenter (221) stated that additional, burdensome, frequent, and time-consuming maintenance requirements will cause the members of the commenter's organization to more-frequently shut down engines and thus shut down production.

Two commenters (155, 242) said that if EPA keeps the management practices as proposed, the frequencies associated with conducting engine maintenance should be revised to be commensurate with today's practices. The commenter (155) believes the maintenance practices, as proposed, are significantly burdensome and lack basis. According to the commenters (155, 242), EPA should replace the maintenance hour intervals with company recommended performance-based maintenance practices to be documented in an operator-defined maintenance plan consistent with requirements in 40 CFR part 60, subpart JJJJ.

Two commenters (155, 242) recommended that EPA allow owner and operator-defined management practices, in addition to the specific management practices required by the rule. EPA has previously adopted a similar approach, e.g., in 40 CFR part 60, subpart JJJJ. In the commenters' (155, 242) opinion, owners and operators of engines are knowledgeable in the operation of their engines and are best-suited for determining what practices are appropriate for their specific engines. Commenter 242 believed that owner and operator-defined maintenance practices will be more cost effective, lead to more consistent and stable combustion efficiency, and lower emissions.

The commenters (155, 242) requested that, if EPA does not allow operator-defined maintenance practices, and if EPA cannot define a more appropriate maintenance frequency, EPA should enlist the assistance and input of industry to determine appropriate management practices. The commenter (155) believes that soliciting the participation from stakeholders on this matter will ensure management practices that are consistent with reasonable engine practices. In general, it seems that the majority of comments received on this issue are in favor of adopting engine manufacturer's maintenance recommendations and not the specific maintenance requirements and frequencies that would be applicable to all engines across the board.

One commenter (264) supported EPA's proposal to require non-emergency RICE at major sources to properly operate and maintain their stationary RICE and aftertreatment control device. However, the commenter (264) has experienced situations where manufacturers' emission-related instructions are inferior to operating experience and that, for old equipment, it may be impossible to obtain manufacturer recommendations. The commenter (264) recommended that the option of operating according to a maintenance plan developed by the owner/operator for the engine be allowed.

Seven commenters (76, 96, 99, 111, 130, 154, 242) recommended that EPA specify that the engine manufacturer's prescribed requirements can be used to demonstrate compliance.

The commenters (96, 99) thought that there is a better way to make sure owners and operators maintain and run their engines appropriately and that would be to follow the recommendations of the engine manufacturer. Engine manufacturer's instructions and recommendations are specifically designed to ensure the engine is properly maintained and operated. The commenter (96) listed specific areas where it believes EPA should replace the current proposed requirements with engine manufacturer's maintenance practices.

Commenter 76 asserted that there are so many engine designs installed that the engine manufacturer is best-suited to determine the appropriate maintenance practices and schedules.

Commenter 154 said that the Table 2d instructions of the proposed rule may not be specifically-designed to ensure proper engine maintenance and operation and may void the warranties provided by manufacturers. The commenter (154) recommended that EPA specify that the engine manufacturer's requirements be prescribed to demonstrate compliance. According to the commenter (154), in the absence of appropriate specifications, EPA should indicate that the current requirements listed in Table 2d of the proposed rule must be followed. This commenter (154) also said that EPA should clarify that the work practice requirements apply to periods of normal operation rather than SSM.

Another commenter (111) in the oil and gas production industry noted that EPA proposed its maintenance intervals with the expressed purpose "to ensure that emission control systems are working properly." In the commenter's (111) opinion, the manufacturers' O&M manuals are both appropriate and sufficient to address this goal. The commenter (111) stated that manufacturer O&M procedures are typically conservative and driven by the equipment-specific design.

One commenter (130) stated that rice irrigation engines may need to be operated beyond the proposed maintenance schedules during periods of flooding of rice fields and that relying on manufacturer's suggested maintenance schedules would be more practical and appropriate. In some cases, warranty violations may occur if engines are maintained according to the proposed stringent schedules, according to commenter 130.

Four commenters (99, 112, 204, 225) provided specific input on the proposed rule oil change and air filter requirements (including frequency).

Commenter 99 stated that there is not a one size fits all recommendation that suits oil change intervals for all engines and maintaining appropriate oil qualities is crucial, but replacing it too early is expensive and leads to unnecessary quantities of waste oil and filters.

Commenter 112 noted that many operators use an oil testing program to determine oil life to reduce maintenance cost and used oil generated, while maintaining high engine reliability.

The commenter (112) believes that EPA has failed to justify why recommended oil changes are included as a maintenance practice when oil changes have little to no effect on engine emissions.

One commenter (204) noted that the vast majority of their applicable engines use a synthetic lubricant that does not need to be changed unless it is contaminated. This lubricant does not degrade over time and, in some instances, can be utilized in engines for over 30,000 operating hours without requiring changing. The commenter's (204) operating companies have in place sampling programs to ensure that the engine lubricant has not degraded and been contaminated. Air filters are regularly checked by determining the differential pressure across the filter to determine if a change is needed. The commenter (204) stated that by maximizing the useful life of oil and filters while maintaining a responsible maintenance schedule reduces costs and waste generation - a win-win proposition versus the proposed maintenance schedule that will increase the environmental impact from waste generation and the additional startup after maintenance of these engines as well as the costs of compliance for regulated entities.

One commenter (225) stated that most of the engine manufacturers for the engines in the oil and gas industry recommend oil changes on a monthly schedule. The commenter (225) also indicated that it is common practice to periodically sample and test the engine oil to see if the oil properties are sufficient to extend this time period between oil changes. According to the commenter (225), this testing has shown in many cases that the oil change interval can be extended without any detrimental effects on the engine, which allows industry to maximize efficiencies, minimize oil usage, reduce waste, and streamline operations with no negative impacts to the engine or emissions.

Two commenters (112, 51) provided specific comments on the engine hose and belt inspection requirements.

One commenter (112) expressed that inspection of hoses and belts has no impact on HAP emissions. Commenter 51 expressed that, generally, it agreed that performing maintenance on engines will help to reduce HAP emissions, but that while inspecting belts and hoses is an important part of general engine maintenance (and most sources likely conduct regular inspections of their engines), such inspections have no effect on emissions and should be removed from the proposed rule.

One commenter (183) also stated that O&M requirements should also be limited to emission related O&M, which does not include the inspection of belts and hoses. Commenter (179) recommended that EPA consider creating subcategories where GACT is management practices rather than post-combustion controls for units operating under adverse environmental conditions or in situations where space is not available to install enclosures sufficient to overcome environmental conditions. The commenter (179) stated that EPA could add minimum requirements to the maintenance plans such as the following:

- Change oil and filter or verify satisfactory oil characteristics via testing every 4,000 hours of operation or less; and
- Inspect air cleaner every 4,000 hours of operation or less and replace as necessary.

Response: EPA proposed to require specific management practices for certain engines, primarily for smaller existing stationary engines at area sources where EPA thought that add-on controls were not GACT. EPA indicated at proposal that the management practices specified in the proposal reflected GACT and that such practices would provide a reasonable level of control, while at the same time ensuring that the burden on particularly small businesses and individual owners and operators would be minimized. EPA asked for comment on the proposed management practices and received comments on the proposal from industry.

EPA agrees with the commenters that it is difficult to adopt a set of management practices that are appropriate for all types of stationary engines. Regardless, EPA must promulgate emission standards pursuant to section 112(d) of the CAA for all engines at area sources covered by the final rule. EPA still believes that a management practice approach reflects GACT for emergency engines and smaller engines at area sources. These management practices represent what is generally available among such engines to reduce HAP, and the practices will ensure that emissions are minimized and engines are properly operated. EPA does not agree with the commenters that it would be appropriate to simply specify that owners and operators follow the manufacturers recommended maintenance practices for the engine. EPA cannot delegate to manufacturers the final decision regarding the proper management practices required by section 112(d); nor can EPA allow management practices to change from engine to engine based on the views of multiple manufacturers. To address the comments that there may be special and unique operating situations where the management practices in the rule may not be appropriate, for example engines using a synthetic lubricant, EPA notes that owners/operators may work with state permitting authorities pursuant to 40 CFR subpart E (''Approval of State Programs and Delegation of Federal Authorities'') for approval of alternative management practices for their engines. Subpart E implements section 112(l) of the CAA, which authorizes EPA to approve alternative state/local/tribal HAP standards or programs when such requirements are demonstrated to be no less stringent than EPA promulgated standards.

The management practices EPA proposed for stationary engines greater than 50 HP included changing the oil and filter every 500 hours, replacing the spark plugs every 1,000 hours, and inspecting all hoses and belts every 500 hours and replacing as necessary. For engines less than 50 HP, EPA proposed to require that these engines change the oil and filter every 200 hours, replace spark plugs every 500 hours, and inspect all hoses and belts every 500 hours and replace as necessary.

EPA received the most information on the proposed frequency of changing the oil and filter. Many commenters indicated that the oil quality is often monitored through an oil testing program. Other commenters stated that several engines use a synthetic lubricant, which does not degrade as compared to other oil and can be use for extended periods of time without having to be replaced. Additional commenters indicating varying appropriate periods of oil and filter changes, including every 250 hours to 4,000 hours. Mostly commenters indicated that there is not one set of maintenance procedures that can be applied to all engines across the board. According to the additional recommended maintenance procedures that EPA reviewed after the proposal for different engine makes and models, EPA agrees that there is a wide range of recommended maintenance procedures. Based on the different suggested maintenance recommendations EPA has reviewed, maintenance requirements appear to vary depending on whether the engine is used for standby, intermittent, or continuous operation. Maintenance is also dependent on the engine application, design, and model. Taking into consideration the information received from commenters on the proposed maintenance practices for oil and filter changes and carefully reviewing engine manufacturer recommended maintenance procedures, EPA has determined that for stationary non-emergency engines below 300 HP, GACT will require the oil and filter to be changed every 1,000 hours of operation or annually, whichever comes first, which reflects the management practices that are generally available. For stationary emergency engines, the final rule requires the oil and filter to be changed every 500 hours of operation or annually, whichever comes first. EPA notes that in the final rule it has clarified that spark plug changes are not required for stationary diesel engines since diesel engines do not use spark plugs. EPA also determined that it would be appropriate to include the option to use an oil analysis program in the final rule. Therefore, EPA is including an alternative in the final rule for monitoring the quality of the oil through an oil analysis program. Sources have the option to use an oil change analysis program to extend the oil change frequencies. The analysis program must measure the total base number (TBN), viscosity, and water content. If the TBN is less than 30 percent of the TBN of the oil when new, if the viscosity has changed by more than 20 percent from when the oil was new, or if the percent water content (by volume) is greater than 0.5, the oil must be changed prior to further operation of the engine.

EPA does not agree with the comments that inspecting belts and hoses has no impact on emissions. Ensuring that the engine is properly operated and maintained will help minimize the HAP emissions from the engine. Properly maintained belts and hoses allow the engine to operate at maximum efficiency. Hoses are generally used to move coolant through the engine to prevent the engine from overheating. Overheating of the engine can cause a malfunction in the combustion process, and may also burn the engine oil in the combustion chamber. Both of these conditions may increase pollutant emissions from the engine. Belts are commonly used for electrical generation and engine timing, and if worn or broken can cause damage to the engine and increase emissions. Therefore, EPA has required management practices that reflect GACT and that, in EPA's view, will ensure the proper operation and maintenance of the engine.

7.2.2 Comment: Three commenters (129, 157, 227) asked that EPA clarify whether a maintenance plan would be required for each station containing affected RICE or whether a company can develop a single maintenance plan applicable to all stations owned by the company. The commenters (129, 157) believe that a company-wide maintenance plan should be sufficient.

Response: As discussed in the response to comment 7.2.1, required maintenance practices should ensure the proper operation and maintenance of the engine. According to the additional recommended maintenance procedures that EPA reviewed after the proposal for different engine makes and models, EPA agrees that there is a wide range of recommended maintenance procedures. Based on the different suggested maintenance recommendations EPA has reviewed, maintenance requirements appear to vary depending on whether the engine is used for standby, intermittent, or continuous operation. Maintenance is also dependent on the engine application, design, and model. Therefore, a company should develop as many maintenance plans as it has types and kinds of engines and engine uses. Where the company uses same engine design, model and application, a single maintenance plan would generally suffice. A company should have as many maintenance plans as it has categories of engine design, model and application.

7.2.3 Comment: One commenter (88) provided that, with regards to nuclear CI emergency diesel generators, good management practices should be coordinated with normal outage cycles (e.g., oil change frequency) so as to not interrupt normal plant operations or impose any plant safety risks.

Response: EPA notes that engine owners/operators may work with state permitting authorities pursuant to 40 CFR subpart E (''Approval of State Programs and Delegation of Federal

Authorities'') for approval of alternative management practices for their engines. EPA also added a provision stating that if an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the management practice requirements on the schedule required in the regulations, or if performing the management practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the management practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The management practice should be performed as soon as practicable after the emergency has ended or the unacceptable risk under federal, state, or local law has abated. Sources must report any failure to perform the management practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable. The commenter did not provide any information to show that the proposed frequencies would interrupt normal plant operations or impose plant safety risks.

7.2.4 Comment: One commenter (242) asked that EPA replace the proposed management practices with the following, which was recently agreed upon for 40 CFR part 60, subpart IIII: "Operate and maintain their engines according to engine manufacturer O&M practices or according to their own O&M practices, as long as the owner/operator, to the extent practicable, maintains and operates the engine in a manner consistent with good air pollution control practice for minimizing emissions. For owners and operators following their own O&M practices, keep a maintenance plan and records of conducted maintenance to demonstrate compliance." The commenter (242) thinks that the specific work practice standards currently in the proposal are excessive and not commensurate with current industry practices.

The commenter (242) observed that Table 2d of the proposed rule requires engines less than 50 HP to replace spark plugs on a regular basis, however noted that diesel engines do not use spark plugs, but do necessitate the use of glow plugs or igniters for startup. The commenter (242) said that glow plugs are only necessary for brief startup periods and upon failure will cause a diesel engine to become inoperative and for this reason, replacing glow plugs on an hourly schedule is not appropriate.

Response: EPA does not agree that the language proposed by the commenter is appropriate for management practices. Good operation and maintenance is not specific enough for a management practice for stationary CI engines. EPA does not agree that the types of management practices that were proposed were excessive; however, as discussed in the response to comment 7.2.1, EPA has reevaluated the appropriate frequency for some of the practices.

EPA agrees with the commenter that diesel engines do not use spark plugs and consequently owners/operators do not need to replace spark plugs on a regular basis. EPA has clarified in the final rule that the spark plug requirement is required for SI engines only.

8.0 Parameter Monitoring

8.1 Comment: Eight commenters (104, 126, 150, 155, 176, 220, 224, 242) had different remarks regarding parameter monitoring in the proposed rule. Three commenters (155, 220, 224) wanted EPA to clarify whether parameter monitoring is required for any existing engines under the proposal. According to the commenter (155), the preamble and regulatory language contain conflicting information and the commenter is uncertain if EPA intended to require parameter monitoring for area sources. The commenters (155, 242) said that Table 6 of the proposed rule does not required parameter monitoring for area sources, but that the preamble talks about such monitoring for larger area source engines. This should be clarified, commenters 155 and 242 said.

Several commenters (97, 128, 155, 176 and 242) are strongly against parameter monitoring for area source engines and three commenters (155, 176, 242) are of the opinion that EPA should take into account limitations that exist for these engines that may be located at unmanned facilities. In addition, area sources may not have electricity, which will be problematic in terms of continuous temperature monitoring, the commenters (155, 242) said. Monthly pressure drop readings may also be an issue, the commenters (155, 242) said. Parameter monitoring will add significant technical challenges and cost burden, according to the commenters (155, 242). EPA has failed to consider all factors, but if EPA decides to require area source parameter monitoring, analysis supporting that decision must be presented and justified, two commenters (155, 242) asserted.

Response: Parametric monitoring is required for existing non-emergency engines that are larger than 500 HP. EPA does not agree that parameter monitoring is not appropriate for area source engines. Parametric monitoring is appropriate for these engines because the parameters serve as surrogates of the catalyst performance. The pressure drop across the catalyst can indicate if the catalyst is damaged or fouled, in which case, catalyst performance would decrease.

8.2 Comment: A few commenters (112, 126, 150, 155, 176, 224, 227) suggested that EPA clarify in the final rule that during months when the engine does not operate, engine operation is limited, or the engine operates at reduced load, pressure drop measurements are not required. For example, the commenters (112, 155) thought that an engine that has been idle should not be started up solely to conduct a monthly pressure drop measurement. According to a few commenters, including commenters 155 and 224, there has been implementation issues with regards to monthly pressure drop monitoring since the 2004 RICE NESHAP was issued. The commenters (112, 155) said that without clarifying this requirement, owners/operators may be required to start an engine only to conduct a pressure drop measurement or be forced to artificially load the engine to 90 percent of rated load, which may not be possible. In the alternative, an owner/operator has to submit an alternative monitoring request to EPA for approval. The commenter (155) believes this is an unnecessary burden. The commenter (155) noted that it has asked EPA for guidance on this issue, but that the guidance that EPA provided in the form of a question and answer document (available at: http://www.epa.gov/ttn/atw/rice/riceq_a_9-30-05.pdf), did not sufficiently address the issue of pressure drop monitoring. The commenter (155) had a number of specific recommendations that include the provision that if an engine does not operate during a specific month, does not reach 100 percent load +/- 10 percent, or has limited operation and is shutdown prior to the owner/operator completing the pressure drop measurement, the owner/operator should not be required to startup the engine solely to record the pressure drop. The commenter (155) also recommended that the owner/operator should record the pressure drop as soon as practical after the engine is started again.

Similarly, one commenter (112) also asked EPA to clarify that temperature and pressure readings are only required when the engine is operating after startup. The commenter (112) noted that Tables 1b & 2b, item 1.b of the proposed rule, require the operator to maintain the temperature above a set point. However, the commenter (112) pointed out that when an engine is first started, there will be an unavoidable but short period of time (approximately 15 minutes) when the exhaust temperature is less than 450 F. The commenter (112) requested clarification that this startup period will be allowed without resulting in a noncompliance situation.

One commenter (150) stated that EPA should provide exceptions to the monitoring requirements for idle or broken engines inasmuch as a given engine may not always be operating. The commenter (150) believes that the rules should be clear that no reporting is required for a particular period if, during that period, the engine did not operate.

One commenter (224) requested that EPA clarify the requirements for re-establishing the baseline pressure drop and for conducting catalyst replacement tests.

Response: EPA reiterates its existing policy that a company is not required to increase the load for the sole purpose of measuring pressure drop across the compressor stations, nor is it required to start an engine that is idle or broken for the sole purpose of measuring pressure drop. However, a company is required to measure the pressure drop once the load is increased to the target window, or when operations exceed 30 days (regardless of load), and to document the time periods when the RICE is operated below the target window in its required reporting.

8.3 Comment: One commenter (99) said that the operating limitations for temperature in Table 2b of the proposed rule may not be consistently achieved by diesel engines at low loads and suggested that owners/operators be allowed to petition to be able to operate below the specific temperatures where it can be demonstrated as operationally necessary.

Response: EPA has in the final rule added a provision that allows the owner/operator to petition for alternative operating limitations pursuant to the provisions in 40 CFR 63.8(f).

8.4 Comment: Two commenters (112, 150) noted that when a catalyst must be cleaned or changed, the proposed rules require a 60-day notice prior to the retest. The commenters (112, 150) requested clarification as to the operating values for the pressure drop across the catalyst that are to be used during this period, and added that it would appear impossible to operate the engine without generating a deviation during this period. The commenters (112, 150) recommended that EPA allow the use of an alternative test using a portable analyzer in this situation.

Response: The rule does require a 60-day notice prior to testing, however the owner/operator does not have to wait until after the catalyst is cleaned or changed to submit the notice. The test should be done as soon as possible after the catalyst is changed. Testing using a portable analyzer is already allowed by the rule.

8.5 Comment: Several commenters (98, 126, 129, 157, 216, 220, 247) disagreed that owners/operators should conduct parameter monitoring continuously. Two commenters (98, 129) stated that intervals for monitoring and recording temperature readings for catalysts should be reduced. The commenters (98, 129) asserted that measuring and recording catalyst temperature should only be required when the engine is operating. Commenter (98) believes that it is unnecessary to install continuous temperature monitoring equipment for recordkeeping purposes and that the requirements should be revised so that temperature is recorded each day that the unit is operated – it would then be at the operator's discretion to decide to install continuous temperature monitoring equipment. The commenter (98) suggested that following revisions to the monitoring requirements, using as the basis of the revisions the language of the proposal preamble:

"Owners and operators of existing stationary non-emergency 2SLB, 4SLB, 4SRB, and CI RICE that are greater than 500 HP and are located at a major/area source must ~~continuously~~ monitor and record catalyst inlet temperature <u>at least once every 24-hour period the engine is operated</u> if an oxidation catalyst or NSCR is being used on the engine. The pressure drop across the catalyst must also be measured monthly. If an oxidation catalyst is not being used on the engine, the owner or operator must continuously monitor and record the operating parameters (if any) approved by the Administrator."

Commenter (220) said EPA should not impose parameter monitoring requirements where there is minimal engine operation.

Two commenters (126, 247) recommended that the inlet temperature testing be conducted during performance testing to verify that the inlet temperature is within the allowable range during normal operations.

<u>Response</u>: EPA does not agree that the catalyst inlet temperature should not be monitored continuously. The temperature is an important determinate of catalytic activity and resulting emissions reduction. The continuous catalyst inlet temperature monitoring will help to demonstrate that the emission limitations are being achieved on a continuous basis. The rule already requires the catalyst inlet temperature to be testing during performance testing to verify that it is within the allowable range.

9.0 Compliance

9.1 Test Procedures

9.1.1 Comment: Several commenters (97, 112, 155, 224, 227, 242) recommended that EPA allow sequential pre and post-catalyst testing instead of simultaneous testing for engines complying with the percent reduction option. FTIR testing is expensive and will be a significant burden, but if sequential pre and post-catalyst testing is allowed the cost can be minimized. According to commenters (155, 242), most owners/operators will choose to comply with the percent reduction standard and not the concentration standard. Commenter 242 noted that this is because the level of the ppmv standards is very stringent and is exacerbated by the high percent efficiency that EPA has assumed. The commenters (155, 242) suggested that EPA allow sequential pre and post-catalyst testing for formaldehyde and CO percent reduction, while also prescribing practical quality assurance measures (e.g., engine load monitoring) to make sure that the sequential measurements before and after the catalytic control device are conducted at similar engine operation.

Response: EPA does not believe the use of sequential pre and post-catalyst testing is appropriate for measuring percent reduction for a compliance standard. There are too many variables in the operation of an engine and the generated emissions to ensure that the percent reduction was being achieved. Changes in load, temperature, or fuel type can change during the test, which also affects the emissions.

9.1.2 Comment: Several commenters (112, 132, 148, 150, 155, 186, 242) noted concerns regarding the testing requirements with respect to load, specifically regarding the requirement to test at high load. However, 90 percent efficiency may not be achievable at reduced load, according to the commenter (242) and compliance at all load conditions and SSM periods cannot be certified by the responsible official if the performance during off-load conditions is unknown. The commenter (242) recommended that EPA consider the broader use of management practices, which will lead to less engines requiring performance testing.

Commenters 132 and 242 is in favor of test requirements at the highest load that is achievable in practice +/- 10 percent and this test condition should also limit the emission standard applicability to an hourly average period and normal operating condition(s). One commenter (155) said that it is supportive of performance testing at full load or the highest load that is achievable in order to demonstrate compliance, but that it suggests that EPA specifically adds language to the NESHAP to be consistent with the NSPS requirements, which include allowing the performance test to be conducted at the maximum load achieved in practice, e.g., if greater than 90 percent load is unattainable. Three commenter (145, 155, 242) recommended that EPA add the language "or the maximum load achieved in practice" to §63.6610(d)(5) of the proposed rule. Commenters 97 and 224 had a similar suggestion. Commenter 230 recommended the text: "The test must be conducted at any load condition within plus or minus 10 percent; if the test cannot be conducted within this range, then the RICE cannot be operated at a load greater than 10 percent of the load during the most recent performance test that complies with the emission limitations specified within this subpart." The commenter (230) indicated that it is not capable of achieving 100 percent load +/- 10 percent.

