Statement of Basis

Permit to Construct No. P-2020.0045
Project ID 62470

US Dept of Energy – INL
Scoville, Idaho

Facility ID 023-00001

Final

January 29, 2021
Chris Duerschner
Permit Writer

CD

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

TABLE OF CONTENTS

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE....4
FACILITY INFORMATION....6
Description....6
INL Overview....6
Permitting History....10
Application Scope....10
Application Chronology....11
TECHNICAL ANALYSIS....11
Emissions Units and Control Equipment....11
Emissions Inventories....13
Ambient Air Quality Impact Analyses....17
REGULATORY ANALYSIS....18
Attainment Designation (40 CFR 81.313)....18
Facility Classification....18
Procedures and Requirements for Permits Establishing a Facility Emissions Cap (IDAPA 58.01.01.175)....19
Permit to Construct (IDAPA 58.01.01.201)....20
Tier II Operating Permit (IDAPA 58.01.01.401)....20
Excess Emissions (IDAPA 58.01.01.130-136)....20
Visible Emissions (IDAPA 58.01.01.625)....20
Open Burning (IDAPA 58.01.01.600-624)....21
The facility is subject to the State of Idaho Rules for Control of Open Burning.....21
Fugitive Dust (IDAPA 58.01.01.650-652)....21
Fuel Burning Equipment (IDAPA 58.01.01.675-681)....21
Sulfur Content of Fuels (IDAPA 58.01.01.725)....21
PSD Classification (40 CFR 52.21)....21
NSPS Applicability (40 CFR 60)....21
NESHAP Applicability (40 CFR 61)....22
MACT/GACT Applicability (40 CFR 63)....22
Permit Conditions Review....22
PUBLIC REVIEW....25
Public Comment Opportunity....25
Public Comment Period....25
APPENDIX A – EMISSIONS INVENTORIES
APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

APPENDIX C – FACILITY DRAFT COMMENTS

APPENDIX D – PROCESSING FEE

APPENDIX E – REVIEW OF FEDERAL REGULATIONS

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AMWTP	Advanced Mixed Waste Treatment Project
AMWTF	Advanced Mixed Waste Treatment Facility
ATR	Advanced Test Reactor
Btu	British thermal units
CCE	Contamination Control Enclosure
CDX	Central Data Exchange
CEDRI	Compliance and Emissions Data Reporting Interface
CEMS	continuous emission monitoring systems
CFR	Central Facilities Area
CFR	Code of Federal Regulations
CI	compression ignition
CO	carbon monoxide
COMS	continuous opacity monitoring systems
CPP	Chemical Processing Plant
CRR	Carbon Reduction Reformer
DEQ	Department of Environmental Quality
DMR	Denitration and Mineralization Reformer
dscf	dry standard cubic feet
EPA	United States Environmental Protection Agency
FAST	Fluorinel and Storage Facility
FCF	Fuel Conditioning Facility
FEC	Facility Emissions Cap
FFTF	Fast Flux Test Facility
FMF	Fuel Manufacturing Facility
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HEPA	high efficiency particulate air
Hp	Horsepower
HRA	Hot repair area
HRF	Hot repair facility
ICE	internal combustion engines
IMCL	Irradiated Materials Characterization Laboratory
ISO	International Organization for Standards
IWTU	Integrated Waste Treatment Facility
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
KW	Kilowatts
lb/hr	pounds per hour
lb/MMBtu	Pounds per million British thermal units
MACT	Maximum Achievable Control Technology
MFC	Materials and Fuels Complex
MMBtu	million British thermal units
MMBtu/hr	Million British thermal units per hour
Mrem/yr	millirem per year
MW	Megawatts
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants

Ng/J	Nanograms per Joule
NGLW	newly generated liquid waste
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NR	Non-road
NRF	Naval Reactor Facility
NSPS	New Source Performance Standards
NWCF	New Waste Calcining Facility
O&M	operation and maintenance
OAQPS	Office of Air Quality Planning & Standards
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
ppm	Parts per million
PTC	permit to construct
RATA	Relative Accuracy Test Audit
RCE/ICE	Retrieval Contamination Enclosure/Inner Contamination Enclosure
RICE	reciprocating internal combustion engines
RWMC	Radioactive Waste Management Complex
§	Section
SBW	sodium bearing waste
scf	standard cubic feet
SES	Safety Exhaust System
SI	Spark Ignition
SMC	Specific Manufacturing Capability
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAN	Test Area North
TSA-R	Transuranic Storage Area – Pad R
TSA-RE	Transuranic Storage Area Retrieval Enclosure
TTN	Technology Transfer Network
T/yr	tons per consecutive 12 calendar month period
VOC	volatile organic compounds

FACILITY INFORMATION

Description

INL Overview

INL is a science-based, applied engineering national laboratory dedicated to supporting DOE's missions in nuclear and energy research, science, and national defense. In accordance with the Clean Air Act, INL is a "research or laboratory facility" and an "institutional facility."

Battelle Energy Alliance, LLC, (BEA) is the management and operations contractor and operates INL under contract with DOE. INL conducts research, development, demonstration, and deployment activities at the Advanced Test Reactor (ATR) Complex, Central Facilities Area (CFA), Critical Infrastructure Test Range Complex (CITRC), Idaho Nuclear Technology and Engineering Center (INTEC) and Materials and Fuels Complex (MFC). In addition to these research facilities, INL manufactures armor at the Specific Manufacturing Capability (SMC) facility located at Test Area North (TAN) under contract with the Department of Defense.

In addition to the primary mission of INL, environmental cleanup and remediation is also performed at INL under the Idaho Cleanup Project (ICP) by primary cleanup contractor Fluor Idaho, LLC. The ICP conducts remediation efforts at INTEC, the Radioactive Waste Management Complex (RWMC), MFC, and the groundwater pump and treatment at TAN. It also operates the Advanced Mixed Waste Treatment Project (AMWTP) located at RWMC.

The Naval Reactors Facility (NRF) is operated for the U.S. Naval Nuclear Propulsion Program by the Fluor Marine Propulsion Corporation, LLC. NRF prepares and packages spent naval nuclear fuel for dry storage and eventual transport to a permanent repository. The Fluor Marine Propulsion, LLC conducts examinations of developmental nuclear fuel material samples, naval spent nuclear fuel, and irradiated reactor plant components/materials.

Facility Descriptions

Advanced Test Reactor Complex

The ATR Complex, located in the southern part of INL, provides work areas to conduct experiments associated with the development, testing, and analysis of materials used in nuclear and reactor applications, research and development, and both radiological and non-radiological laboratory analyses.

The ATR Complex was originally established in the early 1950s with the development of the Materials Test Reactor. Two other major reactors followed, the Engineering Test Reactor (ETR) and ATR. The ETR has been inactive since January 1982. Deactivation and decommissioning the ETR began in October 2005, with demolition complete in March 2008. The Materials Test Reactor (Test Reactor Area-603) was shut down and decommissioned in 1970, with demolition complete in August 2011.

The ATR Complex has approximately 77 buildings and 49 structures, which have been modified to fit the changing needs of INL and provide five major types of functional space: reactor, laboratory, office, training, and craft support for maintenance and utilities. The major ATR Complex program is the ATR. The ATR Complex personnel provide direct support to this reactor as well as various other programs and activities located throughout INL.