Two commenters (150, 186) stated that engines should be allowed to be tested at maximum attainable load without need for an Alternative Testing Protocol obtained from the Administrator on a case-by-case basis. The commenters (150, 186) noted that the proposal requires testing at 100 percent load ± 10 percent, but does not specify whether it refers to full load for the engine rated at sea level or the site rating. The commenter (150) believes that because many engines physically cannot be operated at maximum rated HP for various reasons, the rule should contain some allowance to test at lower loads without requiring special approval on a case-by-case basis. The commenter (150) stated that the proposal retains high-load performance test requirements, but suggests that emission limits would apply at all loads including shutdown, while different limits for startup and malfunction. The commenter (150) believes that clarification is needed in this regard. Commenter (186) recommended that EPA include some allowance to test at lower loads without requiring operators to apply for and receive special approval from the administrator on a case-by-case basis.

The commenter (155) also recommended that EPA indicate in the rule that the emission standards only apply at high load and that requirements for demonstrating compliance at other operating conditions should be shown with other alternatives. For demonstrating compliance and conditions other than high load, the commenter (155) believes that EPA should allow engines to use work practices. Requiring work practices would ensure that the engine is operating and performing as well as possible during periods other than high load and are appropriate since requiring emission standards is not technically and economically feasible, according to the commenter (155). The commenter (155) again mentioned that if EPA keeps emission standards that apply at all operating conditions, then data and a thorough analysis should be conducted and made evident and transparent in the rulemaking docket to support that decision. The commenter (155) reiterated how combustion chemistry does not support requiring the same emission standards at high and lower load, e.g., the commenter pointed to the testing conducted at CSU that was used to develop the 2004 RICE NESHAP. Finally, the commenter (155) added that the rule should address how cyclic operation and engines with a short run time should be addressed in terms of demonstrating compliance. Air compressors and other engines may need a separate subcategory that is allowed to demonstrate compliance using work practices and not emission standards, in the commenter's (155) opinion.

One commenter (112) asked that EPA allow engine testing at the maximum attainable load without requiring application for and receipt of special approval from the Administrator on a case-by-case basis. The commenter (112) noted that as proposed, engines tests must be conducted at load conditions of 100 +/- 10 percent, but the proposal does not specify whether that is 100 percent of full load for the engine rated at sea level or 100 percent of the site rating. The commenter (112) stated that many engines cannot physically be operated at the maximum rated HP due to gas field pressure, compressor restrictions, gathering system limitations, etc.

One commenter (81) noted that the proposed limit is based on 100 percent load, which would seldom occur in the real world. This means the test limit would bear little relation to real operating conditions. In addition, testing may put the communication system at risk while the tests are being performed. Because few generators are likely installed to handle 100 percent loads, owners would likely have to use temporary load banks to meet test conditions. It may be necessary to disconnect the emergency engine from the network to test under load bank conditions, and the ability of the engine to respond effectively to an emergency situation will be reduced.

Response: EPA revised the emission standards to include additional data collected at loads less than 90 percent to capture the variability in stationary engine operation that can affect the HAP emissions. Since the emission limitations are based on operation over a range of loads, EPA believes that it would be appropriate to allow performance testing to be conducted at normal operation rather than during high load. In the final rule, EPA has included language specifying that performance testing can be conducted at normal operating conditions to demonstrate compliance with the emission standards. In addition, EPA has lowered the percent reduction requirements, and revised the consequent specified emission levels, to take into account operation at varying levels of operation, consistent with the testing that was used to develop the 2004 NESHAP. EPA believes this satisfies the commenters' concerns on this issue.

9.1.3 Comment: One commenter (96) asked that EPA include in-use measurement allowances in the final rule. The commenter (96) said that EPA will need to include adequate measurement allowances to account for the relative accuracy and variability of in-use measurement systems when compared with laboratory-based CVS emissions measurement systems, like is being done for in-use NTE testing for mobile sources, in order to make sure those in-use tests are fairly comparable to any certification tests related to the engines at issue.

Response: EPA does not believe the inclusion of in-use measurement allowances is necessary or appropriate for the final rule. EPA believes that the QA/QC requirements that have been developed for the approved test methods and procedures are sufficient measures to ensure that the engines are meeting the requirements.

9.1.4 Comment: One commenter (76) indicated that it had provided significant comments in February 2009 on EPA's Continuous Parameter Monitoring Systems proposal and believes that extensive revisions are needed of Performance Specifications 17 and 4. The commenter (76) asked that EPA review these procedures to determine their appropriateness for even larger engines and suggested that EPA remove the reference to 40 CFR 63.8(a)(2) from Table 8 of the proposed rule, i.e., change "Yes" to "No" for this paragraph of the GP.

Response: EPA does not agree with the commenter that that the reference to 40 CFR 63.8(a)(2) should be "no". The commenter did not provide any information to support the claim that the Performance Specifications and section 63.8(a)(2) are not appropriate for stationary diesel engines. In response to this comment, EPA reviewed the proposed Performance Specification and determined that it is appropriate for stationary engines, including diesel engines. In order to clearly indicate the requirements from the Performance Specification that should be followed for the stationary engines subject to this rulemaking, EPA plans to include the Performance Specification requirements in subpart ZZZZ when the final requirements are promulgated for existing SI engines in August 2010.

9.1.5 Comment: Three commenters (76, 154, 188) supported the exemption of emergency and/or small engines from performance testing requirements. One commenter (188) noted that for smaller units at area sources, subject to numerical emission standards, it is unreasonable and not cost justified to require testing for such small emission units that in many cases only run a limited number of hrs/yr and produce negligible HAP emissions. The commenter (188) recommended that in the event EPA still believes testing is warranted for area sources, alternate, lower cost testing methodologies, i.e. grab samples of stack gas before and after the catalyst, should be allowed.

Response: EPA agrees with the commenters that testing should not be required for emergency and small engines. The proposed rule specified that stationary emergency engines and stationary engines less than 100 HP were not subject to performance testing. EPA believed at proposal that it would not be reasonable to subject emergency engines at area sources to performance testing. In the final rule, stationary engines less than 100 HP and stationary emergency engines are subject to work practices or management practices, for which emissions performance testing are unnecessary and not required. EPA does believe that testing is warranted for stationary non-emergency CI engines at area sources that are larger than 300 HP. EPA does not believe that the costs for such testing are unreasonable and has specified that portable analyzers can be used for testing, which reduces the cost of testing.

9.1.6 Comment: Two commenters (193, 267) recommended adding a provision in the emissions testing protocol to allow for initial and subsequent emission testing to be performed on a single engine when a facility has multiple equivalent engines. The commenter (267) stated that the district operates and maintains over 2,000 miles of canals, 60 pumping stations, and 2,200 water control structures. It (267) reported that the district pump stations have multiple engines consisting of the same manufacturer, model, manufactured date, approximate operating hours, HP rating and maintenance program. The commenter (267) opined that it is not cost effective to perform formal testing on multiple engines if it can be demonstrated through contemporaneous screening of each engine that the worst case engine was selected. The commenter recommended the following insert:

"If a facility has multiple equivalent engines, the owner or operator can perform screening of each engine for the targeted pollutant using the applicable EPA Test Method. The formal testing must be performed on each engine until the readings are stable."

Response: For existing engines, EPA disagrees with the commenter that the performance of a compliance test on a single engine can be used to show compliance for the equivalent engines located at the same facility. EPA cannot be certain that the engines have been operated identically, have had the same operational, deterioration, and malfunction experiences, and have undergone the same maintenance, all of which could affect the emissions. Therefore, EPA does not believe that it is appropriate to allow the use of the test on a single existing engine to show compliance for other engines that are the same make and model. EPA has attempted to have as little testing as is necessary to ensure that engines are meeting the standard.

9.2 Test Methods

9.2.1 Comment: A few commenters (97, 155, 224) support the CO test methods in the proposed rule, which include EPA Method 10, FTIR methods Method 320 and ASTM Method D6348-03, and ASTM Method D6522-00 (2005) using a portable analyzer. Two commenters (124, 132) also expressed that they support ASTM Method D6522. Commenter 242 also supports the use of EPA Method 10 and ASTM D6522 for CO testing. Commenters 124, 132, 155 and 242 said that EPA should also specify that alternative methods approved by the Administrator are allowed for portable analyzers and recommended the following specific language to be added to footnote a in Table 4 of the proposed rule:

"Alternative portable analyzer methods approved by the Administrator or delegated authority are also acceptable."

Response: Table 8 of the rule allows for the use of alternative test provisions as specified in §63.7(f) of the GP. This provision allows the owner or operator to petition the Administrator of their intention to use an alternative test method at least 60 days before the performance test is scheduled to begin. Therefore, EPA does not believe that the suggested footnote is needed to be added to Table 4 of the final rule.

9.2.2 Comment: Two commenters (155, 224) were of the opinion that EPA should allow FTIR test methods in the final rule as acceptable methods for measuring CO percent reduction. The FTIR methods are already included for measuring concentration and the commenter (155) does not see why those methods should not also be included for percent reduction.

Response: EPA agrees that it is acceptable to measure the percent reduction of CO using the allowable FTIR methods and has specified that this is allowable in Table 4 of the final rule.

9.2.3 Comment: Three commenters (121, 149, 150) stated that EPA should allow alternatives to performance testing. One commenter (121) said EPA should allow sources the option to use test results from other non-EPA test methods to demonstrate compliance as long as the data was gathered using an approved procedure. The commenter (121) said that its members (automotive manufacturing) indicated that the cost per sample run using Methods 1, 3, 4, and 10 could easily exceed $10,000, excluding costs to prepare for the sampling (i.e., scaffolding, stack extensions, etc.). In addition to these cost considerations, as a practical matter, there would be significant difficulty in performing these EPA test methods on engine exhaust. To reduce the compliance burden, the commenter (121) suggested that EPA replace the emission limits with percent reduction and allow owners and operators to use portable analyzers for all performance testing, given the familiarity with this equipment and the significantly lower cost of this equipment.

One commenter (150) stated that EPA should allow the use of portable analyzers (rather than EPA protocol testing) to assess CO emissions after catalyst replacement and overhaul/rebuild and for the 8,760-hour/3-year test. The commenter (150) indicated that this would be in keeping with state agency practice for sources that require periodic emission tests as part of their monitoring schedules.

A similar comment was received from another commenter (149) who stated that 126 of the CI engines it uses under emergency conditions throughout the city (at pumping stations, combined sewer and overflow systems, water pollution control plants) located at both major and area sources would be subject to emission standards and requirements listed in Table 1 on page 9702 and in Table 2 on page 9703 of the proposed rule. Although the commenter (149) supported this application of the rule, the commenter requested clarification on the method used to certify compliance and urged that EPA clarify in the rule that handheld instruments may be used to certify compliance. The commenter (149) expressed that traditional air sampling collection equipment, with laboratory analysis, would be more laborious with minor environmental benefit compared to the use of handheld instrumentation or portable meters.

Response: EPA has already addressed the commenters' concerns. The NESHAP allows the use or portable analyzers to show compliance with the CO emission standards. The method ASTM D6522-00 is a portable analyzer method.

9.2.4 Comment: One commenter (98) stated that referenced ASTM D6522-00 (2005)[a] method is not approved for performance tests on RICE not fired with natural gas. The commenter (98) quoted the text of ASTM D6522-00 (2005)[a] page 1, §1 "Scope" as follows (with underlined text added for emphasis):

"1.1 This test method covers the determination of nitrogen oxide and NO_2, carbon monoxide (CO), and O_2 concentrations in controlled and uncontrolled emissions from natural gas-fired reciprocating engines, combustion turbines, boilers, and process heaters. Due to the inherent cross sensitivities of the electrochemical cells, this test method should not be applied to other pollutants or emission sources without a complete investigation of possible analytical interferences and a comparative evaluation with EPA test methods.

The commenter (98) asserted that EPA must conduct the complete investigation and comparative analysis to approved EPA methods before this method can be listed as an acceptable test procedure; otherwise test results using this method may be challenged or invalidated. However, the commenter (98) believes that including a test method such as ASTM D6522-00 (2005)[a] is necessary because many of the sources in question would not meet testing location requirements of approved EPA test methods. The commenter (98) added that ASTM D6522-00 (2005)[a] also allows for shorter test durations which is preferable for RICE..

Response: EPA agrees with the commenter that allowing the use of ASTM D6522-00 for testing CO and O_2 from engines other than those fired with natural gas is a desirable and useful alternative to EPA Methods 3A and 10. We note that there are laboratory and field studies of the electrochemical measurement technology for diesel-fired engines and other combustion sources of CO and other pollutant emissions that demonstrate the capabilities consistent with a method for determining compliance in the context of this rule. These studies include those managed through the EPA Environmental Technology Verification program and the German Technical Inspection Association (TUV) (e.g., http://www.epa.gov/etv/pubs/01_vr_testo_350.pdf, http://www.emersonprocess.com/raihome/documents/Gas_PDS_BINOS1002M_103-170_200607.pdf). We have reviewed the reports of these studies and we believe that the technology as applied through ASTM D6522-00 is suitable for compliance testing for other than natural gas-fired engines under this rule. EPA has made it clear in the final rule that ASTM D6522-00 is an acceptable method for testing existing stationary CI engines by including a footnote to Table 4 in the final rule.

9.3 Frequency

9.3.1 Comment: A few commenters (104, 150, 155) were unclear on the requirements related to when a catalyst is replaced. One commenter (155) said that EPA should clarify in the final rule that after a catalyst has been changed when the owner/operator conducts a performance test that this test fulfills the periodic test requirement. In other words, the schedule to perform future tests should be reset when the catalyst change test is completed, the commenter (155) said. The commenter (155) additionally noted that the rule does not specify the timing to conduct a performance test after a catalyst has been replaced. It was recommended that 63.6640(b) of the proposed rule be revised to indicate that 180 days is allowed to conduct this test, by commenter (155). Alternatively, the commenter (155) suggested that EPA revise 63.6610(a) to indicate that 180 days applies to both initial testing and after a catalyst change.

The commenter (155) also wanted EPA to clarify that temporary catalysts used during washing or cleaning should not trigger a catalyst change test. According to the commenter (155), the original catalyst may be cleaned offsite by a catalyst vendor and in a the meantime a temporary catalyst is used. The commenter (155) said that an appropriate time period should be allowed to operate the temporary catalyst without having to conduct testing and recommended that sources be given 45 days to operate an engine with a temporary catalyst without conducting a test as long as the original catalyst is reinstalled following cleaning.

One commenter (104) noted that proposed 40 CFR 63.6640 requires that when the catalyst is replaced, the operator must reestablish the values of the operating parameters measured during the initial performance test and then conduct a performance test to verify compliance and asked what the need for the initial test is as it may not be accurate.

One commenter (150) stated that EPA should clarify the requirements regarding what testing is required after catalyst replacement. The commenter (150) believes that there is no need for a complete performance test after a catalyst is changed.

<u>Response</u>: As the commenters noted, the rule does not specify a time for conducting a performance test after a catalyst change. However, the performance test after a catalyst change should be conducted as soon as possible to demonstrate that the engine is still in compliance with the applicable standards. It should be noted that the owner/operator must notify the EPA

Regional office or the delegated authority 60 days prior to performing the test. The owner/operator may seek an adjustment to the 60 day notification requirement from the EPA Regional office or delegated authority if the owner wishes to conduct a performance test as soon as possible following the catalyst change. The performance test after a catalyst change can be used to satisfy the performance testing requirement. However, a request to waive the performance testing requirement must be submitted to the EPA Regional office or delegated authority indicating that the catalyst change performance test will be used to satisfy the requirements for the required testing requirement under the rule.

In regards to the issue of whether a performance test is required when a temporary or "loaner" catalyst is being used while the primary catalyst is being washed or cleaned, EPA believes that this should be addressed on a site-specific basis and is dependent on additional information such as the type of "loaner" catalyst, the length of time the "loaner" catalyst is used, and the compliance history of the engine. After the primary catalyst has been washed or cleaned, a performance test may be required if the delegated agency has decided that the initial performance test is no longer representative of the performance of the affected source. EPA believes that routine washing of the catalyst is unlikely to cause the initial test to no longer be representative. However, this determination of whether a retest is required should be made by the delegated agency on a case-by-case basis.

9.3.2 Comment: Two commenters (112, 242) expressed similar concerns regarding the test requirements for engines that are rebuilt or overhauled. One commenter (242) said that EPA should clarify in the final rule that additional performance tests are not required for engines between 100 and 500 HP after a rebuild or overhaul or alternatively explain and justify the cost and benefits of requiring such testing. According to the commenter (242), the preamble and rule text contain conflicting information on this topic and EPA must clarify this in the final rule.

One commenter (112) asked that EPA allow alternative test procedures under certain conditions. The commenter (112) noted that while EPA stated in the proposal preamble that engines 100 to 500 HP do not require subsequent tests, an additional test must be carried out if the engine is rebuilt or overhauled. The commenter (112) indicated that based on the applicable definition, compressor engines may undergo an overhaul as often as every 2 to 3 years. The commenter (112) believes that requiring a reference test method each time an engine is overhauled is excessive and unnecessary.

The commenter (112) indicated that State agencies accept portable analyzer data with short duration runs (i.e., 6 minutes) as an acceptable means to facilitate measuring emissions from sources that require periodic emission tests. The commenter (112) added that these State agencies typically require the use of an approved protocol to ensure consistency and to provide a minimum level of quality assurance during the testing process. The commenter (112) asserted that EPA should allow the use of portable analyzer tests, using a State approved protocol for the State in which the engine is operating rather than the EPA Reference Method Performance Tests in the following circumstances:

- Engine rebuild or overhaul,
- Replacement of O_2 sensor (which occurs every 3 months),
- Catalyst washing or replacement,
- Re-establishment of benchmark pressure drop.

The commenter (112) believes that if EPA intends to require performance tests in these situations, the increased cost should be captured in EPA's economic analysis. The commenter

(112) added that EPA should reevaluate the frequency of testing that is required above that of annual performance testing.

Response: EPA believes that it is appropriate to require testing for stationary engines that have been rebuilt or overhauled even though the engines may only normally be required to conduct an initial performance test and no subsequent testing. The rebuilding or overhaul of the engine may change the combustion characteristics of the engine. EPA does not believe that these performance tests after an engine is overhauled or rebuilt are excessive or unnecessary. The required testing will ensure that the rebuilt or overhauled engine still meet the applicable emission limits, therefore ensuring compliance with the applicable standards.

EPA has incorporated portable test methods that meet the QA/QC criteria of comparable EPA test methods. The rule does allow the petition of alternative test methods under 40 CFR §63.7(f) of the GP. This provision would allow the owner or operator to use an alternative test method from that specified in the standard provided that the owner notifies the Administrator of the intention to use an alternative test method at least 60 days before the performance test is scheduled to begin, uses Method 301 in appendix A of this part to validate the alternative test method, and submits the results of the Method 301 validation process along with the notification of intention and the justification for not using the specified test method.

In response to EPA including the costs of these tests for rebuilding or overhauling of engines, catalyst washing and replacement, or re-establishment of benchmark pressure drop, EPA does not believe that these additional testing costs need to be included because the analysis presented in the rule shows the costs in the year 2013, or the first full year after implementation of the rule, and it is unlikely these costs will be incurred in that year. For the replacement of the

O_2 sensor, EPA does not require testing and therefore the testing costs were not included in the economic analysis.

9.3.3 Comment: One commenter (76) asked that EPA modify 63.6612(b) of the proposed rule to allow past performance tests conducted in the last 5 years to be used instead of the 2 years that this paragraph currently requires. The commenter (76) believes that testing conducted in the last 5 years is representative of current emissions in many cases and the commenter thinks that it is appropriate for EPA to allow such tests to be used to demonstrate compliance.

Another commenter (116) had a similar request that for areas sources that are subject to new testing requirements, this could be modified to allow tests that are not older than 3 years, since the promulgated rule will allow 3 years for compliance. The commenter (116) asserted that there are so many engines that will be required to be tested that it is reasonable to allow facilities more time to accomplish the testing before the compliance deadline.

Response: EPA believes that the requirements in §63.6612(b) of the rule are appropriate. Performance tests older than 2 years may not be representative of the current emissions from the engine. Maintenance of the engine requires replacement of parts that may affect the combustion characteristics of the engine, which in turn will affect the emissions of the engine. In addition, EPA believes that the 2-year limit of performance test reports will also allow sufficient time for the sources to perform any applicable testing at their facility before the compliance deadline.

9.3.4 Comment: Several commenters (87, 98, 112, 126, 139, 186, 197, 216, 227, 229, 236, 247) expressed that they disagreed with the testing requirements in the proposed rule. Multiple commenters (87, 112, 126, 139, 157, 186, 236) took issue with the testing requirements for non-emergency stationary RICE greater than 500 HP of every 8,760 hours of operation or 3 years. Two commenters (112, 186) indicated that strict adherence to a test schedule based on operating hours is difficult to manage in large fleets of engines due to availability of testing personnel, equipment breakdowns, weather conditions, safety considerations, etc. Consequently, the tests would necessarily be conducted more frequently than annually to ensure completion of tests for the entire fleet within the operating hour time limit. Two commenters (112, 186) suggested that reduced test frequency should be allowed when two consecutive tests demonstrate compliance with emissions limitations (such as is allowed in the footnote to Table 6 of the proposed rule). The commenters (112, 186) added that upon any non-compliance with emissions limitations, the test frequency could revert to the original schedule. The commenter (112) also suggested that EPA should consider a reduced testing frequency, 3 years, for any engine in compliance for two consecutive performance tests, regardless of operating hours.

Two commenters (236, 247) stated that EPA's proposed frequency of performance tests (every 3 years) is excessive and recommends that frequency of performance testing be based on hours of operation. The commenter (236) noted that some engines are run very infrequently over their entire service life.

Two commenters (126, 197) suggested that the frequency of performance tests be based on hours of operation. The commenter (197) asserted that many RICE have low dispatching hours and the required performance testing would contribute to a significant amount of their operating time. The commenter (197) recommended that limited use RICE should not be required to demonstrate that the control equipment is functional more than once.

One commenter (87) stated that the requirement to test every 3 years for units that do not run very often is unreasonable. The commenter (87) added that based on actual run time (including peak shavers) for 14 stationary RICE that would be subject to this testing requirement, the average 3 year cumulative run time was 105 hours, and without peak shavers, 37 hours. Further, the commenter (87) stated that most generator engines are not equipped with easy-access test ports and would have to be modified for testing, the cost of which have not been captured in this rule. The commenter (87) recommended that provisions for testing units that are not run frequently should be considered.

One commenter (139) stated there is limited or no benefit for requiring owner and operators of non-emergency, limited use RICE greater than 500 HP to perform time-consuming and expensive tests every 3 years. The proposed rule would require owners and operators of all existing stationary non-emergency RICE greater than 500 HP to conduct an initial performance test and subsequent tests every 8,760 hours of operation or every three years, whichever comes first. For some RICE, operation would be required simply to conduct the testing, which is unreasonable. The commenter (139) urged EPA to revise the proposed rule so that subsequent testing of these engines is only required every 8,760 hours of operation.

Commenter (227) said the proposed requirement for area sources to conduct an unnecessary and burdensome initial performance test should be replaced by an engine tune-up procedure, which would be adequate given the limited operation of the emergency engines. Commenter (216) said EPA should revise the proposed rule and limit performance testing requirements to non-emergency CI engines greater than 300 HP located at major sources

Commenter (229) noted that while EPA is stipulating that performance testing of existing engines is not required for major source facilities in the proposed rule, because an emission limitation is being proposed, this does not preclude state agencies from specifying performance test requirements as a compliance demonstration condition in Title V Permits . Accordingly, commenter (229) reiterated that appropriate work practice standards are the practical requirement for all existing emergency engines at major and area source facilities in lieu of any emission limitation standards.