ATR Complex currently has no permitted stationary sources of criteria air pollutants. The ATR Complex has three previously permitted stationary emergency internal combustion engines (ICE) that are included in the baseline actual emissions (BAE) calculations. This permit was rescinded by DEQ upon issuance of PTC P-2015.0023. Other exempted sources include emergency stationary ICE, analytical laboratories, maintenance shops, and small research facilities.

Central Facilities Area

CFA encompasses about 968 acres in the southwestern portion of the INL Site. The purpose of CFA is to provide technical and support services to the INL Site. These services include dosimetry and calibration laboratories,

communication systems, security, fire protection, medical services, warehouses, vehicles, and equipment pools, the INL landfill complex, hazardous waste storage, bus operations, and Sitewide area infrastructure.

There are currently no permitted sources of air pollution at CFA. Two sources are included in the dispersion protocol and BAE calculation: a 2.1 million British thermal unit per hour (MMBtu/hr) boiler located at building CFA-609 and a 1.5 MMBtu/hr boiler at CFA-608. Both boilers are equipped with an oxygen trim system. Other exempted sources include emergency stationary ICE, analytical laboratories, and maintenance facilities.

Critical Infrastructure Test Range Complex

The CITRC area is located approximately 6 miles northeast of CFA and has a land area of 967 acres. It supports INL National and Homeland Security missions, including program and project testing (i.e., critical infrastructure resilience and nonproliferation testing and demonstration). Activities that take place at the CITRC area include wireless test-bed operations, power line and grid testing, unmanned aerial vehicle testing, accelerator testing, explosives detection, and radiological counter-terrorism emergency response training.

There are currently no permitted sources of air pollution at CITRC.

Idaho Nuclear Technology and Engineering Center

ICP Managed Sources

INTEC, which is located in the southwestern portion of INL, covers approximately 250 acres and contains over 150 buildings and structures. The current mission of INTEC is to store and treat remaining sodium bearing waste (SBW); transfer spent nuclear fuel from wet to dry storage; prepare calcine stored in the bin sets for disposition in a permanent repository; develop technologies for disposing of spent nuclear fuel, treated SBW, and high level waste; develop and apply technologies to minimize waste generation; manage and, as applicable, store, treat and prepare for disposition remote-handled transuranic and low level radioactive, mixed, and hazardous wastes.

Major operating facilities at INTEC include storage and treatment facilities:

- Wet and dry storage of spent nuclear fuel at CPP-603, CPP-666, CPP-749, and CPP-2707.
- Storage of calcine (dry granular waste) in the calcined solids storage facility bin sets (CPP-741,CPP-742, CPP-746, CPP-760, CPP-765, CPP-791, and CPP-795).
- Liquid SBW is stored in underground storage tanks at the Tank Farm Facility (TFF) (CPP-1781) and is awaiting treatment at the Integrated Waste Treatment Unit (IWTU) (CPP-1696).
- Hazardous, mixed waste, and radioactive wastes are stored and/or treated in the various RCRA permitted or interim status units including Chemical Processing Plant (CPP)-1781, CPP-604/605, CPP-659, CPP-666 the calcined solids storage facilities, CPP-1617, CPP-1618, CPP-1696, and CPP-2725.

Non-radiological exempted sources of air pollution at INTEC in the calculation of estimated emissions consist of the CPP-659 (CPP-659-033) stack, the CPP 666 Fluorinel Dissolution Process and Fuel Storage (CPP-767-001) stack, and the Main Stack (CPP-708-001). INTEC has eight emergency stationary diesel engines which are currently subject to Subpart ZZZZ rules for reciprocating internal combustion engines.

Support facilities, including plant utilities, maintenance, administrative, and engineering, are also located at INTEC.

The CPP-606 boiler house includes four steam generating, distillate fuel-fired boilers each with a rated capacity of 36.4 MMBtu/hr each. Each boiler has an oxygen trim system to optimize combustion efficiency and a flue gas recirculator to provide oxides of nitrogen (NOx) emissions control. The boilers are subject to New Source Performance Standards in accordance with 40 CFR 60 Subpart Dc – Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units and "National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources" per 40 CFR 63 Subpart JJJJJJ.

The IWTU was designed and constructed to treat liquid SBW and newly generated liquid waste to produce a solid treatment product amenable for disposal. Once the IWTU is fully operational, SBW from the TFF and newly generated liquid waste will be transferred to the Waste Feed Tank and fed to the first steam reformer, the #1 Denitration Mineralization Reformer (DMR). The DMR, operating in a chemically reducing mode, evaporates

liquids, volatilizes trace organics, converts nitrates to nitrogen gas, and converts all nonvolatile constituents of the feed into a sodium carbonate based granular solid treatment product. The reducing condition in the DMR is created by the injection of fluidizing steam, coal, and a small amount of oxygen to react with the coal to produce energy in the bed.

INL Managed Sources

INL tested various decontamination technologies in building CPP-653 for the U.S. Environmental Protection Agency (EPA). The research was used to determine clean-up protocol to be used after an urban radiological dispersion device ("dirty bomb") event. Current use of the facility for the Material Recovery Pilot Plant (MRPP) has made future research into decontamination protocols unlikely. The MRPP is a high temperature chlorination process to remove cladding (Zn or Al) from fuel. The demonstration process is designed to declad the fuel and recover uranium. The process uses small amounts of unirradiated fuel.

Materials and Fuels Complex

MFC is located 28 miles west of Idaho Falls on the southeastern corner of INL in Bingham County, Idaho. MFC is primarily a research facility that is operated by INL; however, ICP is currently conducting remediation operations at the facility. MFC does not have any significant non-radiological sources of air pollution.

MFC is the center of fuel fabrication, transient testing, and post-irradiation examination testing at INL. It is home to the Neutron Radiography Reactor and the Training, Research, Isotopes, General Atomics reactor used for neutron radiography. MFC focuses on research and development of nuclear fuels and has contributed significantly to knowledge advancements in liquid metal fast breeder reactor technology, extreme condition fuels, and reactor materials behavior. Prototypes of new reactor fuels are made and evaluated at MFC.

Pyro processing research, which uses electricity to separate waste products in the recycling of nuclear fuel, is also conducted here. At the Space and Security Power Systems Facility, INL makes nuclear batteries (called radioisotope thermoelectric generators) for use on the nation's space missions. MFC also houses analytical laboratories and the Environmental Measurements Laboratory for isotopic and chemical analyses and nanometer-scale analysis of material samples from its research facilities.

Naval Reactors Facility

Established in 1949, NRF is located in the west-central part of INL and is operated for the U.S. Naval Nuclear Propulsion Program by the Fluor Marine Propulsion, LLC. The principal facilities at NRF are three former naval reactor prototypes and the Expended Core Facility. The three prototypes were shut down in October 1989, January 1994, and May 1995, respectively.

Developmental nuclear fuel material samples, naval spent nuclear fuel, and irradiated reactor plant components/materials are examined at the Expended Core Facility. The knowledge gained from these examinations is used to improve current designs and to monitor the performance of existing reactors. The naval spent nuclear fuel examined at the Expended Core Facility is critical to the design of longer-lived cores, which results in the creation of less spent fuel requiring disposition. NRF also prepares and packages spent naval nuclear fuel for dry storage and eventual transport to a permanent repository.

Two 29.3 MMBtu/hr boilers are included in the dispersion protocol and facility emissions calculation. Both boilers are in the configuration known as a Portable Boiler Room (PBR). Each PBR consists of a Clever-Brooks fire-tube boiler and most of its necessary components, all assembled in a single cargo container. Each is mounted on a trailer and designed to be easily transportable.

Radioactive Waste Management Complex

Since the 1950s, DOE has used RWMC to manage, store, treat, and dispose of waste contaminated with radioactive and hazardous constituents generated from national defense and research programs. RWMC comprises 177 acres and includes the RWMC operations and administration area, the Subsurface Disposal Area (SDA), the Transuranic Storage Area Retrieval Enclosure (TSA-RE), and the Advanced Mixed Waste Treatment Facility (AMWTF).

ICP Managed

Emission sources include the treatment and repackaging of radioactive mixed wastes, and three propane boilers, each with a rated capacity of 12.55 MMBtu/hr. Emissions sources at the TSA-RE (WMF-636) include a 500-kw emergency diesel generator, and several emergency generators that support operations. Waste treatment operations at TSA-RE have been completed and portions of the facility, including the Retrieval Contamination Enclosure/Inner Contamination Enclosure (RCE/ICE) and the Contamination Control Enclosure (CCE) are undergoing RCRA closure.

SDA, a ninety-seven acre landfill located inside RWMC, was previously used, from 1954 through 1970, for disposal of low level, hazardous, and transuranic wastes in various pits and trenches. Most of the transuranic waste buried in SDA was generated during nuclear weapons production activities at the Rocky Flats Plant in Colorado and was packaged in drums and boxes prior to being shipped to Idaho.

CERCLA regulated Accelerated Retrieval Project (ARP) facilities are in the process of completing exhumation of targeted buried waste from the SDA. Exhumation of these wastes has been conducted in several retrieval enclosures (ARP I through ARP IX) with operation commencing in 2005. Two of the ARP facilities (ARP V and ARP VII) were repurposed for performing treatment and repackaging of transuranic mixed wastes under RCRA. These facilities are supported by various emergency stationary ICE, including nine emergency generators and two fire water pumps. In addition, a diesel-fired nonemergency stationary high-pressure breathing air compressor, rated at 28 hp is operated to support ARP projects.

Radioactive mixed wastes generated at the Rocky Flats Plant and disposed of at the SDA resulted in the release of volatile organic compounds (VOCs) to the environment. These VOCs are primarily in the form of organic vapors. Carbon tetrachloride (CCl4) and other VOCs released from buried wastes have been detected using surface isolation flux chambers. In the vadose zone, VOCs have been detected in SDA surficial sediments, vadose zone soil gas, and vadose zone soil water (perched water and lysimeters).

The operable unit (OU) 7-08 remedial investigation/feasibility study concluded that VOCs pose unacceptable risk to human health and the environment and analyzed remedial alternatives. The OU 7-08 Record of Decision selected vapor vacuum extraction and treatment to remove and destroy organic vapors from the vadose zone. The OU 7-08 Record of Decision identified CCl4, tetrachloroethylene, trichloroethylene, and 1,1,1 trichloroethane as contaminants of concern but established a cleanup goal only for CCl4 because successful treatment of CCl4 also mitigates the other VOCs.

Currently, the Organic Contamination Vadose Zone (OCVZ) treatment system is comprised of 15 extraction wells, 57 vapor monitoring wells with a total of 168 monitoring ports, three treatment units, and pipelines running between extraction wells and treatment units. The original treatment units used recuperative, flameless thermal oxidation to destroy VOCs. Over time, all three units have been upgraded with catalytic oxidizers.

Test Area North

ICP Managed

ICP conducts CERCLA remediation of ground water on the east end of TAN. The pump and treat system is designed to remove trichloroethylene from the Snake River Plain aquifer that runs under most of INL.

INL Managed

SMC is a state-of-the-art research and manufacturing complex operated by INL. SMC includes a multiphase manufacturing operation that produces fabricated metal assemblies. The SMC project supports two major process areas: TAN 629 Fabrication and Assembly and TAN 679 Rolling Operations. SMC is located on the west side of the TAN facility.

TAN 677 is used to perform maintenance welding and other metal working activities in support of the SMC project. Equipment typically located here includes welders, plasma arc cutting, lathes, and milling machines.

The Rolling Operations and Fabrication facility consists of TAN 679. TAN 679 houses the north and south manufacturing process areas, a boiler room, and various maintenance support areas. The TAN 679-025, TAN 679-026, TAN 679-027, and TAN 679-099 facilities comprise the south process production areas. The south process operations include a salt bath for preparing billets for rolling operations, a rolling mill, a water quench for cooling rolled materials prior to conveyance into the north process area, a horizontal mill for sawing depleted

uranium, and an oxidation oven for processing depleted uranium chips and fines. South process operations are primarily designed for fabrication from uranium billets but have the capability to work with other metal types as well. A welding hood (TAN 679-099) supports maintenance welding activities conducted at SMC. The rolled material from the south process is moved to the north process shearing station by an automated conveyor system. The parts are sheared to size, heated, leveled, cleaned with high-pressure water jet system, and inspected.

Additionally, a production laser is located within the north process area to support operations. This laser is used to cut carbon and stainless steel only. North process emissions vent through Stacks TAN 679-022, TAN 679-023, and TAN 679-024.

The SMC sources of air pollution include two identical boilers, located in TAN 679, that have a rated maximum heat input capacity of 25 MMBtu/hr each and operate as necessary to supply building heat and process steam to the SMC fabrication and manufacturing facilities. The boilers are each equipped with oxygen trim sensors to increase combustion efficiency. Combustion gases from each boiler are exhausted through individually dedicated stacks, TAN 679-067a and TAN 679-068. In addition to the boilers, the SMC has emergency stationary ICE.

Permitting History

The following information was derived from a review of the permit files available to DEQ. Permit status is noted as active and in effect (A) or superseded (S).

January 12, 2018 P-2015.0023, Initial FEC Permit, Permit status (A, but will become S upon issuance of this permit)

The following permit is being incorporated by this permitting action and will be terminated upon issuance:

- P-2008.0199, issued August 31, 2009 for the INTEC Integrated Waste Treatment Unit (IWTU)

The following PTCs were incorporated into this FEC permit at the time of its original issuance (January 12, 2018) and were subsequently terminated:

- PTC 011-00022 issued February 20, 2003, for the Utility Paint Spray Booth
- PTC P-2012.0053 issued September 18, 2012, for four boilers at CPP
- PTC P-2011.0092 issued October 18, 2011, for the Specific Manufacturing Capability (SMC)
- PTC P-023-0001 issued June 7, 2002, for the Advanced Mixed Waste Treatment Facility (AMWTF)
- PTC P-2013.0023 issued August 30, 2013, for the Materials and Fuels Complex (MFC) Fuel Manufacturing Facility (FMF)
- PTC P-2008.0073 issued December 5, 1989, and revised June 10, 2008, for the Materials and Fuels Complex (MFC) Fuel Conditioning Facility (FCF)
- PTC P-2011.0113 issued January 31, 2012, for the Materials and Fuels Complex (MFC) Irradiated Materials Characterization Lab (IMCL)
- PTC P-2011.0077 issued April 8, 2011, for FMF processing gloveboxes, hoods, and ventilation system

The following permits have been terminated without incorporation into this FEC permit:

- P-2011.0124 issued December 30, 2011, for the INTEC Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System
- P-010509 issued September 9, 2002, for the TRA Evaporation Pond

Application Scope

This PTC is for a minor modification at an existing minor facility. See the current Tier I permit statement of basis for the permitting history.