One commenter (98) argued that performance test requirements for non-emergency RICE greater than 100 HP at major sources are too broad in scope and must be revised to exclude limited use units in order to avoid the need to operate these units for the sole purpose of generating emissions data. The commenter (98) stated that the proposed language imposes initial performance test requirements on CI engines 100≥HP≤300 even though these engines are not required to install aftertreatment controls and emission standards are based on emissions from uncontrolled units.

One commenter (98) argued that performance test requirements for non-emergency RICE greater than 500 HP at major and area sources are required too frequently. The commenter (98) asserted that many RICE in this category operate infrequently (less than 20 percent annual utilization) and consequently requiring a performance test every 3 years is too frequent. The commenter (98) noted that RICE in this category are required to monitor catalyst pressure drop and catalyst temperature to assure proper operation of the control device, which approach is similar to the Compliance Assurance Monitoring (CAM) Plan established in 40 CFR part 64. The commenter (98) believes that the required monitoring indicates proper performance of the control device, so frequent performance tests for these units are unnecessary and redundant. The commenter recommended that the proposed rule language in 40 CFR 63.6615 be revised as follows:

"Owners and operators of existing stationary non-emergency or non-limited use RICE that are greater than 500 HP and located at major/area sources must conduct an initial performance test and must test every 8,760 hours of operation or ~~3~~ <u>5</u> years, whichever comes first, to demonstrate that they are achieving the required emission standards through required monitoring of after-treatment control device(s). In the event that monitored parameters do not comply with specified after-treatment control equipment pressure drop and temperature criteria, corrective action or a performance test must be conducted to demonstrate that the emissions source is achieving the required emission standards. If corrective action involves modifications to the after-treatment control device which changes monitored parameters, a performance test must be conducted within 180 days of first operation of RICE after modification to the after-treatment control device occurred."

One commenter (157) believes these requirements are redundant and burdensome because many RICE in this category operate infrequently and are already subject to continuous monitoring of the catalyst pressure drop and catalyst temperature to assure proper operation of the control device. Therefore, the commenter (157) requested that the proposed rule only require subsequent testing of these units every 8,760 hours of operation.

<u>Response</u>: EPA believes that the test frequency for stationary existing engines greater than 500 HP located at area sources and non-emergency existing CI engines at major sources of HAP emissions is appropriate to ensure compliance with the applicable standards. As stated in the preamble to the proposed rule, additional testing on a regular basis is appropriate and not excessive for these engines because of their size and operating time. At most, these engines would be required to test yearly, which would actually be less than what is required for most of

the engines subject to the 2004 RICE NESHAP. EPA believes that three years is an appropriate time between tests for larger engines to ensure that the emission standards are met on an ongoing basis. The option for reducing test frequency that the commenters cited in Table 6 allows for reducing from semiannual to annual testing; this proposal did not include any semiannual testing. The testing requirements are based on actual hours of operation. Regarding the comment that most generators are not equipped with easy access ports, the commenter did not submit any information to substantiate this claim. EPA does not agree that an engine tune-up would be an adequate replacement for an initial performance test as the tune-up would not provide any indication of what the emissions from the engine are. EPA has not required any performance testing for emergency engines at area sources. For stationary non-emergency CI engines at major sources larger than 100 HP, the final rule requires a performance test, which EPA has determined is necessary to adequately demonstrate that the engine is meeting the emission limitation. Emergency engines at major sources do not have emission limitations in the final rule, which addresses the concern expressed by the commenter regarding state agencies requiring testing to meet the emission limitations for these engines in the proposed rule.

9.3.5 Comment: One commenter (264) supports EPA's proposal to exclude existing non-emergency RICE located at major sources that are less than 100 HP and existing stationary emergency RICE located at major sources from the requirement to conduct performance testing. The commenter (264) expressed that it did not believe it was feasible to perform the testing base on size and potential configuration of equipment. This commenter (264) also supported EPA's proposal to exclude existing stationary RICE located at area sources that are subject to management standards from the requirement to conduct performance testing. The commenter

(264) expressed that, based on the fact that these RICE are area sources of HAP and are for smaller-sized equipment, the maintenance standards, in its opinion, are an adequate means of ensuring emissions are minimized.

Response: No response is needed.

9.4 Other

9.4.1 Comment: Several commenters (227, 229, 230, 253) expressed concern regarding potential performance testing for smaller engines. One commenter (227) said that while there is a proposed formaldehyde limit for existing stationary non-emergency RICE less than 100 HP at major sources and existing stationary emergency RICE at major sources, there are no testing requirements. These engines have maintenance and operating requirements to ensure compliance, based on manufacturer's written emission-related instructions. Since testing is not required, the commenter (227) requested that EPA remove the emission standards for these RICE.

One commenter (253) stated that there does not appear to be language in the proposed rule that would exempt emergency engines from this requirement.

Commenter 229 noted that in Table 1, it appears that for all engines (emergency and non-emergency) less than 50 HP at a major source facility, EPA is proposing an emission limitation standard of 2 ppmvd formaldehyde. Commenter 229 questioned the purpose of this emission limit since EPA states that it does not expect any existing CI engines in this category to be operating at major source facilities, and if SI or CI engines less than 50 HP are operating at major source facilities, EPA is not stipulating a performance test for a compliance demonstration. Commenter 229 continued stating that this does not preclude state agencies from specifying performance test requirements or some other needless requirements as a compliance demonstration condition in Title V Permits. Commenter 229 therefore recommends that EPA exercise its de minimis authority under the CAA to exempt existing engines less than 50 HP from the RICE NESHAP regulations for major and area sources since HAP emissions from these sources will be negligible and any regulatory requirements will be unwarranted.

One commenter (230) recommended that EPA modify Table 4 to exclude small RICE from performance testing requirements. The commenter (230) stated that the rationale used for excluding performance testing for small stationary and emergency engines because of cost should be applied to the same engines at major sources. The commenter (230) does not believe there is a useful benefit in performance testing of small (less than 50 HP) RICE located at major or area sources.

Response: In the final rule, EPA has determined that engines below 100 HP and emergency engines will be subject to work standards or management practices, and are not subject to testing. These engines do not have any numerical emission limitation. Regarding the comments that these engines should be exempted under de minimis, EPA does not believe that there is sufficient justification for a de minimis finding for these engines.

9.4.2 Comment: Two commenters (157, 216) said EPA should allow performance test to be done during periods of planned operation. The commenters (157, 216) said this change would avoid unnecessary emissions produced just for the purposes of testing.

Response: EPA agrees that it is unreasonable to startup an engine solely for the purpose of conducting a performance test and believes it is appropriate to incorporate flexibility when an engine is non-operational. In the final rule, EPA has included language in the performance testing section that allows stationary engines that are non-operational to conduct performance testing when the engine is started up again. This is consistent with how EPA treats engines that must conduct monthly pressure drop readings (see EPA's response to Question 22 in http://www.epa.gov/ttn/atw/rice/riceq_a_9-30-05.pdf) and does not require engines to be started up solely to record the pressure drop.

9.4.3 Comment: One commenter (157) believes that EPA should revise the proposed initial performance test requirement for CI engines with a site rating between 100 HP and 300 HP because the proposed requirements conflict with EPA's decision that such engines should not have to install controls. The commenter (157) states if one of these engines fails to meet the proposed emissions limit during the initial compliance test, then the owner is out of compliance unless the owner/operator reduces emissions from the engine, which will likely mandate the installation of controls. The commenter (157) noted that this is contrary to EPA's determination that the cost of applying control to these engines is "too significant to outweigh the expected HAP reductions from these units." Therefore, the commenter (157) believes that performance testing requirements should be limited to CI engines greater than 300 HP located at major sources.

Response: Based on additional data received in the post-proposal period, EPA revised the MACT floor determination for these engines. The emission limitations for these engines in the final rule are higher than those at proposal. Therefore, EPA expects that the limits will be met without the use of add-on controls for many of these engines. For those engines that are required to use aftertreatment, this is the result of Congress's mandate that standards be determined by reviewing the emissions of the best controlled sources. This means that some engines whose uncontrolled emissions are high will need aftertreatment to meet the standard. EPA does not agree that performance testing should not be required for non-emergency engines; the testing is necessary to show that the engine is complying with the emission limitation and these engines are not subject to the special provisions that EPA has provided for engines used solely in emergency circumstances.

9.4.4 Comment: Two commenters (193, 230) said that EPA should allow owners to use engine manufacturer information to demonstrate compliance with the rule. One commenter (230) asked that EPA allow the use of manufacturers testing data on all models of RICE below 300 HP instead of requiring performance testing. Commenter 193 stated that EPA should provide owners and operators of existing stationary RICE with a streamlined compliance demonstration option whenever they are able to obtain documentation from the engine manufacturer that attest to an engine's compliance with the emission limits of this proposed rule. The commenter (193) encouraged EPA to construct a compliance option in the final rule for existing source RICE less than 500 HP, much like the compliance option it created in its January 2008 final rule (73 FR 3596) and afford owners and operators the compliance option of obtaining certification documentation from engine manufacturers that attest to an engine's compliance with the emission limits of this proposed rule. The commenter (193) noted that this alternative compliance option could apply if entities operate and maintain the certified stationary engine and control device according to the manufacturer's emission-related written instructions, and the owner or operator keeps records of conducted maintenance to demonstrate compliance. Under this compliance option, no performance testing would be required of the owners or operators.

Response: EPA is not allowing owners of existing stationary engines to use manufacturer's test data or any other information in lieu of conducting performance testing. EPA needs the assurance that each engine subject to performance testing is actually meeting the applicable emission standard. Manufacturer's test data may be indicative of the engine performance when the engine is brand new, but may not be representative of the engine exhaust emissions after years in the field. Other factors that may affect the engine exhaust emissions include location, climate, fuel, controls, and how the engine has been operated and maintained over the years. The provisions the commenter is referring to in the January 2008 final rule on page 73 FR 3596 are for new stationary engines subject to the SI NSPS. For existing engines, EPA has no assurance that just because data from the manufacturer on the same model engine indicates that the engine is capable of meeting the emission standards when new, that the engine actually will after years of use in the field and EPA therefore believes that performance testing is justified and necessary.

10.0 Recordkeeping, Reporting and Notifications

10.1 Comment: Numerous commenters (97, 103, 104, 112, 126, 150, 155, 158, 224, 241, 230, 242, 247) expressed concern over the proposed recordkeeping and reporting requirements.

One commenter (155) indicated that for the 2008 RICE NESHAP EPA acknowledged that the 40 CFR part 63 General Provision requirements were burdensome in certain cases and limited these requirements for new area source and small major source engines. Three commenters (155, 224, 247) believe that EPA should make similar allowances for engines under this rulemaking and should not broadly apply the 40 CFR part 63 General Provision requirements to all existing engines.

Commenters 112, 155, and 241 are of the opinion that fewer requirements from the 40 CFR part 63 General Provisions should apply to area sources and smaller engines and said that EPA should exempt existing area source engines from 40 CFR part 63 General Provision requirements. Commenter 112 believes that at minimum, EPA should consider the cost and benefit of subjecting 40 CFR part 63 General Provision on area sources. Commenter 155 suggested that EPA review the requirements from the 2008 RICE NESHAP and consider harmonizing the requirements in order to avoid implementation issues and adopt requirements that are similar for existing and new units.

Commenter 241 stated under the proposed rule existing engines would have significantly more reporting and recordkeeping burden than new engines, and that requirements for new and existing engines should be complementary to avoid different implementation requirements.

Commenter 242 suggested that EPA conduct additional analysis on costs and benefits associated with applying 40 CFR part 63 General Provision requirements and noted, like commenter 155, that the requirements for existing sources are more burdensome than those for new sources that comply with the NSPS. Two commenters (112, 242) specifically commented that it did not believe the hour estimate for emergency engines is accurate at 1 hr/yr and thought recordkeeping would take at least 15 minutes per occurrence, or at a minimum, at least once per month (3 hrs/yr). The commenters (112, 242) further expressed that they did not believe EPA has accounted for the costs associated with overhead and profit in its emergency engines analysis.

Commenters 112 and 242 also stated that it is not evident that EPA has considered any recordkeeping for engines requiring maintenance and that, based on its experience, significant recordkeeping is necessary for maintenance and SSM requirements. The commenters (112, 242) estimated that it would take 2 hrs/month and 1 hr/month for maintenance and SSM recordkeeping, respectively. In terms of reporting costs, the commenter (242) expressed that it does not look like EPA considered the 167 percent overhead allowance, which would increase the reporting costs.

The commenters (112, 242) added that EPA estimated 14 hours for reporting, but the commenter expressed that this is not sufficient time to become familiarized with the very complex rulemaking, which the commenters estimated would take about 40 hours. Commenter 112 stated that EPA did not include the 167 percent overhead allowance in this calculation. Further, in terms of annual training, commenters 112 and 242 think this will take 8 hrs/yr. Considering the cumulative effect of notification, recordkeeping and reporting associated with the rule, the commenter (242) believes the rule will have an unprecedented impact on the regulated community and State agencies that will be implementing the rule. Commenters 155 and 242 said that EPA has not recognized the extensive recordkeeping and reporting requirements in the 40 CFR part 63 GP and the commenters listed several requirements from the GP as examples of onerous and burdensome requirements (e.g., initial notification of applicability, various notifications including the notification of performance test, compliance reports, reporting related to SSM, various records required such as records of SSM, records of maintenance, records of monitoring). Based on the assumption that the average environmental professional will be responsible for 10 controlled engines, the commenter (112) estimated that 19,800 environmental professionals will need to be trained at an initial cost of $58 million and annual cost of $12 million for refresher training, which does not include the cost for those professionals to educate field personnel about the requirements for which they are ultimately responsible.

One commenter (126) believes the requirement for owners and operators to develop a maintenance plan that specifies how the management practices will be met provides little benefit to anyone. If the manufacturer's maintenance plan requirements are met, then the commenter (126) suggested that there be no maintenance plan and that the owner operator keep appropriate records to demonstrate that it has met those requirements.

Commenter 242 reported that the 40 CFR part 63 GP requirements are currently being reviewed as a result of the litigation concerning SSM. The commenter (242) said that the applicability of 40 CFR 63.7(e)(1), shown in Table 8 of the rule, adds significant confusion and the commenter believes it is inconsistent with the requirements of the rule. It is unclear whether a source needs to be in compliance outside of normal operating conditions because the section with these requirements says "as applies" and the commenter (242) urged EPA to clearly spell out all rule requirements.

One commenter (158) stated that the management practices and recordkeeping requirements are not practical for low-use equipment because logs could need to be retained for years, even decades. For example, if a facility uses a 60 HP diesel-powered welder ten times per year for one hour per use, the proposed regulation would require that operating hours be recorded for 50 years in order to conduct scheduled maintenance. The commenter (158) stated that this is impractical and creates an unjustified compliance risk.

One commenter (104) noted that the proposed 40 CFR 63.6665 section includes additional 40 CFR part 63 GP that apply to this rulemaking. The commenter (104) believes that these requirements increase the complexity of the rule on small businesses that operate engines at oil and gas facilities, especially those entities that have never been regulated before. The commenter (104) asked how EPA plans to simplify the process for these entities.

One commenter (230) stated that the additional recordkeeping and reporting requirements in Table 2d for uncontrolled RICE are unnecessary if a comprehensive planned maintenance program is utilized. The commenter believes that the oil and filter change management practices in Table 2d of the proposed rule may cause an inadvertent recordkeeping violation. The commenter recommends that the schedule should conform to an engine specific planned maintenance program, or the values in Table 2d of the proposed rule should provide an allowance for exceeding the recommended values during an emergency situation.

Response: EPA believes the recordkeeping and reporting requirements are appropriate and justified in order to provide EPA with sufficient information to show that sources are in compliance with the rule. EPA does not believe that the requirements have to be the same for new and existing engines. In many cases, new engines are certified to achieve the emission limitations by the engine manufacturer and therefore EPA determined that these engines could have fewer recordkeeping and reporting requirements than what is in the part 63 General Provisions. EPA does not agree with the commenters that said that an estimate of one hour per year for recording emergency operation was not accurate. EPA did not include costs for recordkeeping for engine maintenance because EPA assumed that engine owners/operators would already be keeping these records even without this regulation. EPA believes that the costs estimated for recordkeeping and training are accurate. In terms of the cost of training and the impact of the rule on small businesses, EPA plans to provide implementation materials to assist affected facilities in complying with the final rule, which should decrease the amount of time needed to become familiar with the rule.

In response to the comment regarding the 167 percent overhead allowance, EPA incorporated the 167 percent overhead and profit allowance in determining the labor rates, which means that the overhead allowance was included in the costs associated with emergency engines. EPA documented this in the proposed rule impacts memo. However, EPA believes the way that this was written up in the proposed rule impacts memo may have been confusing and makes it seem as if 167 percent was added to the $68/hr rate, which is not the case. EPA has clarified this in the final rule impacts memo and believes this resolves the concern on this issue.

EPA does not agree with the commenter that developing a maintenance plan will provide little benefit. It is important that sources have a written plan spelling out the maintenance to be conducted on their stationary CI engines. This plan can certainly be based on the manufacturer's recommended maintenance.

Regarding the comment that the applicability of 40 CFR 63.7(e)(1) shown in Table 8 is confusing, EPA is currently conducting a review of the part 63 General Provisions as a result of the court decision on startup, shutdown, and malfunction. EPA will revise the General Provisions as appropriate.

Regarding the comment that the recordkeeping requirements are not practical for low-use equipment, 40 CFR 63.10(b) specifies that records only need to be kept for five years after the date of the maintenance. Therefore, it will not be necessary for the records to be kept for 50 years. EPA has specified in the final rule that the maintenance should be conducted at yearly intervals at a minimum. EPA has also specified that sources may petition for different maintenance requirements. Any exceedances of the maintenance requirements that occur during emergencies will be handled on a case-by-case basis.

10.2 Comment: Several commenters (76, 81, 103, 104, 118, 119, 129, 136, 148, 150, 157, 225, 240) suggested alternatives to requiring owners and operators having to maintain records on-site.

Several commenters (76, 81, 118, 136, 148, 240) suggested that EPA clarify that necessary records be kept in a central location and not on-site as currently required in 63.6655(e). Commenter (76) recommended that §63.6660(c) be modified to allow records to be kept off-site at a central location for 5 years. According to the commenter (81), this is consistent with EPA and other Federal government efforts (e.g., electronic reporting). Commenter 119 echoed these concerns and specifically requested that the final rule allow records to be maintained at an off-site location for engines located at area sources of HAP.

One commenter (103) expressed that the proposed rule requires records to be kept on site unless a waiver is obtained. The commenter (103) believes that EPA and the states who will ultimately enforce the rule, do not have sufficient manpower to provide the thousands of waivers that will be requested and re-requested every time an engine is relocated. The commenter (103) asserted that a provision for keeping records at a field office should be written into the rule from the beginning because it is an unnecessary burden to require special waivers on items that are not only common place, but also the norm.

Response: EPA agrees with the commenters that it would appropriate to allow records to be kept off-site at a central location. EPA has incorporated this requirement in the final rule.

10.3 Comment: A few commenters (81, 129, 216) said the proposed recordkeeping requirements are unnecessarily rigid for emergency generators. The commenter (81) reported that it operates numerous remote, unoccupied, and often unmanned locations. Such areas are not easily accessed for the creation and maintenance of rigidly-defined documentation. The commenter requested that, should the recordkeeping requirements become too burdensome, it may become necessary to remove the use of emergency generators for use as needed backup power, potentially disrupting communications.

Commenter (216) said EPA should reduce the proposed recordkeeping and reporting requirements for emergency engines. Most emergency RICE start automatically, and much of the equipment may be at remote locations. The requirement to record the purpose of all run events is a burden that will require additional manpower.

Response: EPA does not agree that the recordkeeping requirements that were proposed for owners and operators of existing stationary emergency engines are too burdensome. EPA is finalizing requirements for emergency engines that do not require the application of aftertreatment controls. EPA developed distinct subcategories for emergency and non-emergency engines to account for different characteristics between these types of stationary engines. The analysis that was conducted leading to the final requirements for emergency and non-emergency engines is based on those differences. Therefore, in order to demonstrate that an engine is truly an emergency engine as defined in the final rule, there must be some recordkeeping and documentation associated with the operation of the engine to confirm that the engine is operating according to the definition of an emergency engine and subsequently entitled to meet the less stringent standards. In the case the emergency engine is operated in a non-emergency manner, the more stringent standards that apply to non-emergency engines would apply. EPA believes that keeping track of the hours of operation and the purpose of operation is necessary in order to ensure that the engines are meeting the applicable standards.

10.4 Comment: One commenter (162) said that semiannual compliance status reporting is overly onerous for emergency and limited-use stationary RICE at area sources. The commenter (162) described the specific burden his company would face. The commenter (162) particularly objected to filing reports for RICE that do not even have emission limitations. The commenter (162) requested that semiannual compliance reports be waived for area sources, or at least, for area sources with RICE that do not have emissions limitations.

Response: EPA agrees with the commenter that semiannual compliance reporting, and other types of reporting required under the General Provisions of 40 CFR part 63 are not appropriate for area sources that are not subject to numerical emission standards. EPA believes that recording information and maintaining records will provide EPA with assurance that facilities are meeting the work/management practices and other requirements applicable to their existing stationary engines. Further, EPA believes it is appropriate extend the same approach to any sources that are not subject to numerical emission standards, including existing stationary CI engines less than 100 HP and existing stationary emergency CI engines. Therefore, in the final rule, EPA has specified in 63.6645(a)(5) that these engines do not have to meet the notification requirements of the General Provisions that are specified in 63.6645(a).

10.5 Comment: One commenter (103) stated that records of air filter change dates should only be required, if applicable, since not all engines contain air filters.

Response: EPA agrees with the commenter and has made this clarification in the final rule.

10.6 Comment: Several commenters (130, 150, 175, 227, 230, 255) provided comments on the requirement to maintain records of fuel consumption rates and/or the use of fuel and hour meters.

One commenter (255) expressed that EPA should not apply the NESHAP meter requirement to existing emergency RICE which operate infrequently. The commenter (255) stated that the 100 hour per year limit (for which the meter requirement was established for) can be exceeded by petition or if state or local requirements mandate operation for more than 100 hrs/yr, in which case no petition is necessary. The commenter (255) requested that the requirement to install a non-resettable hour meter not be imposed on existing RICE that are dedicated to emergency service. If it is necessary to record and report the annual operation of such engines, the commenter (255) suggested that the operator be permitted to use other methods. This commenter (255) opined that the cost of installing a meter on existing RICE dedicated to emergency service is unwarranted given the prospective limited operation of such engines. Commenter 230 suggested the use of an operating log book and tracking fuel usage. The fuel usage could be calculated from consumption rates at minimum load and tracked as a rolling 12-month period.

One commenter (130) stated that not all engines used for agricultural purposes have hour meters. The commenter (130) noted that this could be problematic during a field inspection and suggested allowing owners/operators to use their estimates of operating time for the purposes of conducting scheduled maintenance.

Response: EPA does not agree that existing emergency engines should not be required to install nonresettable hour meters. These meters will provide incontrovertible documentation of the total hours of operation for these engines, which would not be the case if fuel usage information is used. In response to commenter 130, the commenter did not explain why it would be problematic for agricultural engines to install hour meters or why this would be problematic during field inspections.

10.7 Comment: One commenter (104) noted that proposed 40 CFR 63.6640 requires each instance in which an operator did not meet each emission or operating limitation to be reported. The commenter (104) questioned whether EPA really wants to know every instance an operator runs over an oil/filter or spark plug change or inspecting belts/hoses by 1 hour. The commenter (104) believes this reporting effort will be burdensome and costly and provide no environmental benefit. The commenter (104) requested that EPA remove this requirement when there is no specified emission limit for engines located at an area source.

Another commenter (150) also believes that the proposed reporting requirements are overbroad for operating requirements. The commenter (150) indicated that recordkeeping and reporting should be reserved for the most significant activities.

Response: EPA believes that the reporting of failures to meet emission or operating limitations benefits the environment. This type of reporting provides information to the enforcing agency about the typical operation of the engine and therefore will help the enforcing agency better understand and identify problems and determine the compliance status of the affected source. The instances when the affected source does not meet the applicable emission or operating limitations are considered deviations and must be reported. These requirements are consistent with language in the General Provisions of 40 CFR part 63 and are appropriate for stationary engines subject to NESHAP.