The applicant has proposed to:

- Remove section 8 of the existing PTC in response to the termination of voluntary consent order (VCO) Case No. E-2020.0012.
- Remove mobile sources within building enclosures from the existing PTC in response to a recent EPA decision.
- Incorporates appropriate conditions from PTC No. P-2008.0199 for the IWTU.
- Modify the projected emissions from the IWTU that were submitted with a previous application but are now determined to be underestimates.

Application Chronology

June 11, 2020	DEQ received an application and an application fee.
July 21, 2020	DEQ determined that the application was incomplete.
August 7, 2020	DEQ received supplemental information from the applicant.
September 10, 2020	DEQ determined that the application was complete.
October 28, 2020	DEQ made available the draft permit and statement of basis for peer and regional office review.
November 4, 2020	DEQ made available the draft permit and statement of basis for applicant review.
December 2, 2020	DEQ received the permit processing fee.
December 18, 2020 – January 18, 2021	DEQ made available the draft permit and statement of basis for public comment.
January 29, 2021	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Since the issuance of the previous permit (P-2015.0023, issued January 12, 2018), three boilers were removed from service and two boilers were installed at the facility. All boilers in service at the facility at the time of the current permit issuance are listed in Table 1.

Table 1 BOILERS AND CONTROL INFORMATION

Location	Manufacturer	Model	Serial #	Rated Capacity (MMBtu/hr)	Control	Fuel Type
AMWTP	Sellers Engineering	S-300-W	11668	12.55	O_2 Trim	Propane
AMWTP	Sellers Engineering	S-300-W	11669	12.55	O_2 Trim	Propane
AMWTP	Sellers Engineering	S-300-W	11670	12.55	O_2 Trim	Propane
AMWTP	A. O. Smith	BTH-500A 301	1747108311965	0.5	None	Propane
CFA	Cleaver Brooks	M4S 1500-100	4G16435	1.5	O_2 Trim	#2 Diesel
CFA	Cleaver Brooks	CB-101-50	L-83922	2.1	O_2 Trim	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10475	36.4	O_2 Trim	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10478	36.4	O_2 Trim	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10484	36.4	O_2 Trim	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10476	36.4	O_2 Trim	#2 Diesel
NRF	Cleaver Brooks	CBR-101-700-250ST	T5086-1-1	29.3	O_2 Trim	#2 Diesel
NRF	Cleaver Brooks	CBR-101-700-250ST	T586-1-1	29.3	O_2 Trim	#2 Diesel
SMC	Cleaver Brooks	CB-500(100)600-150	L-81365	25.0	O_2 Trim	#2 Diesel

SMC	Cleaver Brooks	CB-500(100)600-150	OLO444437	25.0	O_2 Trim	#2 Diesel

Since the issuance of the previous permit (P-2015.0023 issued January 12, 2018), six IC engines were removed from service and nineteen IC engines were installed at the facility. All IC engines in service at the facility at the time of the current permit issuance are listed in Table 2.

Table 2 INTERNAL COMBUSTION ENGINES AND CONTROL INFORMATION

Location	Manufacturer	Model	Capacity (hp)	Fuel Type	Control
AMWTP	Cummins	DFAC-5000893	380	Distillate	ULSD
AMWTP	John Deere	4045 HF285	115	Distillate	ULSD
AMWTP	Ford/Onan	10758	225	Propane	
AMWTP	Cummins/Onin	QSX15-G9	755	Distillate	ULSD
AMWTP	Cummins/Onin	VTA-28-05	900	Distillate	ULSD
AMWTP	Caterpillar	3412	745	Distillate	ULSD
ATR	Cummins	6CTA8.3C	250	Distillate	ULSD
ATR	Detroit Diesel-Allison	71237300	558	Distillate	ULSD
ATR	Clarke John Deere	Clarke JU6H-UFAD98 John Deere 6068HFC48A	315	Distillate	ULSD
ATR	John Deere	6076AF010	250	Distillate	ULSD
ATR	Clarke Detroit Diesel Allison	DDFP-06FA 8175F	368	Distillate	ULSD
ATR	Clarke Detroit Diesel Allison	DDFP-06FA 8175F	368	Distillate	ULSD
ATR	Enterprise	DSQ-38	2,118	Distillate	ULSD
ATR	Enterprise	DSQ-38	2,118	Distillate	ULSD
ATR	Caterpillar	3516	2,132	Distillate	ULSD
ATR	Caterpillar	3516B TA	2,593	Distillate	ULSD
CFA	John Deere	6068HFG94	217	Distillate	ULSD
CFA	Cummins	4BT3.3-G5	69	Distillate	ULSD
CFA	Isuzu	BR-4HK1X	320	Distillate	ULSD
CFA	Cummins	4BT3.3-G5	69	Distillate	ULSD
CFA	Caterpillar	3208 DIT	196	Distillate	ULSD
CFA	Caterpillar	3208 DIT	196	Distillate	ULSD
CFA	White Engines, Inc.	D-4800X198	166	Distillate	ULSD
CFA	Cummins	QSB7-G5NR3	99	Distillate	ULSD
CFA	Cummins	QSL-G2,NR3	345	Distillate	ULSD
CFA	Caterpillar	3208 DIT	196	Distillate	ULSD
CFA	Cummins	4BT3.3-G5	69	Distillate	ULSD
CFA	John Deere	Clarke JU6H-UFADS8	183	Distillate	ULSD
CFA	John Deere	4239DF	66	Distillate	ULSD
CFA	General Motors	SG050	61	Propane	
CFA	Cummins	G855	220	Natural Gas	
INTEC	Cummins	N14-C	460	Distillate	ULSD
INTEC	Detroit Diesel	D704LTE	87	Distillate	ULSD
INTEC	Cummins	NT-855-F	340	Distillate	ULSD
INTEC	Caterpillar	3406BDIT	370	Distillate	ULSD
INTEC	Caterpillar	3406BDIT	370	Distillate	ULSD
INTEC	Caterpillar	3516 Quad Turbo	2,304	Distillate	ULSD
INTEC	Caterpillar	3516 Quad Turbo	2,304	Distillate	ULSD
INTEC	Caterpillar	3516 Quad Turbo	2,304	Distillate	ULSD
MFC	Cummins	100	166	Distillate	ULSD
MFC	Caterpillar	D-150-8	230	Distillate	ULSD
MFC	Caterpillar	D175-4	235	Distillate	ULSD
MFC	John Deere	JU6H-UFAD88	237	Distillate	ULSD
MFC	Caterpillar	125	143	Distillate	ULSD
MFC	Cummins	50	86	Distillate	ULSD
MFC	Caterpillar	3406	460	Distillate	ULSD
MFC	Caterpillar	320	475	Distillate	ULSD
MFC	Caterpillar	320	475	Distillate	ULSD
MFC	White	HER 30	173	Distillate	ULSD
MFC	John Deere	Kohler 130	46	Distillate	ULSD
MFC	John Deere	Kohler 30	46	Distillate	ULSD
MFC	Kubota	V2403-CR-TE4B-	65.1	Distillate	ULSD