10. 8 Comment: One commenter (104) noted that proposed 40 CFR 63.6645 requires existing stationary engines located at area sources to submit all notifications in accordance with 40 CFR 63.9 (b) through (e), (g), and (h), which requires multiple notifications including a 120-day initial startup notification, a 60-day notification of an upcoming performance test, and notifications of compliance status. The commenter (104) stated that many states already have permitting or other processes in place whereby the state is “notified” that a facility is beginning operations, conducting performance tests, and showing compliance. The commenter (104) asserted that additional, duplicative notifications to EPA are burdensome and costly and provide no environmental benefit. The commenter (104) requested that the notification requirements be removed for engines less than 500 HP that are located at area sources.

Response: In most instances the State or local agency will be the delegated authority for ensuring compliance with the NESHAP and will receive the rule notifications. Moreover, even in cases where it is not, the requirement of sending two notifications where two different entities are regulating the engine, is neither overly burdensome or unnecessary. Therefore, EPA disagrees that the reporting efforts are duplicative, burdensome and costly. EPA has retained the reporting requirements as proposed.

10.9 Comment: One commenter (134) believes that the proposed reporting and recordkeeping requirements are confusing and contraindicated for RICE at area sources. The commenter (134) noted that the proposed §63.6665 identifies which RICE will be exempt from complying with any of the requirements of the 40 CFR part 63 GP and includes a new or reconstructed RICE located at an area source. The commenter (134) stated that all other RICE located at area sources, whether subject to numerical standards or work practices, must comply with numerous GP requirements, such as developing and maintaining an SSM plan, keeping records of SSM events and actions taken during periods of SSM, periodic reporting of any SSM events linked to exceedances and immediate reporting of any malfunction, records of any startup or shutdown that causes exceedances. The commenter (134) stated that these SSM requirements are just a few of the numerous requirements listed in Table 8 of the proposed rule. The commenter (134) stated while EPA has exempted existing RICE that are not subject to any numerical emission standards from complying with some notifications, we fail to understand, and EPA has not explained, why these RICE should be subjected to the onerous SSM recording and reporting requirements. The commenter (134) stated that it is unclear how RICE subject to work practice requirements will be able to record accurately the "duration" of a startup, shutdown or even a malfunction when there is no real technical ability to do so. The commenter (134) recommended that, for the "immediate reporting" requirements of §63.10(d)(5)(ii), these reports be incorporated into otherwise required periodic reports as provided for in other NESHAP for RICE subject to work practices at area sources.

Response: New or reconstructed stationary RICE located at area sources do not have to comply with the part 63 General Provisions because they comply with subpart ZZZZ by complying with 40 CFR part 60 subpart IIII or JJJJ as applicable, and therefore are subject to the 40 CFR part 60 General Provisions. EPA does not agree with the commenter that the requirements in the part 63 General Provisions are too burdensome. The recordkeeping and reporting requirements in the General Provisions allow EPA to determine whether sources are complying with subpart ZZZZ. The commenter did not provide any information to support the claim that it is not technically feasible to record the duration of startup, shutdowns, and malfunctions.

10.10 Comment: One commenter (150) stated that the requirement to keep records of all maintenance activities would be onerous and unnecessary in practice. The commenter (150) recommended that the requirement be amended to require only records of key maintenance activities such as oil and filter changes, spark plug replacement, overhaul, and rebuild, or associated activities that require an engine to be brought off-line.

Response: EPA disagrees and does not believe that keeping records of maintenance performed on the engine is an onerous activity. In many cases maintenance records are already being kept and it is in the best interest of the owner and operator to maintain such documentation to ensure that the engine is properly taken care of.

10.11 Comment: One commenter (174) asked that, for engines used for agricultural purposes, recordkeeping only be required of affected engines located in non-attainment areas. The commenter (174) stated that the public health impacts from agricultural engines located in rural areas would be lower than the impacts from engines located in urban, and particularly non-attainment areas.

Response: EPA must address emissions from existing stationary engines in all areas. The determination of whether an area is in attainment or non-attainment with the National Ambient Air Quality Standards (NAAQS) applies only to the few criteria pollutants for which these standards have been established. Section 112 of the CAA pertains to HAP and only one hazardous air pollutant listed in section 112 of the CAA (lead) is subject to NAAQS. Therefore, the NAAQS attainment status of the engine location is not an appropriate distinction for reporting requirements in this NESHAP.

10.12 Comment: One commenter (87) stated that the determination of maintenance frequency for emergency generators must include input from the owner of the equipment who fully understands the risk to the business of the emergency generator failing to operate when needed. Commenter (87) recommends that the parties listed who can provide input for maintenance checks and readiness testing include the owner/operator of the equipment (in addition to Federal, State, or local government, the manufacturer, the vendor, or the insurance company associated with the engine). Related to recordkeeping requirements for emergency generators, this commenter (87) also questioned the value of recording the amounts of oil added to the RICE and its relationship to maintaining compliance with work practice standards, and characterized the proposed recordkeeping requirements as burdensome. Commenter (87) recommends the agency revise the recordkeeping requirements to focus on the dates of maintenance and a general description of the maintenance required.

Response: In the final rule EPA has included a provision that allows owners/operators to petition the Administrator pursuant to 40 CFR 63.6(g) for alternative work practice requirements. EPA does not agree that the recordkeeping requirements are burdensome. The rule does not require records of the amounts of oil added. EPA is in agreement with the commenter that the records should include the dates of maintenance and the description of the maintenance that was performed.

11.0 Fuel Requirements

11.1 Comment: Two commenters (116, 141) expressed support for meeting the 15 parts per million (ppm) sulfur in diesel fuel for existing non-emergency CI engines. The commenters (116, 141) also recommended that ULSD fuel be used in existing CI emergency engines. The commenters (116, 141) provided that this would be consistent with 40 CFR part 60, subpart IIII, which requires all applicable engines (both emergency and non-emergency) to use ULSD fuel beginning on October 1, 2010.

One commenter (215) supported EPA's proposal to require existing diesel engines greater than 300 HP to use ULSD, but requested EPA require the ULSD for all existing stationary diesel engines. The commenter (215) noted that EPA required ULSD for new stationary diesel engines in the NSPS, and believes the same standards are cost effective and achievable for all existing diesel engines. The commenter (215) pointed out that ULSD reduced emissions of SO_2, and enables the use of aftertreatment control technologies. In addition, the commenter stated that existing diesel engines less than 300 HP should be required to use ULSD because of the direct emission reductions.

Response: EPA is supportive of the use of ULSD in existing diesel engines but does not agree that it would be appropriate to mandate this for all existing diesel engines in this NESHAP. EPA does not have, and the commenters did not provide, any data on whether HAP reductions are achieved by using ULSD and therefore could not require the use of ULSD as a HAP reduction technique for emergency engines and for non-emergency engines smaller than 300 HP. The final rule requires non-emergency engines larger than 300 HP to use ULSD because the emission standards for those engines are based on the use of oxidation catalyst control; the use of ULSD will reduce the potential formation of sulfate compounds for engines equipped with oxidation catalyst control and will aid the operation of engines equipped with oxidation catalysts.

EPA believes that as the supply of ULSD becomes widespread in the coming years, many emergency engines will utilize this fuel anyway, even though they are not required to do so by this regulation.

11.2 Comment: One commenter (96) thought that EPA should only subject diesel engines with 1996 or later model years to the ULSD requirements. Commenter 96 is in general support of the fuel requirements, but said that older engines are subject to fuel seals and other features that cannot tolerate ULSD without risking engine deterioration and for that reason should be exempt from ULSD requirements. Similarly, one commenter (76) noted that ULSD may not work well with older engines less than 300 HP.

Response: EPA does not agree that diesel engines that are older than 1996 model year should not be required to use ULSD. The commenters did not provide any information in support of the claim that older existing engines would not be able to tolerate ULSD.

11.3 Comment: One commenter (78) said the rulemaking assessment should include the effect of engine location when evaluating feasibility and cost of retrofit requirements. Fuel and infrastructure constraints must be considered. For example, the commenter (78) operates in Kauai, and electrical interties between the Hawaiian islands do not exist. There is no natural gas on Kauai, and all generating units use #2 diesel fuel, which must be brought by barge to the island. These factors affect the cost and feasibility of measures that require the use of ULSD. An additional cost relates to the fact that the commenter (78) does not own its own fuel storage facilities. A requirement to use lower sulfur fuels in one type of generating unit would mean that the commenter (78) would have to use the same fuel in all of his generating units, which would be an additional cost factor.

Commenter (78) noted that Hawaii faces increased costs because everything used on the island (Kauai) must be shipped in. Any evaluation of cost effectiveness must account for the premiums that will be paid for materials, equipment, and labor on the island.

Response: The commenter did not provide any information to indicate that it would be much more costly to fuel its engines with ULSD instead of #2 diesel fuel or that it would not be able to obtain ULSD. The use of ULSD is becoming widespread and will be even more widespread by the time existing engines must comply, because by that time ULSD will be required to be used in on-highway vehicles, nonroad engines, and new stationary engines, including those in Hawaii. The commenter did not provide any information to support the claim that the costs in Hawaii of changing from uncontrolled #2 diesel fuel to ULSD would be higher than for other areas of the U.S.

11.4 Comment: One commenter (261) believes that EPA should clarify in the rule that existing RICE should be allowed to complete use of existing fuel stocks even if they become subject to the ULSD requirements. The commenter (228) noted that many smaller sources have no effective way to drain and dispose of the fuel already placed in RICE tanks. The commenter (228) stated that EPA should clarify that no additional non-ULSD may be purchased for units after the effective date, but that existing in-tank stocks may be used until exhausted, at which time ULSD must be used. The commenter (228) believes this simplifies an otherwise complex problem in trying to drain tanks and manage the residual non-ULSD fuel.

Response: Affected sources do not have to comply with the final rule until three years after the date the rule is promulgated. This time period would allow the existing fuel stocks to be used up.

11.5 Comment: Four commenters (108, 157, 216, 230) responded to EPA's request for comment concerning an option to prohibit the burning of crankcase oil or mixing crankcase oil with fuel in engines equipped with exhaust after treatment technologies. The commenter (230) was concerned that EPA has not evaluated the potential net increase in used oil disposal costs which may result from this option. The commenter (230) noted that fuel oil blending costs approximately $50 per drum, whereas disposal by incineration is approximately $165 per drum.

One commenter (216) supports the utilization of on-specification used oil fuel as an important practice to support state and federal programs to reduce waste generation and as a good environmental practice.

One commenter (157) believes that EPA should permit the use of crankcase oil for energy recovery, and to not further restrict the burning of specification used oil for energy recovery. The commenter noted that air permits for a power company that operates several diesel engines that supply electricity to remote locations are allowed to burn specification used oil, including crankcase oil when the following conditions are met:

- The blend meets the used oil specification listed in 40 CFR §279.11;
- The blend is not classified as hazardous waste; and
- The blend is limited to equipment owned, operated, or maintained by the company.

The commenter (157) reviewed the companies fuel usage data for the past five years and found that specification oil accounted for less than 0.25 percent of the annual diesel fuel usage for these diesel engines.

One commenter (108) believes contamination of catalyst elements has been an issue for many years, and the company has worked with oil suppliers and determined, by extended field testing over the past five years, that proper catalyst friendly oil will not foul the catalyst elements. The commenter (108) stated that oil provided by Mobil and labeled CF (catalyst friendly) is available as a standard item on the market. Therefore, according to the commenter (108), combusting crankcase oil will not have any effect on the catalysts and requested that no restrictions be imposed on burning of small amounts of oil with engine fuel.

Response: The final rule does not specifically prohibit this practice but does contain fuel requirements for non-emergency engines greater than 300 HP that affected sources must meet in order to ensure proper operation of post-combustion controls.

12.0 Docket Materials/Transparent Regulatory Process

12.1 Comment: Several commenters (76, 112, 130, 150, 155, 224, 242) thought the docket for the proposed rulemaking is inadequate and relies on outdated information, and that information in the docket is not always appropriately cited in order to provide a transparent and clear picture of how EPA developed the proposed rule. EPA has not met its objective in providing rulemaking transparency, the commenters (155, 224, 242) said. For example, the PSR database, which is the basis for population estimates is not available in the docket because it is not a public product, commenters 155, 224, 242 said. Therefore, the commenters (155, 224, 242) were unable to review and verify the information regarding the number and types of engines.

The commenters (155, 242) said that the use of proprietary data is in conflict with the idea of transparency outlined by the Administrator and the short comment period did not allow for a FOIA request to be submitted. EPA should document and fully disclose all relevant calculations, equations, and assumptions related to the PSR database and any spreadsheets used to support assumptions should also be provided in the docket, the commenters (155, 242) said. One commenter (76) noted that was no discussion in the preamble regarding the population database that discusses how and when the database was populated. Similarly, test reports used by EPA to set the standards were not in the docket either, the commenter (155) said. Commenters 155 and

242 added that the docket relies in large parts upon old data from other rules. For example, such as the Emissions Database, which contains data primarily from the 1990's and control cost information gathered in 2003, commenters 112, 150, and 155 said. The commenters (155, 242) could not find evidence of a more recent data gathering effort and information and assumptions were adopted from older rulemakings without revisions to current levels.

One commenter (224) stated that documents from previous rulemakings that were used in the development of the proposed rule were not appropriately cited in the docket and that this oversight hinders commenters' ability to review and comprehend EPA's analysis. The commenter (224) was specifically concerned with documents related to the cost analysis. The commenter (224) noted that a robust docket should be developed in order to support regulatory transparency.

The commenter (150) also believes that EPA has failed to give proper consideration to urban vs. rural area regulatory distinctions and that the docket lacks support for the conclusion that emissions from remote area sources cause adverse human health effects (which is used as the basis for the proposal to require catalysts on certain engines even in rural areas). The commenter (150) indicated that the docket reference for capital equipment and operating and maintenance costs for controls is flawed in that EPA has failed to address and consider guaranteed life, expected life, catalyst replacement cost, tuning or maintenance recommendations, and potential costs related to retrofit applications versus new equipment. The commenter (150) also stated that limitations related to fuel quality limitations have not been properly considered.

One commenter (130) cited the following examples of EPA's failure to comply with the new administration's goals of science-based decision-making and transparent rulemaking:

- Failure to conduct risk-based analyses for area sources;
- Failure to consider the difference between urban and rural area sources;
- Lack of transparency in cost-effectiveness determinations (e.g., based calculations on cost estimates from one vendor);
- Failure to provide supporting data for proposed emission limits; and
- Reversal of EPA's previous assertion that the database developed for the 2004 RICE MACT contained insufficient data to regulate engines less than 500 HP by using the same database to develop the proposed rule, which includes emission standards for such engines.

The commenters (155, 242) expressed that it was in general difficult to understand EPA's basis for regulatory decisions and in some cases information necessary to follow EPA's analysis was not traceable. The commenter (155) stated that it was hindered in its review and indicated that it was not capable of providing complete input to EPA because of it. The commenter (155) believes EPA should obtain additional data, perform new analyses, and clearly present the analysis and supporting documentation in the docket for the regulated community to review. The commenters (155, 242) said that EPA has not met its goal of providing a transparent regulatory process.

<u>Response</u>: The docket to the proposed rulemaking contained the information that was available to EPA at the time of the proposal development and that EPA used to support the proposed rule. While some of the information in the docket may be several years old, it was the best information EPA had on hand at that time. In response to comments related to the use of older stationary engine test reports, EPA has repeatedly asked industry to provide emissions test data

for different rulemakings over the last several years; however, the response and submittal of actual test data for stationary engines has been minimal. EPA did an advance notice of proposed rulemaking for this rule to try to obtain additional new test data. However none was received. Since the publication of the proposal, EPA has received new test data for engines above and below 500 HP. EPA has incorporated the new test data into its final MACT floors for the 100-300 HP, 300-500 HP, and 500 HP and above subcategories.

EPA does not agree that information in the docket was not appropriately cited and EPA purposely tried to minimize duplication by referring to materials developed for previous rulemakings affecting the same and similar engines. EPA recognizes that commenters may not clearly have understood the analysis that was performed for the proposed rulemaking. EPA tried to answer any questions that were received post-proposal from industry and other affected stakeholders. For the final rulemaking, EPA has made an effort to be as clear as possible in support memoranda, preamble language, and other background materials, in order to provide at transparent rulemaking process. By clearly explaining rationale and assumptions, EPA believes the final rule is clear as far as the basis for regulatory decisions is concerned.

Specifically, for the final rule, EPA has provided the original PSR figures that EPA used to develop population estimates. EPA has also clearly described in supporting documentation how the affected number of engines was estimated for the final rule. Both of these materials are available from the final rulemaking docket and commenters will be able to review and verify the information related to the stationary engine population. For more information on the population of engines affected by the final rule and the impacts associated with the final rule requirements, please refer to the memoranda entitled “Existing Population of Stationary RICE” and “Impacts Associated with NESHAP for Existing Stationary CI RICE.” EPA does not agree that it should have conducted risk-based analyses for area sources. Section 112(d) rulemaking is intended to be technology based, with only certain provisions, not applicable here, dealing with risk. EPA explains its rationale for regulating area source CI engines in rural areas in section 2.0 of this document. EPA did provide the data to support the emission limitations via the RICE Emissions Database that is publicly available on EPA's website.

EPA has in supporting documents to the final rule made a significant effort in clearly describing the basis and information used for the final rule. EPA believes that the docket to the final rule contains the information necessary, and the information is presented in such a manner that it clearly illustrates the process for arriving at final decisions and provides a transparent rulemaking process.

13.0 Rule Impacts

13.1 Economic Impacts

13.1.1 Comment: Several commenters (81, 89, 93, 97, 101, 103, 104, 111, 112, 121, 126, 130, 132, 136, 140, 150, 151, 155, 176, 186, 187, 203, 204, 205, 207, 216, 220, 221, 224, 231, 241, 242, 249, 251, 261) expressed that the costs are not representative of actual costs of implementing the rule and numerous commenters said that the proposed rule will have a significant financial impact on their sources. According to the commenters (155, 242), EPA has underestimated the cost impacts of the rule by an order of magnitude or more. Numerous commenters indicated that EPA has used old, faulty, and inappropriate data on the cost of controls, testing, recordkeeping and reporting to estimate the economic impacts of the rule.

Commenters 155 and 242 said that EPA should gather current information on the cost of controls and redo the cost calculations. The commenters (155, 242) provided specific examples of where they believe EPA has used inappropriate cost information in other comments in this RTC document, but the following also lists some main examples: (Commenter 241 noted some of the same concerns in its comments).

- EPA should present all costs associated with the rule in 2013 dollars and not in 2007 dollars.
- The models used to estimate the capital and annual costs of add-on controls underestimate the costs and not all equipment components have been included.
- Concerns regarding add-on controls for diesel engines being based on oxidation catalyst controls for gas engines rather than CDPF. The commenters (155, 242) believe that the oxidation catalyst cost model for natural gas engines should not be used for diesel engines and since based on EPA's document (EPA-HQ-OAR-2008-0708-0017) the annual costs for oxidation catalyst are three to four times lower than CDPF, EPA has significantly underestimates the cost impact for diesel engines.
- Efficient HAP, CO and NO_x control is highly dependent on engine operation and exhaust gas temperature and 90 percent reduction cannot be assumed. Actual CO reductions and possible increases in greenhouse gas and ammonia emissions should be taken into account during a revised cost impact analysis.
- Two commenters (104, 155) said that not all existing engines have hour meters.

Similarly to the specific concerns listed above, commenters 112 and 186 believe that EPA has underestimated the total cost of this rule by underestimating the number of engines requiring the addition of catalyst; assuming that catalysts can simply be added to effectively control existing engines; overlooking the significant cost of field installation; and underestimating the complexity of and administrative/operational burdens added by this rule. The commenter (112) stated that the cost effectiveness of controls in $/ton are particularly concerning, because only the annual control cost of the catalyst and associated HAP reductions appear to have been considered and not all the additional costs after controls are added to an engine (i.e. performance testing, SSM and maintenance recordkeeping, reporting, lost production/revenue, etc.). The commenter (112) requested that EPA re-evaluate the economic analysis to include deficiencies in the cost estimates.

Several commenters (90, 118, 146, 178, 184) provided comments about the economic impact of the rule on emergency units. One commenter (90) stated that overall the cost per ton of HAP or CO removal would be excessive for emergency CI engines since emissions were well below a ton/yr and the units use is very limited and intermittent.

More specifically, one commenter (146) estimated only 2 of 14 emergency units at two of their major sources may be able to be retrofitted at a cost of $65,000 each. The others would need to be replaced at a cost of $1,350,000 plus an additional $110,000 each for source testing. The commenter’s (146) 9 area source RICE units that would be subject to a NESHAP emission standard would need to be replaced at $720,000 each. These costs would be for only 20 to 40 hrs/yr of operation and thus resulting in minimal emissions reductions. Another commenter (178) noted that engine manufacturers do not recommend the use of after treatment devices for emergency engines, and that EPA appeared to support that position in the Regulatory Impact Analysis, which states that cost per ton removal of HAP ranged from $1 million to $2.8 million for engines larger than 500 HP and from $3.7 million to $8.7 million for engines between 50 and 500 HP.

One commenter (184) provided calculations of worst and nominal cases emissions and cost per ton removal of CO to justify exemption of combustion turbine peaking unit devices. The worst case estimate was 0.13 tons of CO removed at a cost of $107,692 per ton and 0.016 tons CO removed for the nominal case at a cost of $875,000 per ton.

One commenter (107) said that the proposed rule for existing CI engines greater than 300 HP at area sources is cost prohibitive for facilities with peak shaving engines with low operating hours. The commenter (107) estimated that the cost per ton of HAP removed from these units would range from $200,000 to $1 million, similar to the cost for emergency generators.

While reducing HAP is an important goal, one commenter (204) believed that the overbroad approach taken by EPA in subjecting all the RICE equipment in question to the requirements proposed, regardless of whether the equipment is located in urban or rural areas, particularly when considering the Congressional intent of reducing HAP in urban areas given the potential risks to public health, and the imposition of costs in excess of $528 million to reduce 13,000 tons of HAP a year (i.e., a cost of $40,615 per ton) should be carefully scrutinized.

One commenter (203) noted an additional concern with the proposed rule is the potential impact of parasitic load resulting from the use of catalytic diesel particulate filters (CDPF) and oxidation catalysts. Some back pressure penalty is associated with the use of both CDPF and oxidation catalysts methods to control HAP, the back pressure can increase with time, which may require regeneration of the catalyst or changing filters. The commenter (203) believed that for those utilities that operate RICE with only marginal excess capacity, addition of either type of control could require installation of additional RICE capacity to maintain the needed reliability level. The commenter (203) noted that it will not be possible to design around the pressure drop for existing engines and that the penalty should have been addressed and included by EPA in the cost assessment of retrofit and operation for the control devices.

Another commenter (136) indicated that EPA's estimates are low for the capital and operating costs associated with the use of catalytic control, and are based on pricing data from one vendor and a limited number of data points. The commenter (136) asserted that EPA's capital estimate and annual operating cost estimate for catalytic controls are each low by an order of magnitude of 2 to 3. The commenter (136) also stated that because beyond-the-floor standards (which require catalytic controls) are based on the cost per ton of HAP removed and EPA significantly underestimated capital and operating costs of catalytic controls, EPA must reanalyze the proposed rule with better cost data to determine when catalysts are economically practical.

One commenter (81) said EPA's cost estimates are based on a number of incorrect assumptions for emergency generators. The commenter (81) said EPA does not appear to consider any costs associated with testing emergency engines, even though owners may deem it prudent to test to confirm they are meeting the standard rather than risk an enforcement action if the unit does not meet the standard. Testing to comply with the 100 percent load requirement will require owners to purchase or rent load banks to meet the conditions contemplated in the standard, which can cost up to $10,000 per site. The load bank costs alone could add up to as much as $973 million. In addition, equipment modifications (sample ports) would be necessary to test emissions, and EPA has not included these costs in its calculations.

One commenter (121) said the cost information contained in the docket for test costs is not representative of the sampling costs required to comply with the standards as proposed. Members of the commenter's (121) organization indicated that the cost per sample run using

Methods 1, 3, 4, and 10 could easily exceed $10,000, excluding costs to prepare for the sampling (i.e., scaffolding, stack extensions, etc.). In addition to these cost considerations, as a practical matter, there would be significant difficulty in performing these EPA test methods on engine exhaust.

According to one commenter (81), if aftertreatment is required to meet the emergency engine numerical limitations, that cost must be considered. Because many emergency engines are likely located in older buildings where space is limited, installation of controls could necessitate some reconfiguration of the building, at substantial costs with minimal environmental benefit.

One commenter (140) said the primary impact of the proposed rule on the company is the requirement to conduct an initial performance test on each engine with an emission limit. Using EPA cost numbers, the company would spend at least $47,600 to test its units. However, because the RICE are spread over such a large area (500 square miles), the testing costs would be as much as $200,000 due to logistics, travel costs, additional labor for travel, access to remote areas, etc. Additional costs would be incurred if add-on controls were needed to meet the emission limits and due to O&M requirements, recordkeeping, and reporting requirements imposed by the rule.

One commenter (150) stated that if the General Provisions of 40 CFR part 63 are to be applied to engines that are the subject of this rulemaking, EPA should gather information on costs and complete a cost/benefit analysis for reporting and recordkeeping.

One commenter (251) expressed that the proposed rule would put an incredible strain on not-for-profit entities, or hospitals, specifically. The commenter (251) reported that all of its hospitals are operating with negative margins and the cost of the proposed rule would pull resources from direct patient care.

Commenter 249 contended that EPA's proposed controls are cost prohibitive. This commenter (249) stated that the EPA should prepare a generic $/ton BACT analysis regarding the proposed controls that will be needed to meet proposed emission limits, and claimed that this analysis will clearly show that the $/ton costs are prohibitive.

Commenter 249 noted that existing engines at area sources of HAP are required to meet emission limits ranging from 4 ppmvd or 90 percent CO reduction for non-emergency CI engines between 50 and 300 HP to 40 ppmvd CO for emergency CI engines greater than 500 HP. Commenter 249 claimed that costs to meet these rigid limits will be prohibitive and will impact emergency engines used throughout the United States at all kinds of facilities that provide vital safety requirements.

Commenter 249 presented example cost quote and BACT analysis. Commenter's (249) BACT analysis was prepared to reduce formaldehyde by 90 percent (from an emission rate of 4.26×10^{-4} lb/hr to 4.26×10^{-5} lb/hr) using EPA recommended guidelines for a 0.5 MW (670 HP) engine. In commenter's (249) analysis the cost effectiveness is calculated to be $109,639,280/ton (assuming 10 year amortization rate) for reducing formaldehyde base on 100 hrs/yr of operation. By comparison, commenter 249 claimed that in most areas of the country, BACT is considered reasonable if the costs are approximately $5,000 to $10,000/ton depending on the pollutant. Commenter 249 noted that additional costs would be incurred for construction, maintenance and upkeep costs.

Commenter 220 claimed that EPA has proposed compliance requirements that are more stringent than GACT requirements or management practices and that EPA has decided to institute MACT. However, even under MACT EPA can consider cost and energy impacts. The commenter (220) disagreed with EPA's conclusion in the RIA that the rule will not likely have a significant impact on the supply, distribution, or use of energy. The commenter (220) said that the proposed standards could have a very detrimental impact on energy reliability, and many units may have to be shut down due to the cost of compliance.

One commenter (261) believes that economic impact estimate by EPA is extremely low. The commenter (261) noted that EPA estimated the initial capital cost for control equipment to be $528 million and the annual cost to be $345 million. The commenter (261) stated that the industry believes that the capital cost is a factor of 10 higher and the annual cost to be a factor of 4 higher. The commenter (261) gave the following reasons for EPA's low estimate:

- Not all existing engines requiring controls can simply add a catalyst, some engines must be replaced;
- EPA estimated the performance test to cost $250-500 when the cost for many engines is approximately $8,000;
- EPA falsely assumed the proposed maintenance requirements adds no cost to the industry; and
- The administrative burdens of the rule were underestimated or left out entirely.

One commenter (242) said, as also noted in earlier comments by this commenter and others, that EPA has not considered the high demand of catalysts that will be the result of this rulemaking. The impacts of a large demand of catalysts should be included in EPA's cost analysis to determine the effect based on vendor and catalyst availability, precious metal markets, and potential replacement costs, commenter (242) said.

Two commenters (104, 112) stated that EPA estimates of the cost of performance testing (based on performing test using a portable analyzer and discounts for testing multiple engines at every site) at \$500 for engines less than 500 HP and \$250 for engines greater than 500 HP. While the commenter (112) conceded that performance testing using portable testing equipment is less expensive for CO testing for lean burn and CI engines, the commenter believes \$500/\$250 per test is an extremely low estimate.

Response: EPA used the information it had available at the time of proposal to estimate the cost impacts associated with the rule. This information included cost data obtained for the development of previous stationary engine rulemakings, which EPA believed would be appropriate to use for this rulemaking. Based on the significant number of comments received on the proposed rule costs, EPA revisited its cost analysis and assumptions underlying the proposed rule and revised that analysis in the final rule.

EPA has made several attempts to obtain more current cost information, including through an advance notice of proposed rulemaking for this rule. EPA agrees with the commenters that it is inappropriate to base the cost for a diesel oxidation catalyst on the costs for oxidation catalysts for spark ignition engines. Therefore, EPA has based the catalyst cost estimate in the final rule on cost data for diesel oxidation catalysts obtained from a CARB study. More information on the cost estimate can be found in the memorandum entitled “Control Costs for Existing Stationary CI RICE.” The cost estimates are based on the use of diesel oxidation catalyst rather than CDPF because CDPF is not required by this rule. All of the standards promulgated in this rule, to the extent they require aftertreatment, can be met using oxidation catalysts and we believe that sources will generally choose to use oxidation catalyst control because they are less costly that CDPF and achieve similar reduction in HAP. While some sources may choose to meet the standards using CDPF, that choice is not required by the standards promulgated in this rule. Based on a reanalysis of the MACT floor data and above-the-floor options, taking variability into account, the final rule requires engines equipped with catalysts to achieve 70 percent reduction rather than the 90 percent that was proposed. The commenter did not provide any information to show that the aftertreatment controls likely to be used to meet this rule would lead to increases in greenhouse gas and ammonia emissions.

Regarding the comment that catalysts cannot be added to existing engines, the commenter did not provide any information to show what engines would not be able to be retrofit. Regarding the concerns expressed about backpressure increases, the commenter did not provide any data to support the claim that the backpressure increases are so high that they would severely impact the engine output.

EPA does not agree with the claim that the rule will put a strain on hospitals. The stationary diesel engines at hospitals are typically emergency engines and EPA has determined that emergency engines located at institutional facilities such as hospitals that are area sources are not part of the listed source category and are therefore not subject to the final rule. EPA does not agree with the commenters that it is not appropriate to require peaking units and stationary diesel engines that are located in rural areas to install controls. This is discussed in more detail in the response to comment 2.1.1. EPA has specified in the final rule that performance testing is not limited to 100 percent load, so it should not be necessary to include the cost of a load bank in the performance testing cost. EPA has incorporated the costs for testing, monitoring, recordkeeping, and reporting in the cost analysis and believes that its estimates for these costs are appropriate. The costs for testing are based on information from source testing companies. As a result of the comments on testing costs, EPA reevaluated the estimate of how many engines could be tested in a single day and determined that two engines could be tested at a facility in one day, rather than three as was estimated in the proposal.

Regarding the concerns expressed by the commenters about the impact of the rule on emergency engines, the final rule requires existing stationary emergency engines to meet work practice or management practice standards, rather than numeric emission limitations; these work practices and management practices do not require that these engines be retrofit with aftertreatment controls or be tested to determine compliance. Information provided to EPA by engine manufacturers indicates that most engines are already equipped with an hour meter; therefore, EPA did not add this cost into the rule. EPA does not believe that the final rule will cause owners/operators to replace their emergency engines. The final rule imposes work or management practices on these engines, which EPA believes will not be overly burdensome to facilities and will not cause the retirement of existing stationary emergency engines.

13.1.2 Comment: One commenter (242) said that EPA should develop an estimate of the costs for implementing NESHAP requirements for existing area sources within synthetic minor permits. Sources have in the past opted to install controls beyond what is required in order to avoid Title V thresholds and to become synthetic minors for HAP. This is a problem because the proposed rule would apply many onerous provisions that were previously avoided, including more stringent emission limits, and will become a disadvantage for those sources that chose to over-control their engines in the past.

Response: EPA has made several revisions to the proposed requirements and is finalizing a rule that in many cases significantly reduces the burden on existing stationary engines located at area sources. Therefore, EPA does not believe the final rule places many onerous or inappropriate provisions on the existing stationary engines the commenter is referring to. Also, what the commenter is asking EPA to do in terms of synthetic minor sources is outside the scope of this rulemaking.

13.1.3 Comment: Three commenters (101, 104, 177) were concerned how the proposed rule would impact small business.

One commenter (177) believes that the SSM limits could significantly impact small businesses and force them into noncompliance during startup, shutdown, or malfunction conditions. The sources will become subject to noncompliance penalties and other enforcement risks even though the engines have been operating in the same way for more than a decade. The commenter recommended that EPA suspend the SSM rulemaking and convene a Small Business Advocacy Review (SBAR) Panel on SSM under section 609(b) of the Regulatory Flexibility Act (RFA).

Response: The commenters did not provide any information to demonstrate why the proposed SSM requirements would have a more significant impact on small businesses than on other sources. Regardless, EPA in the final rule has specified work practices for startup that these sources can comply with that should not have a significant negative impact on these sources. As discussed in section 3.0, EPA has made changes in the final rule to the SSM requirements that were proposed, and EPA believes these changes will address the commenter's concerns regarding the impacts of SSM on small entities.

13.1.4 Comment: Two commenters (147, 194) expressed that the proposed rule would have a significant impact on agricultural sources. One commenter (194), on behalf of the agricultural industry in their state, stated that, because of the retroactive nature of the proposed rulemaking, it places a burden on agricultural operators without having viewed the costs of testing and other compliance measures for existing engines and lacks both economic and environmental justification. The commenter (194) stated that the operational use of engines used in the powering of irrigation and lift pump facilities has not been factored into EPA's evaluation nor has data been submitted that supports a need beyond the normal replacement cycle of engines that is naturally occurring due to wear and tear of existing operating engines. The commenter (194) argued that the costs associated with requiring retroactive compliance does not recognize that the normal replacement process for such engines will produce the same reduction in emissions due to new engine performance standards being present when these existing engines are replaced without putting a burden on both the owners of the engines and on the regulatory agencies responsible for administering the programs.

One commenter (147) stated that the economic impact of the proposed rule on the agriculture industry would be extremely high and would significantly outweigh any environmental benefit. The commenter (147) submitted data indicating total HAP emissions from all RICE operated by the Florida sugar industry to be less than 2 tpy. Based on EPA's estimates for performance test costs, the commenter (147) calculated a cost effectiveness for this industry of $271,500 per ton of HAP reduced assuming all of the HAP emissions were eliminated due to the proposed rule. The commenter (147) therefore requested that rural, agricultural RICE be exempted from numeric emission limitations and performance test requirements.

Response: For stationary non-emergency CI engines greater than 300 HP, EPA does not agree that it would be appropriate to wait until these engines are replaced to require emissions reductions. Stationary diesel engines can in some cases operate for decades before they are replaced. EPA determined that the costs of the rule are justified considering the emissions reductions that will be achieved. The commenter did not provide any information to support the contention that stationary agricultural engines are significantly different enough from other applications to warrant a separate subcategory, or that standards would be different even if there were such a subcategory.

13.1.5 Comment: One commenter (207) stated that EPA has underestimated the cost of the proposed rule for nuclear power plants. According the commenter (207), components installed in nuclear applications are subject to a variety of quality assurance requirements, specifications, and code requirements, and none of the current catalytic converter manufacturers are qualified to nuclear safety related standards. Further, commenter (207) claims that the cost of producing catalytic converters to nuclear safety related standards, estimated at $0.85 million, is expected to be 5 to 10 times the cost of commercial applications, that installation costs associated with additional piping, supports, fire protection, heating/ventilation/air conditioning, etc., are estimated to be $2 to 4 million per RICE, and the cost of providing additional structures to protect this equipment is estimated at $3 to 5 million per RICE. Commenter (207) estimates that with approximately 250 emergency RICE currently installed at nuclear power plants, the total cost would exceed $2 billion. Commenter (207) believes that this large cost is not justified by the insignificant amount of emission reduction that would result from adoption of the proposed rule. Similarly, Commenter 216 estimated that the cost of making modifications to existing emergency diesel generators configurations at nuclear power plants to result in capital costs that are 5 to 10 times greater due to additional NRC testing and evaluation requirements than would be the case at a non-nuclear regulated emergency diesel generators.

Commenter (216) found the proposed rule to be a monetarily significant rule for regulated entities, thus adding a burden to their customers while yielding a minimal impact on emissions reductions. The cost and NRC conflicts and duplications within the proposed rule create significant concerns for nuclear facilities. The commenter (216) is concerned about safety conflicts with the NRC and the financial burden that would be imposed on nuclear facilities.

Response: The EPA does not agree that the rule will have an unreasonable burden on engines used at nuclear power plants. For stationary emergency engines at nuclear power plants that are area sources of HAP or are less than 500 HP and at major sources of HAP, the final rule requires the engines to meet management practices rather than the emission limitations that were proposed. Therefore, these engines will not incur the cost of aftertreatment controls for their emissions, so there will be no concerns with having to operate these engines with catalyst control and the engines will not have to be modified. Emergency engines at nuclear power plants that are major sources of HAP and are greater than 500 HP are not the subject of this rulemaking.

13.2 Environmental/Health Impacts

13.2.1 Comment: Two comments (140, 147) believe the proposed rule will have little environmental benefit. Specifically, one commenter (140) noted that the HAP and formaldehyde emissions associated with RICE owned and operated by the company are very low. Since, EPA anticipates that all of these units could meet the standard without installing additional controls, there would be no environmental benefit. If controls are required, they are still only applied to low level emission sources. The cost effectiveness of any modifications or add-on controls for these engines would be extremely high.

The commenter (140) said the RICE operated by the company are scattered throughout approximately 322,000 acres, resulting in an average engine density of approximately one engine per 4,000 acres (6 square miles). For the most part, these engines are very remote any residences or population areas, according to commenter 140. Therefore, there would minimal or no health related improvements associated with imposing emission limits or control equipment on these engines, according to commenters 140 and 147. The commenter (147) noted that the engines operated for agricultural purposes typically are spread over a large geographic area that is in a remote location with respect to residences or population areas and, in most cases, are below 300 HP. The commenter (147) pointed out that EPA acknowledged in the preamble to the proposed rule that it expects all engines below 300 HP to meet the proposed emission standards without any additional control. Therefore, the proposed rule imposes new, costly regulatory burdens without providing any environmental benefit. For this reason, the commenter (147) requested that rural, agricultural RICE be exempted from numeric emission limitations and performance test requirements (see comment above in section 6.4).

Response: EPA disagrees with the comment that the rule will have little environmental benefit. The rule will reduce emissions of HAP as well as CO, VOC, and PM. EPA described the health effects of the HAP emitted from stationary diesel engines in the preamble to the original promulgation of subpart ZZZZ (69 FR 33474). These HAP emissions are known to cause or contribute significantly to air pollution which may reasonable be anticipated to endanger public health or welfare. The Regulatory Impact Analysis (RIA) for the proposal indicates that we expect $0.9 billion to $ 2 billion in benefits nationwide associated with implementation of the rule due to reductions in PM emissions that occur as a co-benefit of the HAP control requirements.

EPA has determined that management practices are appropriate for small stationary engines at area sources as well as stationary emergency engines at area sources, which reduces the impact of the rule on those engines.

13.2.2 Comment: One commenter (71) supports the proposed rule as issued by EPA in the Federal Register on March 5, 2009, in order to improve Reservation air quality and to help improve regional haze in nearby Class I areas. The commenter (71) also supports the EPA's decision to help reduce greenhouse gas emissions through this rule.

Response: EPA notes that this rulemaking is for HAP emissions and is not focused on reducing greenhouse gas emissions.

13.2.3 Comment: Two commenters (146, 178) noted that from a life-cycle perspective, HAP emissions reductions attributable to replacement of emergency units (that are not recommended to have aftertreatment devices installed by their manufacturers) would be dwarfed by the carbon and HAP emissions that would result from manufacturing, transporting, and installing new replacement units that would be used for so few hrs/yr.

Response: EPA is not requiring the replacement of existing emergency engines in the rule. The commenter did not provide any information to explain why the emergency engines could not be retrofit with emission controls and would have to be replaced. Therefore, EPA is unable to fully respond to this comment.

13.2.4 Comment: Four commenters (64, 66, 68, 75) stated that a rural Alaska village with a population of 500 people may spend thousands of dollars to comply with the proposed rule, but it is difficult to determine if there will be a corresponding savings of three to six times this amount in reduced lung ailments. The commenters (64, 66, 68, 75) stated that rural Alaska generators will be converting to cleaner units due to the NSPS over the next decade, and it is difficult to justify the increased costs due to the proposed NESHAP to rural Alaska.

The commenters (64, 66, 68, 75) believe the proposed rule will create a significant economic impact on rural Alaska utilities, because power generators in rural Alaska will incur annualized costs greater than 1 percent of the operating costs, and are therefore not part of the "substantial number of small entities" without significant economic impact. The commenter believes that since rural Alaska power generators will eventually transition to clean burning engines through the NSPS, EPA should allow maximum flexibility for those rural utilities to continue operating in a way that minimizes some of the highest power costs in the nation.

The commenters (64, 66, 68, 75) indicated that EPA determined that their estimates of future compliance costs by the proposed rule would not have any disproportionate budgetary effects on any particular areas of the country, state, or local government, or types of communities. The commenters (64, 66, 68, 75) could not find the citation for this estimate, or data that demonstrates this in either the federal register notice or Regulatory Impacts Analysis for the proposed rule. The commenters (64, 66, 68, 75) stated they have solid financial reasons to believe the proposed rule will have a disproportionate impact on rural Alaska communities. The commenters (64, 66, 68, 75) encouraged the EPA to study the cost impact of the proposed rule to rural Alaska, and offered an example of a study showing the cost impact to rural Alaska communities in transitioning to ULSD. The study can be found at Http://www.dec.state.ak.us/air/anpms/ulsd/ulsdecon.htm.

The commenters (64, 66, 68, 75) believes that the proposed rule will unnecessarily raise power costs for rural Alaska populations that are predominately Alaska natives and have a higher percentage of incomes below the poverty level. The commenters (64, 66, 68, 75) believes that higher power costs may force the use of dirtier forms of fuel, such as wood or coal, which will increase air pollution and health impacts. The commenters (64, 66, 68, 75) believes that sources are already transitioning to ULSD, and moving rural power generation in Alaska to clean and renewable sources. The commenters (64, 66, 68, 75) believes that there is a potential for an environmental justice problem associated with the proposed rule due to the increased power costs.

The commenters (64, 66, 68, 75) is concerned that the proposed rule will have potential to be a “significant energy action” in rural Alaska. The commenters (64, 66, 68, 75) stated that while annualized costs of this proposed rule are estimated to exceed 1 percent of the operating revenue in rural Alaska, compliance costs could easily exceed 50 percent of the net annual operating revenue. The commenters (64, 66, 68, 75) stated the cost of prematurely moving communities to ULSD, installation and maintenance of emission control devices, source testing, and continuous monitoring of emission controls has a large cost impact on the utilities providing power to rural Alaska. The commenters (64, 66, 68, 75) stated that diesel engines are the main source of power in rural Alaska outside the southeast. The commenters (64, 66, 68, 75) stated that the existing NSPS will shift the remaining diesel power production to cleaner engines and fuels over the next decade.

Response: As discussed in the response to comment 2.1.2, EPA agrees with the commenters that the proposed rule could have a disproportionate impact on rural Alaska villages, due to the special challenges faced by operating stationary engines in these very remote areas of Alaska. For these engines, EPA has required compliance with management practices in the final rule for area sources in these areas, instead of the emission limitations that were proposed. EPA believes this addresses the commenters' concerns regarding the impact of the rule on these engines.

13.2.5 Comment: One commenter (140) provided a profile of the phosphate fertilizer company's engine population, including emission estimates based on actual engine operating hours and AP-42 emission factors. As shown, HAP emissions are estimated at less than 0.5 pounds per hour (lb/hr) (based on organic HAP emissions). The commenter (140) concluded that these emissions are not significant compared to the HAP threshold for major source facilities.

Response: No response is necessary.

13.3 Cost of Controls

13.3.1 Comment: Several commenters (78, 103, 104, 111, 112, 150, 156, 216, 220, 225, 227) indicated concerns with EPA's estimate of the cost of controls, specifically that such costs have been underestimated.

One commenter (78) noted that the costs of retrofitting catalyst control systems to large diesel engines used for electric power generation can be significantly greater than just the cost of the catalysts themselves. The commenter (78) gave an example of a larger engine already equipped with SCR, where the retrofit of additional catalyst systems will likely require major ductwork changes, a complete rework of the continuous emissions monitoring systems, and potential relocation of the exhaust stacks.

The commenter (78) said the cost effectiveness of adding control devices to low-use engines should be evaluated regardless of the size of the engine. The costs associated with the installation and maintenance of a control device on a low use unit can be quite high per ton of pollutant abated.

One commenter (225) made the general statement that EPA's estimates are low for the capital and operating costs associated with the use of catalytic control, and are based on old pricing data from one vendor and a limited number of data points that were fit with a linear regression. The commenter (225) also stated that because above-the-floor standards (which require catalytic controls) are based on the cost per ton of HAP removed, EPA must reanalyze the proposed rule with better cost data to determine when catalysts are economically practical.

Commenter (220) said the cost data considered by EPA in developing the proposed rule is outdated and underestimates the costs to install, operate, and maintain the controls that will be necessary in order for owners and operators of RICE to comply with the proposed rule. The capital and annualized control cost formulas for oxidation catalysts only consider a small universe of engines. The commenter (220) collected vendor data on installation costs and concluded that EPA's assumption that these costs are the same for existing and new engines is incorrect. The commenter (220) concluded that EPA's costs are too low (e.g., at least 40 percent). Even assuming a 40 percent correction factor, the average capital cost is likely still low for retrofitting older units. In addition, the commenter (220) said that the annual operating costs for the oxidation catalyst control of these units would average about $31,000 per year at each generating facility. The commenter said EPA should gather current data to update the cost equations and provide a specific basis for assuming the cost to install controls on existing and new sources would be the same.

Commenter (220) said that because of the drastic underestimation of the cost of control, EPA has also mischaracterized the cost per ton of emission reduction. As the commenter's (220) engines do not operate for lengthy periods of time, the cost per ton of reduction is high. Based on total emissions from the commenter's (220) facilities of 45 tons of CO, the commenter (220) calculated an estimated cost of $111,000 per ton using EPA's cost assumptions, and said the real number would be much higher. This cost is too high to justify the rule's stringent requirements. Operation of engines in urban areas in accordance with acceptable management practices is sufficient to protect public health and the environment.

Commenter (220) said that because of the high costs to comply with the proposed rule, many municipalities may have to shut down units, affecting the viability of backup power supplies. Members' units provide a vital source of power in emergency situations. Because these same units may be used in peaking circumstances, they do not qualify for emergency unit status and are subject to stringent retrofit controls. In addition, members use engines in sewer systems and along sewer lines to continue sewer operations during power outages. Such units would likely be subject to the prescriptive maintenance requirements in the proposed rule. Other true emergency type units may be large enough to implicate emission reduction requirements for larger emergency units.

Response: As a result of these comments, EPA reanalyzed the cost data used to estimate the cost of controls. EPA agrees that the equipment costs used for the cost estimate in the proposed rule were too low. As discussed in the memo "Control Costs for Existing Stationary CI RICE," EPA has based the equipment cost of oxidation catalyst control in the final rule on costs from a cost study performed by CARB . The cost study included a retail cost range for oxidation catalyst for various sized engines, cost of retrofitting the control device to an existing engine, and the operating and maintenance costs for the control device. These costs are based on actual costs obtained by CARB during the development of their Risk Reduction Plan. The retrofit installation costs include the costs for ductwork, brackets and other miscellaneous parts.