MFC	Cummins	NT-855-65	390	Distillate	ULSD
MFC	General Motors	50	77	Distillate	ULSD
MFC	Caterpillar	300	450	Distillate	ULSD
MFC	Isuzu	3CD1	18.1	Distillate	ULSD
MFC	Isuzu	3CD1 -	18.1	Distillate	ULSD
MFC	Caterpillar	60	110	Distillate	ULSD
MFC	Waukesha	EM200	525	Distillate	ULSD
MFC	John Deere	6068HF985	286	Distillate	ULSD
MFC	Caterpillar	3406	450	Distillate	ULSD
MFC	Waukesha	VLRPD	741	Distillate	ULSD
NRF	Caterpillar	3512	1,443	Distillate	ULSD
NRF	Caterpillar	3512	1,443	Distillate	ULSD
NRF	Caterpillar	3512	1,443	Distillate	ULSD
NRF	Caterpillar	3512	1,443	Distillate	ULSD
RWMC	Mitsubishi	S3L2	28	Distillate	ULSD
RWMC	Cummins	TN-855-F1	255	Distillate	ULSD
RWMC	John Deere	JU6H-UF30	140	Distillate	ULSD
RWMC	Cummins	DSNAF	364	Distillate	ULSD
RWMC	Caterpillar (International)	GCD325	398	Distillate	ULSD
RWMC	Caterpillar	C9	398	Distillate	ULSD
RWMC	Cummins	DSGAA	364	Distillate	ULSD
RWMC	Caterpillar	D100-6	157	Distillate	ULSD
RWMC	Cummins	DSGAA	364	Distillate	ULSD
RWMC	Cummins	DSGAA	364	Distillate	ULSD
RWMC	Cummins/Sanford	QSB7-G5 NR3	324	Distillate	ULSD
RWMC	Generac	Genr-55201	15	Propane	
SMC	Caterpillar	3408	598	Distillate	ULSD
SMC	Generac	MD1000 Gemini	1,514	Distillate	ULSD
SMC	Caterpillar	3412	890	Distillate	ULSD

Emissions Inventories

Potential to Emit

IDAPA 58.01.01 defines Potential to Emit (PTE) as the maximum capacity of a facility or stationary source to emit an air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the facility or source to emit an air pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is state or federally enforceable. Secondary emissions do not count in determining the potential to emit of a facility or stationary source.

Using this definition of Potential to Emit an emission inventory was developed for the permitted operations at the facility (see Appendix A) associated with this proposed project. Potential to emit for this facility is based on a Facility Emissions Cap (FEC) developed in accordance with IDAPA 58.01.01.175-181. The FEC consists of the facility's baseline actual emissions (BAE), projected actual emissions (when BAE is not available), an operational variability component, and a growth component.

Baseline Actual Emissions

IDAPA 58.01.01 defines baseline actual emissions as the average rate, in tons per year, at which all emissions units associated with a project actually emitted a regulated air pollutant during any consecutive twenty-four month period selected by the owner or operator within the ten year period immediately preceding either the date the owner or operator begins actual construction of the project, or the date a complete permit application is received by the Director for a permit required under the Rules, whichever is earlier, except that the ten year period shall not include any period earlier than November 5, 1990. The average shall include fugitive emissions where quantifiable, and emissions associated with startups, shutdowns, and malfunctions. A different consecutive twenty-four month period may be used for each regulated air pollutant.

Operational Variability Component

IDAPA 58.01.01.176.03.f defines the operational variability component as the level of emissions up to the significant emission rate (SER) minus one ton per year but no more than the facility's potential to emit. If the proposed FEC pollutant does not have a SER listed in Section 006 or has a SER less than or equal to ten tons per year, the operational variability component is the level of emissions requested by the applicant and approved by the department. The operational variability component cannot be more than the facility's PTE. In this sense, PTE refers to uncontrolled potential to emit.

Growth Component

IDAPA 58.01.01.176.03.e defines the growth component of a FEC to be any level of emissions requested by the applicant and approved by the Department to allow for potential future business growth or facility changes that may increase emissions above baseline actual emissions plus the operational variability component

Using this definition of baseline actual emissions, an emissions inventory was developed for operations at the facility. Tables 3 and 4 list the baseline actual emissions for calendar years 2011 and 2012.

Using this definition of PTE, an emission inventory was developed for the facility.

Pre-Project Potential to Emit

Pre-project Potential to Emit is used to establish the change in emissions at a facility as a result of this project.

The following two tables present the pre-project BAE, and FEC for criteria pollutants, individual HAP and Aggregate HAP from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. Table 3 presents Baseline Actual Emissions (BAE) and Table 4 presents the components of the FEC limit, including BAE, operational variability, and growth. See the associated SOB for P-2015.0023, issued January 12, 2018 for the calculations supporting this information.

Table 3 BASELINE ACTUAL EMISSIONS AND PROJECTED ACTUAL EMISSIONS FOR CRITERIA POLLUTANTS

Source	SO_2 (T/yr)	NO_X (T/yr)	CO (T/yr)	PM (T/yr)	PM-10/2.5 & Condensable (T/yr)	VOCs, as TOCs (T/yr)
AMWTP	0.15	1.34	0.77	0.07	0.07	0.10
CFA	0.00	0.21	0.05	0.03	0.02	0.00
INTEC	0.07	6.24	1.56	1.03	0.72	0.06
NRF	0.05	4.58	1.14	0.76	0.53	0.05
SMC	0.02	1.74	0.43	0.29	0.20	0.02
INL Emergency ICE	0.22	6.83	1.67	0.31	0.31	0.37
INTEC IWTU Boilers	0.06	6.00	1.50	0.99	0.69	0.06
IWTU Treatment	10.15	32.86	0.61	0.44	0.44	0.00
AMWTP TSA-RE Engines	0.09	1.39	0.30	0.10	0.10	0.11
WMF-1617 Engines	0.59	1.92	1.05	0.70	0.63	0.72
WMF-1621 Sources	1.05	7.10	3.95	0.28	0.28	1.23
CPP-666 Sodium Treatment Emissions	0.05	0.00	0.02	0	0	0.00
Total	**12.50**	**70.21**	**13.05**	**5.00**	**3.99**	**2.72**

Table 4 BAE, OPERATIONAL VARIABILITY & GROWTH COMPONENETS AND FEC LIMITS

	SO_2	NO_X	CO	Total PM	PM-10/2.5/Condensable	VOCs	Individual HAPs	Aggregate HAPs
Component	Emissions (T/yr)							
BAE	12.5	70.2	13.1	5.0	4.0	2.7	4.66	10.7
Operational Variability	1.7	9.8	1.8	0.5	0.7	1.4	-	-
Growth	2.7	15.0	2.8	1.1	0.9	0.6	<5.34	<14.3
FEC	**16.9**	**95.0**	**17.7**	**6.6**	**5.6**	**3.7**	**<10**	**<25**

Post Project Potential to Emit

Post project Potential to Emit is used to establish the change in emissions at a facility and to determine the facility's classification as a result of this project. Post project Potential to Emit includes all permit limits resulting from this project.

The following tables present the post project Potential to Emit for criteria pollutants from all emissions units at the facility as determined by DEQ staff. Table 5 presents Baseline Actual Emissions (BAE) and Table 6 presents the components of the FEC limit, including BAE, operational variability, and growth. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit. Note that the WMF-1617, WMF-1621 no longer contribute to the facility's PTE since these emissions resulted from mobile engines. For this same reason, the AMWTP TSA-RE no longer contributes to emissions of SO_2, NO_X, and CO.