Based on the results of the control costs, EPA believes that it is still appropriate to develop emission standards based on the use diesel oxidation catalyst for stationary non-emergency engines greater than 300 HP at major sources. We are also requiring the use of an open crankcase filtration system to reduce the blowby emissions from the combustion chamber for engines with open crankcases that are vented to the atmosphere. This reduces the oil mist emissions from the crankcase that may contain organic HAP or metallic HAP. Of further consideration are the co-benefits that would be achieved by requiring the use of the oxidation catalyst/crankcase ventilation option. The control technology will reduce other pollutants such as CO and PM, which are of significant health concern. In addition, the rule will also reduce the emissions of sulfur dioxide (SO_2), because the rule requires the use of ULSD fuel for non-emergency engines above 300 HP. Taking into account the reductions in CO, SO_2 and PM associated with applying oxidation catalyst/crankcase ventilation to non-emergency CI engines, the cost per ton of pollutants reduced is appropriate. Even for engines that have lower hours of usage, the cost per ton is reasonable when the benefits are considered.

For municipalities, the final rule requires management practices for emergency engines. Therefore, we do not believe that costs to comply with the final rule will cause the shut down of backup power for municipalities. If the engines are used for peak shaving, then they have to meet the requirements for non-emergency engines.

13.3.2 Comment: Two commenters (103, 112) stated that the equipment life used by EPA to compute the capital recovery factor (20 years) is too high. Commenter (103) believes this equipment life would be reasonable for the engines alone, but is very high for the add-on controls. In the commenter's (112) experience, control equipment life expectancy is approximately 10 years for engines greater than 500 HP and approximately 5 years for smaller engines. The commenter (103) believes that the recovery period should be a maximum of 10 years due to the following factors:

- The economic life of the control equipment is 10 years, during which the element will still need to be replaced every 2-3 years.

- The electronic technology often becomes unsupportable in a time span significantly less than 10 years.
- It is unlikely that the regulatory environment will enable these controls to be used for 20 years. Ever increasing regulations will likely obsolete the technology before the 20 year recovery period has elapsed.

Response: EPA agrees with the commenter that the equipment life used to compute the capital recovery factor was too high. For the cost analysis in the final rule, EPA used an equipment life of 10 years, which is more accurate for these emission controls.

13.3.3 Comment: Responding to EPA request for comments on CDPF, one commenter (87) stated that installation of CDPF are 8 to 10 times more expensive than oxidation catalysts and can cause back pressure which requires more maintenance in older engines. Commenter (87) recommends EPA abandon the possibility of requiring CDPF.

Response: EPA agrees that CDPF are more costly than oxidation catalyst and discussed this in the preamble to the proposed rule. For the final rule, EPA is not mandating a particular control technology in order to comply with the emission standards. Affected sources are free to use any control option that will achieve the final emission standards. EPA has found that the standards can be achieved through the use of oxidation catalyst control.

13.3.4 Comment: Two commenters (78, 170) said that the cost effectiveness of adding control devices to older engines should be addressed, because it may not be cost effective to install controls on engines that are nearing the end of their useful life. Control devices such as oxidation catalysts must be designed and sized to match the engines on which they are installed, and one cannot automatically assume that a catalyst system designed for one engine can be used on another. In addition, attempting to retain the catalyst system for use on a replacement engine may limit the source's option for replacement engines. Consequently, if the useful life of the control device is considered in cost effectiveness calculations, if the control device will not be used for its predicted useful life, then the calculations will underestimate the cost effectiveness of the device.

Response: EPA does not agree with the commenter that it should determine the cost effectiveness of adding control devices to engines that are nearing the end of their useful life. It is not feasible to determine the cost effectiveness of every type of operating scenario. Affected sources will have 3 years to comply with this regulation and therefore can decide whether to replace older equipment rather than retrofitting.

13.3.5 Comment: One commenter (126) stated that large diesel engines greater than 3,000 HP would require a more expensive catalyst than the inline system that EPA has assumed in the support documents for the proposed rule. The commenter (126) stated that the more expensive "biscuit" system requires special steel supports to suspend the biscuit over the engine, and a pre-heater, which creates more emissions than the catalyst reduce.

Response: The commenter makes the statement that catalysts are more expensive for larger size engines, specifically those above 3,000 HP, but the commenter did not provide any information to EPA supporting this claim. EPA understands that catalysts for larger size engines may not be available off-the-shelf and that costing is site-dependant. Even so, manufacturers of emission controls have indicated that oxidation catalysts that are fitted on larger engines are in general scaled-up versions of those applied on smaller engines. The commenter states that such catalysts are more costly than what EPA estimated for the proposed rule, but in the commenter's letter, no specific costs were given. The commenter mentioned specific equipment that would be necessary with larger catalyst systems, but failed to provide alternative costs that the commenter believes would more accurately reflect the costs of such catalyst systems and associated equipment. The commenter (126) mentioned that a pre-heater is needed with larger systems, but again, did not provide EPA with any substantial information regarding why it is technically necessary to have a pre-heater. Nor did the commenter (126) elaborate on the emissions from a pre-heater. No background information was submitted by the commenter to support the claim that a pre-heater would create more emissions than what a catalyst might reduce.

With that said, following the publication of the proposed rule, EPA reviewed a number of comments, in addition to this one, that asserted that different aspects of EPA's assessment of control costs were not appropriate. Therefore, EPA obtained and reviewed additional cost information for oxidation catalyst control on stationary diesel engines. Based on this review, EPA believes that the cost estimate for oxidation catalyst developed for the proposal was low and likely not representative of current pricing. Subsequently, EPA has reassessed the cost to install and operate oxidation catalyst controls for the final rule and made updates to the cost methodology that was used for the proposal. This information is detailed in the memorandum titled "Control Costs for Existing Stationary CI RICE." EPA looked at different sources of information, including capital and annual costs developed for the original RICE NESHAP rule, which was promulgated in 2004, cost information developed by CA ARB, miscellaneous quotes and information from catalyst vendors, engine manufacturers and trade associations. It was difficult to combine the different pieces of cost information and also to compare the various estimates received because of different assumptions and factors included making it nearly impossible to make an apples-to-apples comparison. EPA also found that there were some inconsistencies in the different pieces of information reviewed. EPA therefore had to make a determination which information it was most appropriate to use based on being complete and accurately reflective of costs. EPA determined that the most appropriate information that was available was information collected from a study performed by the CA ARB. The methodology for determining the costs are presented in the memorandum entitled "Control Costs for Existing Stationary CI RICE" in the rulemaking docket. EPA believes that information is the best available information on oxidation catalyst costs. Based on the capital cost equation developed by EPA for the final rule ($27.4 x HP - $939), the total capital cost of installing an oxidation catalyst on a 3,000 HP existing stationary CI engine would be around $81,000. This cost is nearly 2.5 times higher than the costs estimated at proposal and is consistent with actual costs of today's oxidation catalyst. EPA believes the costs developed for oxidation catalyst control is applicable to the entire range of existing stationary diesel engines, including engines above 3,000 HP. EPA believes this cost would cover the cost of the oxidation catalyst itself and any additional components that may be necessary. Certain installations may be more costly, but other installations may be less costly, however the final costs for oxidation catalyst are expected to be representative of average nationwide costs. This estimate is in the ballpark cost range of information commenter 183 submitted on the proposed rule who provided a cost breakdown for a 2,250 kWe engine, which is around 3,000 HP. This engine is similar in size to the engine size commenter 126 is concerned with, but this engine incurs additional costs due to location. According to commenter 183's cost breakdown, the total capital cost is around $94,000 excluding the cost of a performance test. A member of EMA indicated that the total installed cost of DPF would be $90,000-$100,000 on a 3,000 HP engine and that the cost would not be more for a DOC installation. Again, this is in the ballpark range of the capital costs EPA has estimated for the final rule for oxidation catalyst. Thus, EPA believes the final costs for oxidation catalyst are appropriate for all engine sizes, including those above 3,000 HP. Therefore, EPA believes that it has appropriately accounted for and estimated impacts for oxidation catalyst control being retrofitted onto existing stationary diesel engines above 3,000 HP.

13.3.6 <u>Comment</u>: Two commenters (179, 183) stated that EPA's cost methodology for retrofitting oxidation catalysts to existing CI engines is overly simplified and dramatically underestimates costs for operators in very cold climates, where housing is used to protect the engine. The commenter (179, 183) noted for these installations, the retrofit of control equipment would require extensive modification to the housing, and increase installation costs. In addition, the commenter (179, 183) noted that skilled labor would need to be transported to the remote location, and lodging and food would need to be provided. Commenter (179) added that the cost of complying with NSPS subpart GG and subpart KKKK NO_x limits range from $75,000 to $125,000. The commenter (183) provided two BACT analyses for two different sized engines: the first was a limited duty cycle CI engine rated at 2,250 KWe operating less than 1,000 hrs/yr; and the second engine was a continuous duty engine rated at 410 KWe. The tables from the commenter (183) showed that the cost effectiveness of the larger limited use engine was approximately $167,000 per ton of HAP removed, and the cost effectiveness of the continuous duty engine was $134,000 per ton of HAP removed. The commenter (183) believes these values demonstrate that the cost impacts in remote locations in Alaska have not been adequately addressed in the proposed rule. The commenter (179) stated that it does not appear that EPA considered that control may not be feasible at facilities such as offshore platforms where space may not be available to install post-combustion control equipment. The commenter (179) noted that these platforms were constructed 20 to 40 years ago and were designed to minimize space utilization, and expansion of these platforms may not be physically or economically possible. The commenter (179) stated additional evaluation by EPA is necessary, because many of the RICE will not be able to achieve the proposed limits without post-combustion emission controls, and due to the infeasibility of retrofitting controls, many engines would need to be replaced. Commenter 179 said that EPA should conduct further study before requiring platform-mounted cranes, compressor drives, fire water pumps, and backup generator engines where the space may not be available, cannot be created, or the cost of creating additional space is exorbitant, to install controls.

Response: As discussed in the response to comment 2.1.2, EPA acknowledges the special circumstances faced by owners/operators of stationary CI engines located at area sources in remote areas of Alaska. Therefore, EPA is requiring management practices for these engines. The final rule specifies that existing stationary non-emergency engines greater than 300 HP that are located at area sources in Alaska that are not accessible by the FAHS are not subject to numerical emission standards, but must meet specific management practices instead. All existing stationary emergency engines at area sources are subject to management practices.

Existing stationary CI engines less than or equal to 300 HP that are located at area sources are subject to management practices only.

For other existing stationary non-emergency CI engines greater than 300 HP, EPA believes that it is appropriate to require emission standards that require the use of oxidation catalyst control because the technology is available and feasible for all existing stationary non-emergency CI engines greater than 300 HP regardless of location. EPA discussed in response to comment 13.3.5 that a reassessment of costs was performed after the publication of the proposal. The outcome of the cost reassessment indicated that the costs developed for the proposal were low and likely not representative of actual costs of purchasing, installing, and operating oxidation catalyst systems. EPA believes that the final costs that are presented in the memorandum entitled “Control Costs for Existing Stationary CI RICE” are reflective of current costs and are commensurate with the costs provided by the commenter for catalyst controls for engines located in rural Alaska. EPA looked at the cost per ton of HAP (around $162,000 or less) reduced from these engines and determined that the cost is justified. EPA also considered the co-benefits that are associated with oxidation catalyst control on existing diesel engines. For example, the benefits per ton of PM and SO_2 reduced are between $210,000 (Pope, 7%) and $500,000 (Laden, 7%) and between $27,000 (Pope, 7%) and $65,000 (Laden, 7%), for PM and SO_2, respectively, for major sources. For area sources, the benefits per ton are between $330,000 (Pope, 7%) and $790,000 (Laden, 7%) and between $18,000 (Pope, 7%) and $44,000 (Laden, 7%), for PM and SO_2, respectively. The benefits clearly outweigh the costs of requiring numerical emission standards based on oxidation catalyst control. Regarding the concern that extensive modification will be needed to the engine housing in order to accommodate an oxidation catalyst, information EPA received from a catalyst vendor indicated extensive modifications to the housing would not be needed because the catalyst could be installed on top of the engine housing.

EPA adds, however, that the final cost estimates are an average estimate and EPA acknowledges and recognizes that not every scenario may be represented in the final costs. It would be impossible to account for every possible alternative condition that might necessitate higher or lower costs that what EPA has estimated. EPA also notes that the cost per ton estimate is conservatively based on 1,000 hours of operation per year. Assuming longer operation, the cost per ton estimate would decrease. EPA's cost per ton analysis is presented in the memorandum titled "Cost per Ton of HAP Reduced for Existing Stationary CI RICE."

As stated above, EPA's final cost estimates are consistent with the costs that commenter 183 has estimated, at least for the 2,250 kWe engine operating 1,000 hours per year. However, EPA does not follow the commenter's methodology for estimating the cost per ton for the 410 kWe engine operating 8,760 hours per year. Upon inspecting the cost breakdown commenter 183 provided, it appears that the total capital cost (TCC) used is inaccurate. The second page of Attachment 4 provides a breakdown of how the total annualized costs were estimated, which, for indirect costs, is primarily a function of the TCC. The total annualized cost shown is $34,387, however, looking closer at how items 7 through 11 of the indirect costs were estimated, it is clear that the TCC used is not correct. For example, the property tax totals $1,924, which means that TCC is $192,400 because the property tax is 0.01 TCC, according to the commenter. However, as shown on the first page of Attachment 4 of commenter 183's letter, the TCC is $38,256. Therefore, the total annualized costs appear to be based on a TCC of $192,400 and not $38,256 and seem to have been estimated incorrectly by the commenter. Certainly, the cost per ton of HAP removed would be significantly lower for an engine operating continuously. Therefore, EPA does not believe that the cost per ton of HAP removed for a 410 kWe continuously operated engine is representative. EPA estimates that the cost per ton of HAP removed for a 410 kWe engine, or around 550 HP engine operating 8,760 hours per year would be around $19,000.

In regards to the comment concerning offshore platforms, EPA disagrees. If an engine is located on an offshore platform and is less than or equal to 300 HP and an area source, it is not subject to numerical emission standards. In this case, aftertreatment space concerns are a non-issue. Similarly, if the engine is an emergency engine or less than 100 HP, the engine is only subject to maintenance practices. In this scenario, there would be no space concerns either. Based on the list of engine applications the commenter (179) noted, EPA believes that many of those engines will fall into categories that do not require numerical emission standards under the final rule. Also, if the engine is less than or equal to 300 HP and a major source, it may not need aftertreatment in order to meet the numerical emission standards.

If there are engines on platforms that are subject to numerical emission standards where aftertreatment is necessary in order to comply with the requirements, EPA believes that add-on controls are feasible. If add-on controls are needed to comply with the standards only minimum space requirements are expected. EPA contacted a catalyst vendor regarding this issue, and the vendor indicated that engines on offshore platforms are typically equipped with a silencer; the catalyst can be put in the silencer, so it would not take up any additional space on the platform. Commenter 179 did not provide any specific information regarding the size restrictions engines might have on offshore platforms. The commenter (179) did not provide any information related to the costs of applying add-on controls to engines on offshore platforms either and indicate what costs the commenter considers to be "exorbitant." Aftertreatment controls have been installed and operated successfully on mobile sources engines, which also have limited space available.

EPA believes that the emission standards based on the use of oxidation catalyst control are appropriate for existing stationary non-emergency engines greater than 300 HP.

13.4 Implementation and Enforcement

13.4.1 Comment: Four commenters (104, 150, 191, 207) believe that the proposed compliance date of 3 years is too short.

One commenter (207) said that the compliance time would not be sufficient for installation of controls on back-up/emergency engines at nuclear power plants. According to the commenter (207) this is because components installed in nuclear applications are subject to a variety of quality assurance requirements, specifications, and code requirements, none of the current catalytic converter manufacturers are qualified to nuclear safety related standards, and the time frame for current vendors to meet the stringent quality assurance standards and produce an acceptable catalytic converter is estimated to be beyond the 3-year compliance period.

Response: The compliance date provided in §63.6595(a)(1) of the proposed rule for stationary existing engines less than or equal to 500 HP located at major sources and stationary existing engines located at area sources is consistent with the typical date of compliance given for existing sources, i.e., 3 years from the effective date of the rule, and is the maximum amount of time that EPA can provide under Clean Air Act section 112(i)(3). EPA believes this is sufficient time for sources to comply with the requirements and does not agree that a 6 year compliance period should be provided. EPA has not included additional compliance time in the final rule.

As discussed in the response to comment 6.3.1, stationary emergency engines at nuclear facilities are not subject to numerical emission limitations. Therefore, there is no justification for a longer compliance time for these engines.

13.4.2 Comment: One commenter (93) reiterated the February 25, 2008 request that EPA allow states to incorporate any new rules or revisions to rules at the next Title V revision or renewal as opposed to opening such permits for cause. The commenter (93) provided that the proposed rule will regulate thousands more engines than anticipated as it now includes: stationary engines of 500 HP or less at major sources, stationary engines at area sources, and stationary CI engines of more than 500 HP at major sources. The commenter (93) stated that it heard from one existing Title V source that has over 300 engines that will be subject to the proposed rule. The commenter (93) requested that EPA consider the reasonableness and resources agencies would need to implement the 18 page flow chart for hundreds and possibly thousands of engines to determine permitting and compliance requirements.

Response: EPA included provisions in the January 2008 final rule at 40 CFR 63.6585(d) that indicate that area sources subject to 40 CFR part 63, subpart ZZZZ, would not be subject to permits under 40 CFR parts 70 or 71 solely because of this rule. This provision will lessen the burden on numerous existing stationary engines located at area sources. EPA believes this should significantly reduce the commenter’s concern on this issue. In terms of the compliance burden and implementation process, EPA has made an effort to rely on management practices wherever possible, which will minimize the impact on particularly smaller sources and those individually owned and operated. Further, EPA has reserved regular performance testing for larger engines, though smaller engines subject to numerical emission limits will need to test at least once. Finally, EPA will be providing implementation material to assist affected sources in understanding the requirements of the final rule and implementing and demonstrating compliance with the specific provisions that apply to them.

13.5 Energy Impacts

13.5.1 Comment: One commenter (176) recommended that EPA re-evaluate its energy impact determination and consider the impact of the proposed rule's energy requirements on a broader scale rather than limiting its analysis to only sectors of the regulated community. The commenter (176) stated that EPA's evaluation of the energy impact of the proposed rule only considered the electric power sector and failed to account for the impact on the non-industry sector.

One commenter (176) provided that, under section 112(d) of the CAA, EPA can consider cost and energy impacts. EPA concluded in the RIA for the proposed rule that it "is not likely to have a significant impact on the supply, distribution, or use of energy." RIA at 5-9. The commenter (176) disagreed with EPA's conclusion and stated that engines are placed because of concerns as to the reliability of power for the source, particularly in rural areas. The commenter (176) stated that the proposed standards could have a very detrimental impact on energy reliability and many units may have to be shut down due to the cost of compliance.

Response: EPA focused its analysis of energy impacts on the electric power sector because this sector experiences the greatest impact on energy costs of any of the affected sectors. Close to half of the total annual costs of the proposed standard are incurred by the electric power sector (RIA at 4-39 and 5-2). We found that this industry would experience low annualized costs as a percent of industry revenue (less than 1 percent). This was also true for the other industries affected by the proposed standards. While we did not conduct an analysis for sectors not regulated by the proposed standards, we did provide some information on how demand for the agriculture and construction industries may respond to an increase in price based on impacts from the proposal (RIA at 5-6). This information, taken from the Department of Energy's Energy Information Administration, shows that the demand for agricultural products may fall 0.2 percent for a 1 percent increase in its product prices; for construction, the demand will fall 1 percent for a 1 percent increase in product prices.

13.5.2 Comment: One commenter (85) believes the proposed rule will have a significant negative impact upon the supply of energy. The commenter (85) indicated that through demand response program participation, non-emergency RICE units are valuable resources in minimizing and/or preventing power grid disruptions that lead to system-wide brown-outs and black-outs, which can and have occurred in the highly populated Northeast United States. The commenter (85) stated that RICE units have been installed to supply emergency backup service to support the reliability of facilities' energy supply, within their locality, and a sub-set of these units also participates in regional capacity markets to support the reliability of the regional transmission system. The commenter (85) believes that engines that participate in DRP administered by the ISO/RTOs will be negatively affected by the proposed rule should the rule make it necessary to retrofit HAP control technology and, more importantly, the ISO/RTOs will be adversely affected by the proposed rule. The commenter (85) stated that ISO/RTO's have modeled into their

Reliability Studies, and built into the Resource Planning analysis, planned participation by these demand response resources. Should RICE units incur the additional costs associated with installation of HAP control technology, the commenter (85) believes that many of the RICE units will opt out of demand response programs, which will leave ISO/RTO's with critical missing demand response resources. According to the commenter (85), without the inclusion of RICE resources for demand response, many ISO/RTO's will have less available resources to tap during critical peak energy days, leaving ISO/RTO's with inadequate reliability.

The commenter (85) recommended that the proposed rule be modified (using the language of the proposal preamble as the basis for the revision) to enable RICE units to participate in demand response programs. The commenter (85) recommended that the description of the rule in section III, "Summary of This Proposed Rule," Subsection E, "What are the Reporting and Recordkeeping Requirements?" be modified as follows:

"In addition, owners and operators are allowed to operate their stationary emergency RICE for non-emergency purposes for 50 hrs/yr, but those 50 hours are counted towards the total 100 hours provided for operation other than for true emergencies and owners and operators may not engage in income-generating activities during those 50 hours. Notwithstanding the preceding text, hours of operation in response to activation calls from an ISO/RTO organization, electric power delivery company, and demand response programs, are not counted toward the total 100 hours provided for operation other than for true emergencies. Tests called as part of participation in such demand response programs shall be counted towards the 100 hours provided for operation other than for true emergencies."

The commenter (85) noted that many ISO/RTO markets, with the active encouragement of Federal Energy Regulatory Commission (FERC), have initiated demand response programs, including demand response programs administered by the NYISO, ISONE, PJM, and ERCOT which supply more than 100,000,000 people with reliable supply and delivery of electrical power. Based on an extensive example involving NYISO (the regional transmission organization serving New York), the commenter (85) sought to demonstrate that the loss of critical RICE units in the demand response program would not only jeopardize electric reliability, but would also increase electric rates for all New York State electric ratepayers. The commenter (85) also illustrated that the number of operating hours for which these engines actually run, to provide this safety net to the public, is quite small, averaging around 16 hrs/yr for the most active RTO demand response program.

Response: As discussed in the response to comment 6.1.1, EPA believes that it would be appropriate to allow engines to retain their status as emergency engines under subpart ZZZZ if they operate as part of demand response programs for a 15 hours of operation per year or less in situations where grid failure and a blackout are imminent. The commenter's information indicates that no engine has needed more than 15 hours per year to meet their requirements under their demand response programs. This alleviates the concerns expressed by the commenter. These engines will still be able to participate in demand response programs and the final rule will not impact the energy supply or grid reliability by providing a disincentive for facilities to participate in these programs.

13.6 Small Businesses

13.6.1 Comment: Two commenters (226, 242) expressed concern over how the proposed rule might impact small businesses. One commenter (242) said that EPA has not properly communicated to small businesses (e.g., Small Business Administration), government installations (e.g., fire and police stations), and homeowners on the proposed rulemaking. The commenter (242) stated that EPA needs to quantify the potential impacts associated with regulating these sources since these sources are not exempt. Also, the commenter (242) said, EPA should conduct an outreach program to communicate the requirements of the rule to the public. One commenter (226) stated that small businesses mostly use small engines and regulation of these engines yields the smallest emission benefits.