Table 5 BASELINE ACTUAL EMISSIONS AND PROJECTED ACTUAL EMISSIONS FOR CRITERIA POLLUTANTS

Source	SO_2 (T/yr)	NO_X (T/yr)	CO (T/yr)	PM (T/yr)	PM-10/2.5 & Condensable (T/yr)	VOCs, as TOCs (T/yr)
AMWTP	0.154	1.338	0.772	0.072	0.072	0.100
CFA	0.002	0.211	0.053	0.035	0.024	0.002
INTEC	0.066	6.236	1.559	1.029	0.717	0.062
NRF	0.049	4.577	1.144	0.755	0.526	0.046
SMC	0.019	1.737	0.434	0.287	0.200	0.017
INL Emergency ICE	0.240	7.201	1.748	0.333	0.333	0.397
INTEC IWTU Boilers	0.008	0.725	0.181	0.120	0.0834	0.007
IWTU Treatment	0.339	50.21	0.336	0.025	0.025	-
AMWTP TSA-RE Engines	0	0	0	0.082	0.082	0.047
CPP-666 Sodium Treatment Emissions	0.053	0.000	0.017	0	0	0.000
Total	**0.93**	**72.24**	**6.24**	**2.74**	**2.06**	**0.05**

Table 6 BAE, OPERATIONAL VARIABILITY & GROWTH COMPONENETS AND FEC LIMITS

	SO_2	NO_X	CO	Total PM	PM-10/2.5/Condensable	VOCs	Individual HAPs	Aggregate HAPs
Component	Emissions (T/yr)							
BAE	0.93	72.23	6.24	2.74	2.06	0.68	4.29	5.29
Operational Variability	9.9	9.1	33.5	24.0	9.0	14.8	-	-
Growth	59.2	13.7	50.3	63.3	73.9	74.5	<5.71	<19.71
FEC	70.0	95.0	90.0	90.0	85.0	90.0	<10	<25

Change in Potential to Emit

Table 7 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	SO_2	NO_X	CO	Total PM	PM-10/2.5/Condensable	VOCs	Individual HAPs	Aggregate HAPs
Pre-Project Potential to Emit (T/yr)	16.9	95.0	17.7	6.6	5.6	3.7	<10	<25
Post Project Potential to Emit (T/yr)	70.0	95.0	90.0	90.0	85.0	90.0	<10	<25
Changes in Potential to Emit (T/yr)	**53.10**	**0.00**	**72.30**	**83.40**	**79.40**	**86.30**	**0.00**	**0.00**

Table 8 BASELINE ACTUAL EMISSIONS AND PROJECTED ACTUAL EMISSIONS FOR HAZARDOUS AIR POLLUTANTS

HAP Pollutant	Tons	HAP Pollutant	Tons
1,1,1-Trichloroethane	4.85E-04	Cyanide	9.34E-08
1,1,2,2-Tetrachloroethane	2.56E-04	Ethyl benzene	4.51E-04
1,1,2-Trichloroethane	1.19E-07	Ethyl chloride	3.73E-05
1,1-Dichloroethane	1.14E-04	Ethylene dibromide	2.49E-07
1,1-Dichloroethylene	2.10E-04	Formaldehyde	2.34E-02
1,2-Dichloroethane	2.13E-04	Hexane	2.53E-04
1,2-Dichloropropane	9.18E-06	Hexachlorobenzene	1.83E-12
1,3-Butadiene	0.00E+00	Hexachloroethane	3.25E-08
1,3-Dichloropropene	9.85E-08	Hydrochloric acid	8.20E-01
1,4-Dichlorobenzene	1.37E-05	Lead	8.34E-04
1,4 Dioxane	0.00E+00	Manganese	5.51E-04
2,2,4-Trimethylpentane	3.25E-08	Mercury	1.87E-03
2,4-Dinitrotoluene	9.34E-08	Methanol	1.97E-04
Acetaldehyde	6.20E-04	Methyl isobutyl ketone	8.45E-05
Acrylonitrile	1.48E-04	Methylene chloride	5.60E-02
Acrolein	9.80E-05	Naphthalene	9.73E-04
Arsenic	3.80E-04	Nickel	1.11E-02
Benzene	2.34E-03	Nitrobenzene	1.81E-04
Beryllium	2.80E-04	Polychlorinated biphenyls	1.40E-06
Cadmium	1.15E-02	POM/PAH	2.59E-03
Carbon disulfide	1.96E-05	Selenium	1.38E-03
Carbon tetrachloride[(a)]	4.29E+00	Styrene	9.25E-08
Carbonyl sulfide	1.31E-05	Tetrachloroethylene	4.63E-04
Chlorobenzene	2.03E-05	Toluene	4.81E-02
Chloroform	1.21E-03	Trichloroethylene	3.46E-04
Chromium	1.38E-02	Vinyl Chloride	2.03E-04
Cresols (m, p & o)	3.25E-08	Xylene	1.27E-03
		Total	5.29E+00

(a) Maximum individual HAP

Non-Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of non-carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 9 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
1,1,1-Trichloroethane	5.66E-04	4.35E-04	-0.0001	1.27E+02	No
Copper	2.01E-03	1.55E-03	-0.0005	6.70E-02	No
Ethyl Benzene	1.52E-04	1.17E-04	0.0000	2.90E+01	No
Naphthalene	2.71E-03	2.08E-03	-0.0006	3.33E+00	No
Selenium	5.04E-03	3.76E-03	-0.0013	1.30E-02	No
Toluene	1.49E-02	1.14E-02	-0.0035	2.50E+01	No
Xylene	2.61E-04	2.01E-04	-0.0001	2.90E+01	No
Zinc	1.34E-03	1.03E-03	-0.0003	6.67E-01	No

All changes in emissions rates for non-carcinogenic TAP were below EL (screening emissions level) as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

Carcinogenic TAP Emissions

A summary of the estimated PTE for emissions increase of carcinogenic toxic air pollutants (TAP) is provided in the following table.

Table 1 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Naphthalene	2.35E-03	2.08E-03	-0.0003	9.10E-05	No

All changes in emissions rates for carcinogenic TAP were below EL (screening emissions level) as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC from this project exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

[1] Criteria pollutant thresholds in Table 2, State of Idaho Guideline for Performing Air Quality Impact Analyses, Doc ID AQ-011, September 2013.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP).

An ambient air quality impact analyses document has been crafted by DEQ based on a review of the modeling analysis submitted in the application. That document is part of the final permit package for this permitting action (see Appendix B).

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Bonneville, Butte, Bingham, Clark, and Jefferson counties, which is designated as attainment or unclassifiable for $PM_{2.5}$, PM_{10}, SO_2, NO_2, CO, and Ozone. Refer to 40 CFR 81.313 for additional information.

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

A = Use when any one HAP has permitted emissions > 10 T/yr or if the aggregate of all HAPS (Total HAPs) has permitted emissions > 25 T/yr.

SM80 = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits > 8 T/yr of a single HAP or ≥ 20 T/yr of Total HAPs.

SM = Use if a synthetic minor (uncontrolled HAPs emissions are > 10 T/yr or if the aggregate of all uncontrolled HAPs (Total HAPs) emissions are > 25 T/yr and permitted emissions fall below applicable major source thresholds) and the permit sets limits < 8 T/yr of a single HAP and/or < 20 T/yr of Total HAPs.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 10 and 25 T/yr HAP major source thresholds.