Another commenter (226) had similar concerns stating that under the Regulatory Flexibility Act, EPA is required to analyze reasonable alternatives that minimize small business burdens while still achieving the statutory goals. The commenter (226) noted that in the 2002 proposal that EPA acknowledged that small stationary RICE have generally not been regarded as significant sources of air pollution emissions, and solicited comment on ways to structure the proposed rule to focus on the facilities with significant risks and avoid the imposition of high costs on facilities that pose little risk to public health and the environment. However, the commenter (226) noted that the current proposal does not request any risk-based alternatives that would exclude small engines.

Response: In response to the concerns expressed by commenters about the potential impact of this rule on small businesses and homeowners, EPA conducted a review of the types of engines that were included in the area source category listing for stationary RICE. As a result of this analysis, EPA determined that emissions from existing stationary emergency engines located at residential, commercial, and institutional facilities were not included in the 1990 baseline emissions inventory that was used as the basis for the listing of source categories needed to ensure that 90 percent of area source emissions are regulated. Therefore, EPA has determined that these engines are not part of this regulated source category, which will help address the commenters' concerns about the impact of the rule on small businesses and homeowners. Both the proposed and final rule required small stationary engines at area sources to meet management practice requirements rather than emission limitations, which also lessens the burden of the rule on those engines. The final rule extends management practices to all emergency engines at area sources. In addition, the final rule requires only work practices for stationary engines 100 HP or smaller, also decreasing the burden of the rule on owner/operators of small engines.

14.0 Miscellaneous

14.1 Definitions

14.1.1 Comment: One commenter (242) thinks that EPA should amend the definition of affected source to include area source engines and engines less than or equal to 500 HP at major sources to clarify rule applicability.

Response: EPA does not agree that it should revise the definition of affected source in subpart ZZZZ because the definition already includes engines located at area sources and engines less than or equal to 500 HP located at major sources.

14.1.2 Comment: Three commenters (126, 158, 168) urged EPA to clarify and improve its definition of "stationary" RICE, contending that as written, it is difficult to clearly understand what constitutes a stationary RICE subject to regulation under the proposed rule. A problem with the current definition, according to commenter 168 arises when a mobile RICE that has been rented and has been moved to a power plant is deemed to become a stationary RICE under the nonroad definition in 40 CFR 1068.30. Further, commenter 168 claims that many RICE that would be regulated by the proposed subpart ZZZZ are temporary, rental diesel engines that provide outage power and compressed air during refueling and maintenance outages at nuclear power plants or during construction and maintenance activities at coal-fired power plants. Commenters 126 and 168 requested that, in the final rule, EPA revise the definition of stationary RICE or nonroad engine or otherwise revise the proposal to insure that rental, non-self propelled, portable nonroad diesel engines that are located at a utility power plant or area facility for more than 12 months during construction or extended maintenance are exempt from 40 CFR part 63, subpart ZZZZ. If portable RICE were deemed to be "stationary," commenters 126 and 168 requested that the final rule clarify that the owner of the diesel engine, and not the entity that rents and uses it, is required to comply with the rule, including required maintenance and performance testing.

One commenter (158) requested that EPA clarify the types of engines that are considered "non-road engines" versus "stationary RICE." For example, the commenter's (158) firm operates power washers which can be either propelled (moved by hand) while being used or transported to a location at a facility, kept stationary while being used, and then transported to another location within the facility. The commenter (158) requested clarification as to whether such equipment would fit under 40 CFR 1068.30 section (1)(ii) or (1)(iii), which contain parts of the definition of "non-road engine." As another example, the commenter's (158) firm operates portable water pumps, generators, and welders which remain at a facility year-round and are moved to different locations on-site as needed. The commenter (158) requested clarification as to whether the engines powering such equipment would be excluded from the definition of "non-road engine" because they remain at a location for more than 12 consecutive months, which is an exclusion specified in 40 CFR 1068.30.

Response: EPA does not agree that the definition of stationary RICE should be revised. EPA intends for portable engines that remain in one location at a facility for more than 12 months to be considered stationary engines. For the example provided by commenter 168 of temporary rental diesel engines that provide power and compressed air at a facility, if the engines remain at the same location within the facility for more than 12 months, then they would be considered stationary engines. If the engines are located at the same facility but are moved around within the facility, then they would not be considered stationary.

Regarding the clarifications requested by commenter 158, those engines would be considered stationary engines only if they remain in the same location within the facility for more than 12 months. Engines that are located at a facility but moved around the facility are not stationary engines unless they remain at the same location within the facility for more than 12 months.

For engines that are rented, the final rule applies to both the owner and the operator, and the renter is the operator and is subject to the rule. Because both the owner and operator are liable under the rule, the rental agreement should address who will conduct emissions testing or employ management practices for the specific engine, and who will create records, who will hold them for the statutory period and who will report.

14.1.3 Comment: One commenter (121) said EPA should include a definition for “commence construction” to clarify when new sources are covered by the RICE MACT because of the overlap between 40 CFR part 60, subparts JJJJ and IIII and the RICE MACT. Consistent with the NSPS, EPA should define “commence construction” as follows:

“For purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.”

Engines at a closed facility may be relocated and installed at another facility. Clarifying the original order date will assist sources in understanding the applicability of the RICE MACT for engines in these situations, according to commenter 121.

Response: EPA has already provided a definition of “commence construction” in the General Provisions for part 63. The definition can be found in 40 CFR 63.2. As the definitions and provisions for determining and regulating new engines have already been established, and this rule is concerned solely with existing stationary engines, EPA is not revisiting this issue in this rule.

14.1.4 Comment: One commenter (103) believes that the phrase “Owners and Operators” needs to be better defined as it relates to the requirements. The commenter (103) believes that while it is convenient for the EPA to avoid distinguishing between the two, the reality is that there are tens of thousands of engines where the roles of owner and operator are often represented by two independent companies. In the case of a rental compressor, the engine is owned by the lessor and rented to the lessee. According to the commenter (103), the lessor typically (but not always) provides:

- Maintenance including preventative maintenance, repairs, and overhauls. This would include maintenance plans and the documentation of the work performed.
- Adjustment of the engine parameters that control combustion such as ignition timing, air/fuel ratios, etc.

The commenter (103) added that the lessee is typically (but not always) responsible for:

- The day to day operation of the engine including starting, stopping, loading and unloading.
- Emissions testing
- Environmental permitting with the RICE along with the rest of surface equipment including burners, tanks, fugitive emissions, etc.

The commenter (103) stated that EPA was asked to clarify the roles and responsibilities of Owner and Operator as it relates to the NSPS (40 CFR part 60, subpart JJJJ) but has yet to do so, and added that the same mistake should not be made on this proposed rule. The commenter believes that the effects of this ambiguity include doubling or tripling the manpower required for tracking compliance on engines and for recordkeeping because all data not only must be gathered, compiled, sorted, and stored, but in order to transfer to counter parties (from Owner to Operator, for example) the data must then be carved out according to rental relationships and then conveyed to the other party. The commenter (103) also believes that there is an increased chance of noncompliance from each entity believing the other entity has complied with certain provisions.

Response: This rule applies to both the owner and the operator, regardless as to whether the operator is an agent of the owner or merely a lessee. Because both the owner and operator are liable under the rule, the rental agreement should address who will conduct emissions testing or employ management practices for the specific engine, and who will create records, who will hold them for the statutory period and who will report. The requirements under the rule are clear, divisible and openly subject to divided responsibility under a rental agreement. EPA is willing to work with rental agencies to develop a standard rental agreement clause to ease recordkeeping and reporting.

14.1.5 Comment: Two commenters (90, 117) requested that the definition of emergency stationary RICE be modified to remove the clause that ICE that supply power "as part of a financial arrangement with another entity are not considered to be emergency engines." One commenter (117) noted that when applied to major sources, as in existing rules, the language may appropriately differentiate between true emergency engines and engines used in a commercial capacity. However, for smaller operations, it is common for multiple entities to share the cost and responsibility for providing emergency power. An example the commenter (117) cited is landlord-tenant relationships where as a part of the lease the landlord provides emergency backup power to the tenant. This occurs at multi-tenant facilities, such as shopping centers, where one tenant's emergency power may be shared by others. The commenter (117) believed that EPA did not intend for these small operations to be excluded from consideration as emergency units. Another commenter (90) noted that most of their units would be excluded from consideration as emergency units under the proposed definition because they provide emergency backup power for clients such as grocery stores, data management centers, and small industrial facilities as part of a financial arrangement. Additionally, they may participate in voluntary utility curtailment programs where they have entered in financial arrangements to self generate power during brief times of utility constraints.

Response: EPA has revised the provisions applicable to emergency engines to clarify that engines that are operated as part of a financial arrangement but are used solely for emergency use (e.g. not for peak shaving) are still considered emergency engines. The examples provided by the commenters of a landlord that provides emergency backup power to a tenant or a company that provides emergency backup power to clients such as grocery stores, etc. are situations where the engines are still emergency engines (as long as they are operated per the requirements in §63.6640(f)). If the engine is used for a voluntary utility curtailment program to self generate power during times of utility constraints in return for financial considerations, the engine would have to meet the requirements for non-emergency engines except as discussed in the comments on emergency demand response engines in section 6 of this document.

14.1.6 Comment: Two commenters (129, 157) believed that the definition of "diesel fuel" at 40 CFR 63.6675 should be revised to include biodiesel and biodiesel-diesel blends. The commenters (129, 157) stated that such a revision would ensure consistency with the Agency's regulatory programs and promote the use of environmentally beneficial renewable fuels. The commenter (129) also believes that such a revision would clarify for owners and operators that the fuel requirements in the proposed rule apply to biodiesel and biodiesel-diesel blends. According to the commenter (129), the number of companies using renewable fuels is increasing and this clarification will become more important in enabling regulatory compliance and avoiding costly litigation.

Response: EPA agrees with the commenter that the definition of diesel fuel should be revised to include biodiesel and biodiesel blends and has made this change in the final rule.

14.1.7 Comment: One commenter (253) stated that under §63.6675, a major source is defined as a stationary source or group of stationary sources located in a contiguous area and under common control that emits or has the potential to emit, considering controls, 10 tpy or more of any HAP or 25 tpy or more of any combination of HAP, while an area source is any stationary source of HAP that is not a major source. Therefore, the commenter (253) noted a farm which operates several small stationary irrigation pumps or a commercial building with an installed emergency generator would be classified as an area source, while a food processing facility with an industrial boiler, an emergency generator, and a backup fire pump might be classified as a major source of HAP, due primarily to its boiler emissions. The commenter (253) pointed out that if the farm covers a large area such that it is contiguous with both the food processing facility and an adjacent commercial area, and if all three facilities are owned and operated by the same company, then it appears that the farm, the commercial building, and the food processing facility would all be considered part of the same major source of HAP even if the facilities' operations had nothing to do with one another. The commenter (253) pointed out that as individual facilities operating existing diesel engines not currently regulated under subpart ZZZZ, neither the farm nor the commercial building requires a Title V operating permit because neither meets the definition of a major source under 40 CFR part 70. Further, the commenter

(253) stated that although the food processing facility does require a Title V permit as a major source, the adjacent farming and commercial building facilities are not considered part of the Title V major source, despite being contiguous and under common ownership and control, because they belong to a different major industrial grouping than the food processing facility (see definition of major source under §70.2). The commenter (253) stated that as a result of being classified as a single major source of HAP under the proposed subpart ZZZZ, however, the combined farm/commercial building/food processing facility would also be considered a single major source under 40 CFR part 70; a Title V operating permit would therefore be required to cover all three operations. In addition, the commenter (253) stated that all existing stationary RICE at the farm and at the commercial building would be required to comply with standards of the proposed subpart ZZZZ applicable to RICE at major sources rather than those applicable to area sources. The commenter (253) believes that this situation is not an intended consequence of the proposed rule but is one that needs to be addressed. The commenter (253) strongly encouraged EPA to consider revising the definition of major source in §63.6675, or to otherwise modify the applicability provisions of the proposed subpart ZZZZ, to ensure that unnecessarily burdensome regulatory requirements are not imposed upon area sources with stationary RICE simply by virtue of their location adjacent to a major source of HAP.

<u>Response</u>: EPA does not agree that the definition of major source needs to be revised. If the sources are located in a contiguous area and under common control, then they will be considered a major source. This is required by the statutory definition of major source in Clean Air Act section 112(a)(1), 42 USC § 7412.

14.1.8 Comment: One commenter (126) requested that EPA provide guidance or clearly define the "source" with respect to RICE in the definition of reconstruction in 40 CFR §63.2. The commenter (126) asked if ancillary components such as control panels be considered a component or excluded. The commenter (126) requested clarity in terms of reconstruction in subpart ZZZZ, and a generic statement that all ancillary equipment that are necessary to make the unit operate are exempt.

Response: EPA has defined the term "engine" as constituting all parts necessary to operate the engine during emissions testing, including fuel and air intake components, cooling components, exhaust and pollution control components, control computers and the crankshaft, as well as the basic engine block and associated reciprocating engine parts. Control panels consisting exclusively of monitors and gauges and a throttle are not considered parts of the engine and thus are not part of the source. Engine computers that manage the engine in response to a throttle are considered part of the engine and thus of the source. EPA finds the term "ancillary equipment necessary to make the unit operate" ambiguous. The Agency will determine the applicability of any argument that a specific piece of "ancillary" equipment is not part of the source on a case by case basis, as provided for in the CAA.

14.1.9 Comment: One commenter (213) asked that EPA specifically define what constitutes an area source (i.e., by including the amount of HAP emitted) and not rely on the current definition that defines an area source as any source that is not a major source.

Response: The description of an area source provided in the regulations at 40 CFR 63.6585(c), which is the same definition of area source found in the statute in section 112(a)(2), and in the general provisions at 40 CFR part 63, is appropriate and consistent with what has been used for previous rulemakings affecting stationary engines. EPA believes this definition is very clear and underscores that the universe of sources is made up of major sources or sources that are not major sources, which are called area sources. EPA is not finalizing a different definition.

14.2 Clarifications

14.2.1 Comment: Numerous commenters (112, 132, 154, 155, 162, 186, 227, 242) asked that EPA clarify in the rule where hours has been used to determine maintenance or testing frequency that it is operating hours and not calendar hours. Several commenters (112, 154, 155, 186, 242) said that EPA should clearly specify that the maintenance frequency in the rule are operating hours and not calendar hours. If the engine does not operate during a particular period, it is assumed that no wear, performance, or emissions degradation occur, the commenters (155, 242) said. Therefore, the commenters (155, 242) said, it is appropriate to specify that the maintenance interval is defined as operating hours.

Similarly, commenter (162) said performance testing should be stipulated based on engine use and hours of operation instead of calendar years. Many of the commenter's (162) engines are only operated seasonally. The number of hours operated varies greatly from year-to year, and testing every 3 years seems burdensome given the variable and infrequent operation for this types of uses.

Response: EPA agrees with the commenters that the rule should clarify that the maintenance and testing frequency are based on operating hours and has made this clarification in the final rule. EPA does not agree that it is burdensome to require testing every three years; this frequency is necessary to show that the engines are continuing to comply with the emission limitations in the rule.

14.2.2 Comment: One commenter (155) expressed that EPA should provide allowances for cases where the maintenance schedule elapses during engine operation, e.g., an emergency could occur requiring an engine to operate for more than 200 hours and with a 200 hour maintenance schedule the commenter assumes that EPA did not intend for the engine to be stopped to complete an oil change. The final rule should include a provision that does not require engine shutdown solely for the purpose of conducting maintenance.

Response: EPA agrees that there may be situations where an emergency engine is operating during an emergency and it is not possible to shut down the engine in order to perform the work/maintenance practice requirements on the schedule required in the final rule. EPA has added a provision in the final rule to indicate that if the stationary engine is operating during an emergency situation, then the maintenance activity can be delayed until the emergency is over. The maintenance should be performed as soon as practicable after the emergency has ended.

14.2.3 Comment: One commenter (96) indicated that it has found several issues with the proposed standards in terms of discrepancies, omissions, conflicts and other things that need correction. Specific comments by the commenter (96) are provided in other sections, but in general the commenter believes the rule is complex to follow. Especially since the proposed rule incorporates elements from previous engine rules, it is difficult to determine what requirements apply and commenters 96 and 132 urges EPA to provide guidance documents that will assist the regulated community in determining which requirements apply to the various types of engines.

Response: EPA has made efforts in the final rule to be as clear as possible on the emission standards and other requirements that apply to existing stationary engines affected by the rule. EPA has also corrected discrepancies that were included in the proposed preamble and rule, which assists in making the final rule requirements as clear as possible. Finally, EPA will be developing guidance and implementation material for the final rule. This material will be available to affected stakeholders through EPA's website and will help the regulated community in determining which requirements apply and demonstrating compliance.

14.2.4 Comment: One commenter (96) noted that in 63.6603 of the proposed rule existing engines at area sources are required to meet operating limitations of Table 2b of the proposed rule, but that Table 2b indicates that it only applies to new and reconstructed sources. EPA should clarify what the intent is, the commenter (96) said. The commenter (96) provided various charts for different engine types where it believes that this clarification needs to be made. Two commenters (172, 178) said that §63.6603 of the proposed rule states that existing stationary RICE located at an area source must comply with the operating limitations in Tables 1b and 2b of the rule. However, the operating limitations in Table 2b of the proposed rule appear to only apply to units at major sources. The EPA should remove the reference to Table 2b of the proposed rule in section 63.6603 of the proposal.

Response: EPA agrees with the commenter that the title to Table 2b of the proposed rule on page 9721 of the Federal Register notice is confusing. EPA has clarified the title of Table 2b in the final rule to clearly indicate the applicability of operating limitations. EPA has also clarified and corrected various other inconsistencies that were included in the proposed rule and believes the final rule reads easily and clearly.

14.2.5 Comment: Numerous commenters (50, 81, 90, 96, 98, 116, 119, 126, 127, 129, 139, 157, 167, 178, 196, 201, 216, 220, 240) referred to apparently conflicting language in the proposed preamble that appears to require initial performance testing of emergency generators and many of these commenters were opposed to requiring performance testing on emergency engines. Two commenters (96, 126) noted that in the preamble of the proposed rule at page 9711, EPA makes the statement "Stationary non-emergency RICE located at major sources that are less than 100 HP, stationary RICE located at area sources that are not subject to numerical emission standards, and all stationary emergency RICE are only subject to compliance requirements in the form of management practices to minimize emission levels." The commenter (96) stated that this language contradicts later text requiring numerical emission standards for formaldehyde for engines below 50 HP, CO standards for diesel and 4SLB engines between 50 and 250 HP, and CO and formaldehyde standards for emergency engines at area sources greater than 500 HP. The commenter (96) thinks the preamble statement is the correct one and recommends that other language that conflicts with the preamble language be revised to clarify that only management practices, not numerical emission standards apply to these sources. One commenter (118) had similar concerns as those expressed by commenter 96. Commenters 188 and 203 also asked that

EPA clarify whether performance testing is required for these units because it is not clear from the rule text and specifically wanted explicit language in the final rule that exempts these units from performance testing.

Commenter 119 received clarification from EPA that this was not the intent of the rule, and commenters 119 and 201 requested that EPA clarify this intent in the final rule.

One commenter (162) said that performance testing of emergency RICE seems onerous, may not provide an accurate emissions profile, and should not be required. Emergency RICE emissions during short periods of readiness testing vary from the emissions profile achieved during longer periods of operation when they are used in emergency situations, the commenter (162) said. Commenters 167 and 196 expressed similar comments as 162.

One commenter (127) stated, for example, that page 9711 section C of the preamble to the proposed rule states that "all stationary emergency RICE are only subject to compliance requirements in the form of management practices to minimize emissions." However, the commenter (127) pointed out that, in Table 2 of the proposal preamble and Table 2d of the proposed rule, stationary emergency RICE with greater than 500 HP is listed as having emissions limits.

One commenter (116) stated that it was not clear from the proposal whether existing emergency RICE less than 500 HP at major sources are required to conduct a performance test to demonstrate compliance with the emission limit. The commenter (116) noted that, in Table 2c of the proposed rule, emergency SI RICE between 50 and 500 HP have an emission limit for formaldehyde of 2 ppmv on a dry basis (ppmvd) or less at 15 percent O_2. The commenter (116) also stated that the preamble to the proposed rule, section D.1 states that "[o]wners and operators of existing stationary non-emergency RICE located at major sources that are less than 100 HP and existing stationary emergency RICE located at major sources do not have to conduct any performance testing," but section 63.6612 of the proposed rule (requirements to conduct and initial performance test) states: "[i]f you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at major of HAP emissions…you are subject to the requirements of this section." Section 63.6612 and Tables 4 and 5 do not distinguish between emergency RICE and non-emergency RICE. The proposed rule language suggests that if an engine has a numerical emission limit, a compliance test is required. The commenter (116) opined that the preamble language is incorrect, but if they are wrong, they suggested that EPA clarify that EPA does not intend to require emergency engines to be tested in Section 63.6612 and in Tables 4 and 5 of the proposed rule.

One commenter (90) noted there are conflicting statements in the preamble concerning if an initial compliance test is a requirement or not (e.g. on page 9704 of the proposed rule it states that area sources subject to an emission standard must do an initial compliance test while on Page 9705 of the proposed rule it states that operators of emergency RlCE are specifically excluded from the need to submit a notification of a compliance test). The commenter (90) stated that in EPA's impacts memo, it is expressly stated that a compliance test for emergency use engines would not be required. The commenter (90) further stated that the most significant issue however is not that a compliance test is required for emergency use engines, but what the emission levels are for existing engines with no add-on controls.

One commenter (176) recommended that EPA remove the testing requirements for emergency engines from the proposed rule. The commenter (176) stated that the preamble to the proposed rule provides that such engines are not subject to any performance testing requirements, but that the rule appears to include such testing requirements (i.e., in proposed

Tables 3, 4 and 6 to 40 CFR part 63, subpart ZZZZ). The commenter (176) supported its recommendation by explaining that emergency engines only operate on a limited basis where periodic testing requirements are not necessary.

One commenter (50) found the emissions testing and reporting requirements applicable to emergency generators to be contradictory. In Section III.E of the preamble (FR Page 9705), and again in part 63.6645, existing stationary emergency RICE are excluded from reporting requirements, including pre-emissions testing and post-emissions testing reporting requirements. However, emergency RICE greater than 500 HP are subject to emission limits and testing for CO per Table 2d, thereby making them subject to pre-testing and post-testing reporting requirements. The commenter requests that the rule be modified to clearly indicate that emergency generators are not subject to emissions testing and reporting requirements.

Response: EPA understands the commenters' points, but EPA disagrees that the statement on page 9711 of the proposed Federal Register notice that the commenters refer to conflicts with later text requiring numerical standards. The statement that the commenters refer to is in section IV.C. of the proposed preamble under the heading "How did EPA determine the compliance requirements." That section of the preamble discusses the compliance requirements and how EPA determined appropriate compliance requirements, and is not a discussion of emission standards. Under the proposed rule, EPA did not require performance testing for stationary non-emergency engines at major sources that are less than 100 HP and stationary engines at area sources that are not subject to any numerical standards and stationary emergency engines. EPA explained why it believed it was appropriate to not require performance testing from these engines and this decision was not in conflict with the decision to require numerical emission standards from some of these engines at proposal.

The requirement that existing stationary engines at area sources subject to a numerical emission standard would be required to conduct an initial compliance test was intended for non-emergency engines at area sources and EPA does not believe that the requirement conflicts with the following statement that emergency engines are also not being subjected to performance testing. However, EPA sees that it may not have been absolutely clear in the proposed language and tables. Therefore, EPA has made clarifications in the final rule regarding which engines are subject to performance testing and believes this resolves the commenters' concerns on this issue. EPA notes that several of the subcategories that were proposed to be subject to numerical limits have, in the final rule, been made subject to management practices or work practice standards, and thus would not be subject to performance testing.

14.2.6 Comment: One commenter (96) indicated that it is not clear when new engines that are subject to SSM limits are supposed to comply and if these engines are supposed to comply as of the date of the proposed rulemaking, a date that has already passed, that is an impossible and unreasonable requirement the commenter (96) said.

Response: New stationary engines should comply with the new requirements for SSM starting with the effective date of the final rule.

14.2.7 Comment: One commenter (63) noted some inconsistencies or areas in need of clarification in the tables of the proposed rule and said that:

- Table 2c, item 8 requires existing non-emergency CI greater than 300 HP at a major source to be retrofitted for more restrictive emissions limitations (90 percent reduction) than new units to be installed at the same major source (70 percent in the current Table 2a, item 3).
- In proposed Tables 2c and 2d, item 9 should be labeled "Non-Emergency CI <50 HP".

Response: Both of the citations that the commenter questioned were correct as written. The proposed limit in Table 2c, item 8 for existing non-emergency stationary CI engines greater than 300 HP located at a major source was intended to be 90 percent reduction. This provision was revised in the final rule. In proposed Tables 2c and 2d, item 9 included all stationary engines smaller than 50 HP, so there is no reason it should be limited to "Non-Emergency CI."

14.2.8 Comment: One commenter (119) said there is some inconsistency between 40 CFR 63.6625(e) and the referenced Table 2d of the proposed rule. Table 2d of the proposed rule explicitly outlines maintenance requirements for engines, but it does not include the provisions in 40 CFR 63.6625(e) relating to manufacturer or owner/operator maintenance plans. Two commenters (118, 119) said EPA should insert the following clause to 40 CFR 63.6625(e): . . .you must operate and maintain the stationary RICE and aftertreatment control device (if any) according to the maintenance schedule in Table 2d, or you must operate and maintain the stationary RICE. . .

The commenter (119) recommended that a clause be added to Table 2d of the proposed rule indicating that as an alternative to the proposed schedules, owners and operators can maintain the stationary RICE according to the manufacturer's emission-related written instruction or develop their own maintenance plan.

One commenter (104) stated that the text in proposed 40 CFR 63.6625 and 63.6655 appears to allow the owner/operator of the engine to develop a maintenance plan in lieu of the requirements provided in Table 2d (i.e., proposed replacement schedule for oil/filters and spark plugs and inspection of hoses/belts). The commenter (104) requested that EPA clarify this issue in the text.

One commenter (77) supported proposed 40 CFR 63.6625(e), which the commenter interprets as allowing owners/operators that must demonstrate compliance with a written maintenance plan the flexibility to operate and maintain their units according to either a plan written by the manufacturers or themselves "consistent with good air pollution control practice for minimizing emissions."

In order to avoid confusion, commenter 240 also recommended the following clause be included in §63.6625(e) and to Table 2d of the final rule:

"…you must operate and maintain the stationary RICE and aftertreatment control device (if any) according to the maintenance schedule in Table 2d, or you must operate and maintain the stationary RICE…"

<u>Response</u>: EPA does not agree with the commenters that there is an inconsistency. The maintenance requirements in Table 2d are not the only emission-related operating and maintenance requirements that are recommended by the engine manufacturer, and the language in §63.6625(e) requires owners and operators to follow those requirements. The maintenance

plan should include the maintenance practices from Table 2d as well as other maintenance necessary for the engine.

14.2.9 Comment: One commenter (111) indicated that the proposal states that the pressure drop across the catalyst must be monitored monthly for engines greater than 500 HP at area sources (74 FR 9704) and later states that the pressure drop must be monitored continuously (74 FR 9711).

Response: The commenter is correct that there is an inconsistency in the preamble for the proposed rule. The language on page 9711 should have said that the pressure drop must be measured monthly, rather than continuously.

14.2.10 Comment: One commenter (188) noted that the heading on the middle column of Table 2d to subpart ZZZZ of part 63 of the proposed rule, states, "You must meet the following emission or operating limitations at all times, except during periods of startup, or malfunction." The commenter (188) believed that this language may possibly be interpreted by overly zealous regulators in the field to require a continuous emissions monitoring system (CEMS) on every engine and noted that installing, maintaining and calibrating CEMS would be another unjustifiable and costly burden; especially when applied to small engines and/or those that are redundant/standby. The commenter (188) continued that the same comment applies regarding the heading at the top of the far right column of Table 2d to subpart ZZZZ of part 63 of the proposed rule, which states "[y]ou must meet the following emission or operating limitations during periods of startup, or malfunction." The commenter (188) recommended that the EPA clearly state that CEMS is not required, and that EPA consider more realistic standards that operators are able to comply with; specifically, that the wording "at all times" be deleted.

Response: Subpart ZZZZ does not require CEMS. Sources may elect to install CEMS, but they are not required. EPA does not agree that the wording "at all times" should be deleted because those requirements apply at all times except as indicated.

14.2.11 Comment: One commenter (256) expressed that the proposed rule is ambiguous as to how an owner or operator of a stationary emergency RICE is to demonstrate initial and continuous compliance with the proposed numerical emissions limitations. The commenter (256) stated that, if the EPA does not believe it is reasonable to subject stationary emergency RICE to performance testing, then there is no purpose for setting a numerical emissions limitation for any stationary emergency RICE.

Response: The final rule does not contain any numerical emission limitations for emergency CI engines. These engines have to meet work or management practices. This addresses the concerns expressed by the commenter.

14.2.12 Comment: One commenter (76) asked if the requirements for less than 50 HP in Tables 1 and 2 in the preamble apply to emergency or nonemergency engines.

Response: The requirements in the preamble and rule tables for stationary engines less than 50 HP apply to both emergency and non-emergency engines. The requirements were revised in the final rule.

14.2.13 Comment: One commenter (88) recommended that EPA clarify how sources demonstrate compliance with the applicable requirements. The proposed rule states that "stationary non-emergency RICE located at major sources that are less than 100 HP, stationary RICE located at area sources that are not subject to numerical standards, and all stationary emergency RICE are only subject to compliance requirements in the form of management practices to minimize emissions." However, the language of the regulation conflicts with this statement. Section 63.6603 of the proposed rule requires that the owner or operator of existing stationary RICE located at an area source must comply with the requirements of Table 2d of the proposed rule. Additionally, Section 63.6640 of the proposed rule requires that the owner or operator demonstrate compliance with the provisions in Table 2d of the proposed rule by complying with the methods outlined in Table 6 of the proposed rule. For emergency CI included in line 6 of Table 2d of the proposed rule, continuous compliance is demonstrated through maintaining the RICE in accordance with the original equipment manufacturer recommendations or by the establishment of a maintenance plan (line 10 in Table 6 of the proposed rule). However, for CI greater than 500 HP, which has a proposed numeric standard (e.g., 40 ppmvd at 15 percent O_2, as shown in line 7 in Table 2d of the proposed rule), line 11 in Table 6 indicates that performance tests must be conducted every 8,760 hours or three years. The commenter (88) suggested that EPA correct this contradiction by modifying Table 2d of the proposed rule so that emergency CI at area sources, no matter what HP rating, are required to meet specific management practices similar to those included in line 6 of Table 2d of the proposed rule. If EPA determines it must impose a numerical standard, line 10 of Table 6 of the proposed rule should, in the commenter's (88) opinion, be modified to also include all RICE located at an area source, including those subject to numerical emission limitations.

Response: EPA agrees with the commenter that the language in the preamble to the proposed rule and proposed regulatory text was unclear with regard to the compliance requirements for stationary emergency engines. EPA did not intend to require testing for emergency engines or for any engines less than 100 HP or engines at area sources.

In the final rule, all CI engines that are less than 100 HP and located at major sources are subject to work practices only. Stationary CI engines that are less than or equal to 300 HP and located at area sources are subject to management practices only. Also, all existing stationary emergency CI engines are required to meet work or management practices in the final rule.

14.2.14 Comment: One commenter (193) requested that EPA clarify that the category of small engines (i.e., less than 50 HP) at both major and area sources is not a universally applicable category of engines that is separate, distinct, all encompassing, and not otherwise associated with any of the other listed engine sub-categories. The commenter (193) noted that the information presented in the referenced tables that contain compliance related requirements should be clarified to express that all engine types less than 50 HP, are not required to fulfill the stated requirements, or EPA should modify the information in its tables to reflect its stated belief that there will be no CI, or lean burn engines of this size. The commenter (193) suggested EPA limit the applicability of the less than 50 HP classification to only those four cycle, rich burn SI engines it used to establish the MACT floor.

Response: The commenter is not correct. The category of engines less than 50 HP as proposed did include all stationary engines below 50 HP, not just 4SRB SI engines. This final rule only includes CI engines; CI engines under 50 HP have been grouped as one subcategory with CI engines 51-99 HP for the final rule and are subject to work or management standards.

14.2.15 Comment: One commenter (139) noted that the preamble of the proposed rule and Tables 2d of the proposed rule appear inconsistent in their treatment of emergency CI RICE greater than 500 HP. Table 2d of the proposed rule indicates that these engines are subject to a numeric limit of 40 ppmvd. The numeric limit is based on the best performing uncontrolled sources and, as such, many RICE cannot meet the standard without add-on controls. In contrast, the preamble states: "...all stationary emergency RICE are only subject to compliance requirements in the form of management practices to minimize emissions." 74 Fed. Reg. 791 1. Accordingly, the commenter (139) requested that EPA revise the requirements applicable to emergency CI RICE greater than 500 HP to ensure consistency between the proposed regulatory language and the Agency's intent.

Response: The statement that the commenter cited in the preamble was only referring to the requirements for demonstrating compliance and not the actual emission or operating limitations for the engines. EPA recognizes that the language may have been confusing and has tried to make the requirements as clear as possible in the final rule. In any case, the final rule requires management practice standards for emergency engines above 500 HP at area sources. Emergency engines above 500 HP located at major sources were not subject to this rule.

14.2.16 Comment: Two commenters (98, 157) took issue with the proposal preamble discussion of oxidation catalysts, believing that the language presented in the preamble should be revised to clarify that oxidation catalysts are an appropriate device to reduce HAP emissions from CI engines. The commenter (98) noted that CDPF may be more effective at removing PM from CI engine exhaust, but are admittedly more expensive. The commenter (98) asserted that intention of this rule is to reduce HAP by reducing emissions of their surrogate, which for CI engines is CO not PM. Consequently, the commenter recommended that the language in the preamble be revised as follows:

> Oxidation catalysts are another type of aftertreatment that can be applied to diesel or natural gas fired stationary engines ~~and are typically used with lean burn engines. The technology can be applied to either diesel or natural gas fired lean burn engines~~.

Response: EPA believes the commenters are referring to the following statement in the proposed preamble language on page 9705 of the Federal Register notice:
"Oxidation catalysts are another type of aftertreatment that can be applied to stationary engines and are typically used with lean burn engines. The technology can be applied to either diesel or natural gas fired lean burn engines." The purpose of the first part of the statement is to indicate that oxidation catalyst is an appropriate technology for lean burn, and not rich burn engines. Lean burn engines as used in this context refers to diesel and natural gas engines as diesel

engines are considered "lean." EPA makes it clear in the second sentence of the above cited statement that oxidation catalyst can be used on either diesel engines or natural gas lean burn engines. EPA believes this is clear and does not think the commenters' specific language revisions are necessary.

14.2.17 Comment: One commenter (126) requested that the SI and CI subcategories be defined and clarified. The commenter (126) believes that EPA intended to provide the SI category as a "catch-all" for any spark ignition engines that do not fall into other categories.

Response: There are definitions for SI and CI in §63.6675. The commenter did not provide any information regarding what needs to be clarified for these subcategories, therefore EPA is unable to fully respond to the comment.

14.2.18 Comment: One commenter (175) asked for clarification on whether the requirements in Table 2d of the proposed rule apply to engines manufactured prior to June 12, 2004. The commenter (175) indicated that it thought that under 40 CFR 63.6590(c), the standard for new area source engines manufactured after June 12, 2006, would be equivalent to NSPS, and that the NSPS requires a maintenance plan that is not as prescriptive as the oil, filter and spark plug replacement schedule in the proposed rule for existing engines less than 50 HP.

Response: The proposed Table 2d applies to existing stationary RICE located at an area source of HAP emissions. Section 63.6590 of subpart ZZZZ states that a stationary RICE located at an area source of HAP emissions is considered existing if construction of the engine commenced before June 12, 2006.

14.3 Errors

14.3.1 Comment: Several commenters (63, 96, 99, 116, 146, 155, 159, 193, 224, 227, 242) noted errors in the use of mathematical symbols in the proposed rule preamble and rule tables and provided corrections to the tables. The commenters (155, 242) indicated that the "≥" symbol should be changed to "≤" in several cases, e.g., "50≥HP≤249" should be changed to "50≤HP≤249." Commenter 99 said that for example 50>HP<500 should be changed to 50<HP<500.

Response: The commenters are correct that some of the mathematical symbols in the proposed rule were incorrect. EPA has corrected the typos concerning the use of the ≤, ≥, <, and > signs in the final rule.

14.3.2 Comment: One commenter (242) stated that in the EPA Fact Sheet and February 27 News Release EPA said that the rule sets emission standards for engines that "have a site rating of greater than 500 HP, are located at major sources of air toxics emissions, and were constructed or reconstructed before December 19, 2002." The commenter (242) said that the referenced engines are the engines covered by the 2004 RICE NESHAP, where existing rich burn engines where the only existing sources that required add-on controls. The proposed rule sets new requirements for existing diesel engines, but not existing natural gas engines greater than 500 HP at major sources. So it appears the EPA Fact Sheet and New Release contain errors, according to the commenter (242). It should be clarified in these publications that the proposed rule sets standards for existing diesel engines greater than 500 HP at major sources and SSM limits for natural gas rich burn engines greater than 500 HP at major sources.

Response: EPA does not necessarily agree with the commenter that the February 25, 2009 Fact Sheet available at http://www.epa.gov/ttn/oarpg/t3/fact_sheets/rice_neshap_prop_fs_022509.pdf was inaccurate. The applicability dates that distinguish stationary existing engines from stationary new engines are specified in 40 CFR 63.6590(a). Per 63.6590(a)(1)(i), stationary engines greater than 500 HP located at major sources of HAP emissions are considered existing if construction or reconstruction is commenced prior to December 19, 2002. This is consistent with bullet one, sub-bullet three, under the title "Action" in the February 25, 2009 Fact Sheet, which was intended for the existing stationary diesel engines greater than 500 HP located at major sources that EPA is addressing in this rulemaking. EPA could have been clearer in this bullet by stating that new emission standards only apply to existing diesel engines greater than 500 HP at major sources, and not to natural gas engines, as well as specifying the applicability of the SSM limits that were being co-proposed. For the final rule, EPA has made sure that the Fact Sheet and other material are clear.

14.3.3 Comment: One commenter (96) said that if EPA keeps standards for engines less than 50 HP there needs to be a separate subcategory for emergency engines.

Response: The commenter did not provide any information to justify the need for a separate subcategory for emergency engines smaller than 50 HP. In any case, both emergency and non-emergency engines smaller than 50 HP are subject to either work or management practices under the final rule. The practices for emergency engines are slightly different from those for non-emergency engines.

14.3.4 Comment: One commenter (186) noted that there is a typographical error on page 9711 of the preamble where it says "of three years" instead of "or three years."

Response: The commenter is correct.

14.4 Discrepancies

14.4.1 Comment: One commenter (193) noted that the §63.6640(f) requirement that precludes maintenance checks and readiness testing, unless it is recommended by governmental authorities, engine manufacturers, or insurance companies, conflicts with the proposed requirement in §63.6625. The problematic wording of §63.6640(f) establishes a prohibition to the operation of an emergency RICE for maintenance and readiness testing purposes unless the owner or operator possesses a recommendation from one of the listed entities. The commenter (0193) believes that if EPA is to require owners and operators to develop plans for the maintenance and operation of emergency engines, in the absence of recommended practices from "Federal, State or local government, the manufacturer, the vendor, or the insurance company," it should not construct accompanying regulatory requirements that do not include the owner or operator developed maintenance and operation plans as valid criteria for authorizing maintenance and readiness testing activities.

Response: EPA does not agree with the commenter that §63.6640(f) should include maintenance checks developed solely by the owner/operator and having no input whatsoever from one of the entities listed in §63.6640(f).

14.4.2 Comment: One commenter (178) noted discrepancies in the applicability of the rule as presented in the text and tables. The commenter (178) states that in several places the tables do not support the text concerning applicability of the rule to specific RICE unit types. There are numerous inconsistencies between the requirements for large stationary engines and smaller ones, and between those located at major sources and those at area sources. Although there are many more examples, the following are instances of inconsistency:

- EPA should confirm that, in the descriptions to Table 2a and 2b of the proposed rule, the phrase "located at a Major Source . ." applies to all the categories of RICE contained in those descriptions and not just the last category of RICE in the titles.
- Assuming that large engines have a larger potential impact, and that requirements proposed for small engines are not applicable to such larger engines, it is not reasonable to impose such requirements on small engines. For example, the requirements for an emergency stationary RICE >500 HP does not have a 100 hr run-time restriction, yet smaller RICE do. The commenter (178) suggested this requirement be removed for smaller engines.

Response: The commenter is correct that the phrase "located at a Major Source . . ." applies to all of the RICE listed in the titles of Tables 2a and 2b. The run-time requirements for emergency stationary RICE greater than 500 HP at a major source were promulgated as part of the 2004 RICE NESHAP and are not the subject of this rulemaking. EPA does not agree with the commenter that the 100 hour run-time restriction on maintenance and testing operation should be removed for stationary RICE smaller than 500 HP and stationary RICE located at area sources. Having a different requirement for large engines at major sources is not a sufficient justification for removing the 100 hour limit.

14.5 Other

14.5.1 Comment: A few commenters (103, 111, 150, 155, 224, 225) noted other regulations allow a 200 hour burn-in period for engines with catalysts that are new, reconstructed, or rebuilt. The commenters (155, 224) believe this allowance should also be provided for commissioning of an engine after major maintenance. Major maintenance may not always be considered a rebuild; however, an engine burn-in period would still be necessary to ensure that catalyst damage does not occur, the commenter (155) said. In addition, the commenter (155) also believes that existing engines that are retrofitted should be given a burn-in period. Again, the retrofit may not constitute a modification, reconstruction or rebuild, but necessary upgrades that require burn-in time to prevent catalyst damage may be appropriate, according to the commenter (155). The commenter (155) recommended that EPA revise the current language in §63.6640(d) to read as follows (the commenter's (155) additions are shown in **bold**):

“For new, reconstructed, and rebuilt stationary RICE, **and stationary RICE that have undergone maintenance that could result in catalyst damage upon startup or equipment changes to comply with the requirements of this subpart,** deviations from the emission or operating limitations that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations.”

One commenter (103) stated that EPA should incorporate a provision for a commissioning period into the rule whereby the RICE is allowed to operate prior to installation of catalytic elements in order to prevent damage to the catalytic elements during engine break in. The commenter (103) attributed the following quotation to EPA but gave no citation:

“EPA understands the “commissioning period” to be the final phase of the construction process. Activities conducted during the commissioning period include: checking all mechanical, electrical, and control systems for the RICE and all related equipment; and confirming the performance measures specified in the purchase agreement. EPA understands that the commissioning period may take up to two weeks to complete. EPA does not consider the “commissioning period” as the initial startup of the unit as long as the RICE is not being used for its intended purpose or any other beneficial use at the facility during this time. Site-specific determinations of initial startup may be required for facilities that operate in a commissioning mode for excessive periods of time.”

Two other commenters (111, 225) similarly noted that installation of the catalyst during the break-in period of a new or overhauled unit (typically 50-100 hours) is likely to result in catalyst malfunction due to fouling, masking, or poisoning of the catalyst element.

Another commenter (150) urged EPA to address the potential to generate a deviation during an SSM event consistent with the burn-in provisions set forth in 40 CFR 63.6640(d), which provides that "deviations from the emission or operating limits that occur during the first 200 hours of operation from engine startup (engine burn-in period) are not violations." This commenter (150) added that if the rules are promulgated not to allow burn-in time, costs would be increased due to the need to wash or replace catalyst which would be masked if left on during this period to meet emissions requirements.

Response: EPA does not agree that it should provide a burn-in period in subpart ZZZZ for retrofitted engines or engines that have been subject to maintenance short of a rebuild. EPA does not have any information to indicate that retrofitted engines or engines subject to maintenance would not be able to meet the requirements of subpart ZZZZ immediately after the retrofit or maintenance, and therefore does not agree that such an exemption from the rule requirements should be provided. EPA notes that the pre-existing burn-in period for new, reconstructed and rebuilt engines has not been revised. Regarding the comments that stated that RICE should be allowed to operate prior to installation of catalyst elements, EPA does not agree that this is necessary because this rulemaking affects existing engines that have already been operated. In addition, sources have three years to comply with this rulemaking so they have sufficient time to operate their engines prior to catalyst installation and also have sufficient time to operate their engine following catalyst installation prior to the compliance date of the rule.

14.5.2 Comment: One commenter (242) requested that EPA specify in the final rule that no more than one end of pipe control is required. According to the commenter (242), other air quality jurisdictions may require a CDPF or oxidation catalyst under separate regulations and the commenter believes that EPA should incorporate language stating that for diesel engines with

CDPF or oxidation catalyst additional controls should not be required to ensure that engine and stack parameters are within the appropriate range that is required to satisfy engine performance (e.g., in-use output requirements) and control device performance, such as exhaust temperature or pressure drop.

Response: EPA does not agree that it would be appropriate to specify that other air quality jurisdictions cannot require additional emission controls.

14.5.3 Comment: One commenter (242) said that EPA's failure to issue a proposed rule amendment with strikethrough and additions creates additional burden on the community and a rule with strikethrough and addition text would have eliminated the need to review and compare the previous rule text. The commenter (242) urged EPA to use this approach in future rule revisions to minimize rule interpretation issues and intent, inconsistencies, conflicts and unnecessary regulatory uncertainties.

Response: EPA agrees with the commenter that a redline/strikeout copy of the rule would be useful in reviewing the amendments. However EPA does not agree that the failure to do so creates an undue burden on the community.

14.5.4 Comment: A few commenters (127, 128) provided information regarding crankcase ventilation. One commenter (128) who indicated that it was in full support of commenter's 155 recommendations also responded to EPA's request for comment on the use of CCV systems as a technology possibly able to reduce HAP emissions. The commenter (128) does not believe such systems would significantly reduce HAP emissions because emissions from such ventilation systems are minimal fugitive emissions and any reductions associated with such systems would be insignificant and does not justify the use of a closed system and the commenter recommends that this technology not be required in the final rule.

Commenter 127 reported that estimates to retrofit its existing generators with these systems would cost between $5,000 and $10,000 per generator with some of the larger ones costing more. The commenter (127) also reported that the annual preventative maintenance costs would rise an additionally $200 to $500 per generator over the cost of its current maintenance program. This commenter (127) expressed that this increased cost when averaged over the few hours emergency generators operate in at area sources further supports its request that EPA limit the requirements for all emergency generators located at area sources to management practices only.

Commenter 96 provided additional information on crankcase ventilation controls to EPA after the close of the comment period. The commenter suggested that metallic HAP emissions could potentially be reduced through the use of open crankcase filtration control systems. The commenter stated that open crankcase filtration control systems can remove upwards of 60-80% of the oil mist.

<u>Response</u>: While emissions from the crankcase are only a small portion of total engine emissions, the crankcase emissions are expected to be one of the main sources of metallic HAP emissions from stationary diesel engines. The majority of existing stationary CI engines route blow-by emissions from the pistons to the crankcase which is open to the atmosphere to prevent pressure buildup (referred to as open crankcase ventilation). Blow-by emissions are the result of

high pressure gases and oils escaping around piston rings and venting to the atmosphere. These blow-by gases contain small oil droplets and eroded metals from the pistons. EPA therefore does not agree with the commenter that the use of closed crankcase ventilation systems would not significantly reduce HAP emissions, at least for metallic HAP, and has included a requirement in the final rule that existing non-emergency CI engines larger than 300 HP be equipped with either open or closed crankcase ventilation systems to reduce the crankcase emissions from the engine. Open crankcase systems filter the crankcase cases to reduce oil mist before venting the crankcase gases to the atmosphere. Closed crankcase systems route the crankcase gases back to the combustion chamber, where the crankcase gases are combusted with the fuel mixture, or to the engine exhaust. EPA agrees with the comment that emergency engines should not be required to be retrofit with crankcase emission control systems. These engines are typically operated very infrequently and therefore the cost of the retrofit is not justified when compared to the emission reduction that would result.