UNK = Class is unknown.

For All Other Pollutants:

A = Use when permitted emissions of a pollutant are > 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (uncontrolled emissions are > 100 T/yr and permitted emissions fall below 100 T/yr) and permitted emissions of the pollutant are < 80 T/yr.

B = Use when the potential to emit (i.e. uncontrolled emissions and permitted emissions) are below the 100 T/yr major source threshold.

UNK = Class is unknown.

Table 2 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	<100	90.0	**100**	B
PM_{10}	<100	85.0	**100**	B
$PM_{2.5}$	<100	85.0	**100**	B
SO_2	<100	70.0	**100**	B
NO_X	>100	95.0	**100**	SM80
CO	<100	90.0	**100**	B
VOC	<100	90.0	**100**	B
HAP (single)	>10	<10	**10**	SM80
Total HAPs	>25	<25	**25**	SM80

Procedures and Requirements for Permits Establishing a Facility Emissions Cap (IDAPA 58.01.01.175)

The permittee has requested to be issued an optional facility emissions cap (FEC) permit in accordance with IDAPA 58.01.01.176-181.

Section 181 authorizes facility changes that comply with the terms and conditions establishing the FEC, but that are not included in the estimate of ambient air concentration analysis approved for the permit establishing the FEC. No permit revision shall be required for facility changes implemented in accordance with Section 181.

Future changes at the facility under the terms and conditions of the FEC permit are required to be modeled using the potential emission rates, actual emission unit locations and stack parameters as specified by IDAPA 58.01.01.181. The modeling results approved for the permit establishing the FEC provides predictions of ambient impacts (or design concentrations) for each receptor. If impacts from the changes at the facility allowed under the FEC permit have less than a significant impact above design concentrations then the facility may make the change without notifying DEQ but records shall be maintained on-site (IDAPA 58.01.01.181.02). If changes allowed under the FEC permit cause ambient impacts that are greater than a significant impact over the design concentrations then notice shall be provided to the Department in advance of the change in accordance with IDAPA 58.01.01.181.01.b. Changes that cause or significantly contribute to a violation of an ambient standard are not allowed by the FEC permit.

Section 180 specifies when revisions are required to terms and conditions establishing a FEC. A permit revision is required for the following:

- A change to existing monitoring, reporting, or recordkeeping requirements in the permit establishing the FEC;
- A change to the FEC; or
- A change to the facility that would impose new requirements not included in the permit establishing the FEC.

The FEC emissions limits were established in accordance with IDAPA 58.01.01.176.03.c. In order to establish the facility emission cap (FEC), after establishing the baseline actual emissions, the facility establishes an operational variability component and then adds a growth component.

In accordance with IDAPA 58.01.01.176.03.e, the operational variability component is limited to the level of emissions up to the significant emission rate (SER) minus one (1) ton per year but no more than the facility's potential to emit (PTE). INL's proposed operational variability component meets these criteria as shown in Table 12.

Table 12 OPERATIONAL VARIABILITY COMPONENTS

	SO_2	NO_X	CO	Total PM	PM-10/2.5/Condensable	VOCs	Individual HAPs	Aggregate HAPs
Proposed Operational Variability Component	9.9	9.1	33.5	24.0	9.0	14.8	NA	NA
Potential to Emit	9.9	437.3	98.9	33.9	27.0	14.8	NA	NA
Significant Emission Rate minus 1 Ton	39	39	99	24.0	9.0	39	NA	NA

In accordance with IDAPA 58.01.01.176.03, the amount of the growth component is not specifically limited but must demonstrate compliance with ambient standards and the overall FEC limit cannot exceed 100 tons per year. The requested growth component meets these criteria.

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201..... Permit to Construct Required

The permittee has requested that a PTC be issued to establish a FEC in accordance with IDAPA 58.01.01.175. Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401..... Tier II Operating Permit

The application was submitted for a permit to construct (refer to the Permit to Construct section), and an optional Tier II operating permit has not been requested. Therefore, the procedures of IDAPA 58.01.01.400–410 were not applicable to this permitting action.

DEQ did assess the potential applicability of mercury emissions based requirement to obtain a Tier II operating permit (IDAPA 58.01.01.401.02.a.ii). This Rule requires sources with actual annual mercury emissions in excess of 62 pounds to obtain a Tier II operating permit. As can be seen in the *Emission Inventories* section of this Statement of Basis actual annual mercury emissions are 2.27E-03 ton per year (4.54 pounds per year). Therefore, the requirement to obtain a Tier II operating permit based on mercury emissions is not applicable.

Excess Emissions (IDAPA 58.01.01.130-136)

IDAPA 58.01.01.130-136..... Excess Emissions

The facility is subject to the State of Idaho Excess Emissions requirements, including the responsibility to:

- Take action, with all practicable speed, to correct the conditions causing any excess emissions event, and to reduce the frequency and severity of such events, and submit a full report of the occurrence of each excess emissions event;
- Follow the requirements of IDAPA 58.01.01.133 regarding excess emissions events caused by startup, shutdown, and scheduled maintenance;
- Follow the requirements of IDAPA 58.01.01.134 regarding excess emissions events caused by upset, breakdown, and safety requirements

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 3.4 and 3.5.

Open Burning (IDAPA 58.01.01.600-624)

IDAPA 58.01.01.600-624..... Rules for Control of Open Burning

The facility is subject to the State of Idaho Rules for Control of Open Burning.

Fugitive Dust (IDAPA 58.01.01.650-652)

IDAPA 58.01.01.650-652…… Rules for Control of Fugitive Dust

The facility is subject to the State of Idaho Rules for Control of Fugitive Dust and is required to take all reasonable precautions to prevent the generation of fugitive dust. This requirement is assured by Permit Conditions 3.1 through 3.3

Fuel Burning Equipment (IDAPA 58.01.01.675-681)

IDAPA 58.01.01.675-681…… Fuel Burning Equipment – Particulate Matter

The facility is subject to IDAPA 58.01.01.675, Fuel Burning Equipment – Particulate Matter and is limited to the emission standard of 0.015 grains per dry standard cubic foot (gr/dscf), corrected to 3% oxygen by volume for gaseous fuels and 0.050 gr/dscf, corrected to 3% oxygen by volume for liquid fuels.

Sulfur Content of Fuels (IDAPA 58.01.01.725)

IDAPA 58.01.01.675-681…… Rules for Sulfur Content of Fuels

The facility is subject to IDAPA 58.01.01.725, Rules for Sulfur Content of Fuels and its use of ASTM Grade 1 and Grade 2 Fuel Oil is limited to fuels with a sulfur content not exceeding 0.3% and 0.5%, by weight, respectively.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 ..... Prevention of Significant Deterioration of Air Quality

The facility is not a major stationary source as defined in 40 CFR 52.21(b)(1), nor is it undergoing any physical change at a stationary source not otherwise qualifying under paragraph 40 CFR 52.21(b)(1) as a major stationary source, that would constitute a major stationary source by itself as defined in 40 CFR 52. Therefore in accordance with 40 CFR 52.21(a)(2), PSD requirements are not applicable to this permitting action. The facility is not a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a), and does not have facility-wide emissions of any criteria pollutant that exceed 250 T/yr.

NSPS Applicability (40 CFR 60)

Because the facility has diesel fired boilers, propane fired boilers, compression ignition ICEs and spark ignition ICEs, the following NSPS Subparts are applicable:

- 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Industrial Steam Generating Units. DEQ is delegated this Subpart.
- 40 CFR 60, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. DEQ is delegated this Subpart.
- 40 CFR 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines. DEQ is delegated this Subpart.

See Appendix F for the full breakdown of these subparts.

NESHAP Applicability (40 CFR 61)

The facility operates as a minor source subject to the requirements of 40 CFR 61, Subpart H – National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities. DEQ is not delegated this Subpart. No proposed change to the facility will alter the applicability of this subpart. See Appendix F for the full breakdown of this subpart.

MACT/GACT Applicability (40 CFR 63)

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions, and is subject to the following requirements of 40 CFR 63

- Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines
- 40 CFR 63, Subpart JJJJJJ – National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boiler Area Sources

See Appendix F for the full breakdown of these subparts.

Permit Conditions Review

This section describes the permit conditions for this initial permit or only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action.

Permit Condition 2.1

Permit Condition 2.1 was modified to conform to standard DEQ FEC permit language.

Permit Condition 2.2

Permit Condition 2.2 was modified to reflect the proposed FEC limits and to separate PM_{10} and $PM_{2.5}$ into individually defined limits.

Permit Condition 2.3.1

Permit Condition 2.3.1 was modified to incorporate language from the FEC Permit Condition Template, to remove monitoring and recordkeeping requirements for mobile engines, and to provide an allowance for updating emission factors.

Permit Condition 2.3.2

Permit Condition 2.3.2 was added to separate the requirement to calculate 12-month rolling emission rates from Permit Condition 2.3.1.

Permit Condition 2.4.1

Permit Condition 2.4.1 was added to separate HAP compliance requirements from those for criteria pollutants

Permit Condition 2.4.2

Permit Condition 2.4.2 was added to separate the requirement to calculate 12-month rolling emission rates for HAPs from Permit Condition 2.4.1.

Permit Condition 2.5

Permit Condition 2.5 was added to require that the permittee maintain documentation of compliance with IDAPA 58.01.01.210, for any modifications that may increase emissions of TAPs.

Permit Condition 2.7

Permit Condition (formerly permit condition 2.6) was modified to conform to standard DEQ FEC permit language.

Permit Condition 3.18

Permit Condition 3.18 was modified to:

- Allow that monitoring of radionuclide emissions using a CEMS at the TSA-RE may conclude once all waste treatment at the TSA-RE has been completed,
- Add a requirement that the IWTU, CPP-1696 operate a CEMS for the measurement of radionuclide emissions from the STK-SRE-140 exhaust stack

Permit Condition 3.25

Permit Condition 3.25 was modified to note the delegation of 40 CFR 63, Subpart ZZZZ to the state of Idaho, replace the USEPA Region 10 with Idaho Falls regional office as the recipient of communications relating to 40 CFR 63, Subpart ZZZZ, and to add several stationary RICE to the Table 3.2.

Permit Condition 3.28

Permit Condition 3.28 was modified to include several ICE in Table 3.3

Permit Condition 3.36

Permit Condition 3.36 was revised to clarify the language. Originally, the requirement began:

> "In accordance with 40 CFR 60.4243 SI internal combustion engines that are manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), the permittee must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power…"

A "for" was added, so that the requirement now begins:

> "In accordance with 40 CFR 60.4243**, for** SI ICE that are manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), the permittee must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power…"

Table 3.5

Table 3.5 was modified to remove two boilers and add a single new boiler.

Table 3.6

Table 3.6 was modified to add a single boiler.

Table 3.7

Table 3.7 was modified to edit the denitration and mineralization reformer and carbon reduction reformer entry.

Permit Condition 3.77

Permit condition 3.77 was revised to clarify language. Specifically, the phrase "Prior to placing…" was replaced with "Following the installation of …"

Permit Section 6 incorporates the requirements of P-2008.0199. This permit contains eleven enforceable permit conditions. Of these eleven conditions, six of them (2.3, 2.5, 2.7, 2.9, 2.12, and 2.14) involve visible emissions, 40 CFR 61 Subpart H, or the operation of HEPA filters and are therefore addressed in the Facility-Wide Conditions of this FEC permit. Additionally, three of the conditions (2.4, 2.10, and 2.11) were already incorporated into the FEC permit, one of the conditions (2.13) was obsolete, and one of them was eliminated (2.6, see content manager record 2021AAG89 justification). Therefore, all applicable requirements from P-2008.0199 are incorporated into this FEC permit.

Permit Condition 6.3

Permit Condition 6.3 was added to include a table of regulated sources.

Permit Condition 6.4

Permit Condition 6.4 was modified to increase the NO_X emission limit from the IWTU stack, and to explicitly identify the method that compliance with this limit will be determined.

Existing Permit Condition 6.5

Existing Permit Condition 6.5 (Throughput Limit) was removed.

Permit Condition 6.6

Permit Condition 6.6 was added to require a NO_X CEMS be used to monitor emissions from the IWTU stack.

Permit Condition 6.8

Permit Condition 6.8 was modified to require a NO_X RATA be conducted each 4 calendar quarters, and to make the NO_X performance testing requirement contingent upon the NO_X CEMS becoming inoperable.

Permit Condition 6.10

Permit Condition 6.10 was added to allow that, upon closure of the IWTU, permit conditions 6.1 through 6.8 will become inactive.

Existing Permit Conditions 8.1 through 8.3

Existing Permit Conditions 8.1 through 8.3 were removed in response to the termination of the VCO which had prompted their creation.

Permit Condition 8.3

Permit Condition 8.3 was modified to remove mobile engines at the TSA-RE, propane fired heaters, and a propane fired make up air unit.

Existing Permit Condition 9.3

Existing Permit Condition 9.3 was removed since it covered emissions from mobile sources.

Existing Permit Condition 9.4

Existing Permit Condition 9.4 was removed since it covered emissions from mobile sources.

Existing Permit Condition 9.5

Existing Permit Condition 9.5 was removed since it covered emissions from mobile sources.

Existing Permit Condition 9.8

Existing Permit Condition 9.8 was removed since it covered the operation of mobile sources.

Existing Permit Condition 9.9

Existing Permit Condition 9.9 was removed since it covered the operation of mobile sources.

Permit Condition 9.5

Permit Condition 9.5 was modified to remove a 2.0 MMBtu/hr portable water heater.

Permit Condition 11.5

The Construction and Operation Notification General Provision was modified to allow that the notification provisions of IDAPA 58.01.01.211 be satisfied for new equipment installations and process modifications that do not exceed the terms of this permit. However, the permittee shall submit written notifications of the anticipated date of initial startup of a stationary source not less than 30 days prior to such date and of the actual date of initial startup within days after such date.

PUBLIC REVIEW

Public Comment Opportunity

Because this permitting action requires a public comment period, an opportunity for public comment period was not required or provided in accordance with IDAPA 58.01.01.209.04 or IDAPA 58.01.01.404.04.

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.01.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

A response to public comments document has been crafted by DEQ based on comments submitted during the public comment period. That document is part of the final permit package for this permitting action.

APPENDIX A – EMISSIONS INVENTORIES

Emissions Summary

Criterial Air Pollutant	SO_2 (tons)	NOx (tons)	CO (tons)	PM (tons)	PM-10/ 2.5 & Cond. (tons)	VOCs, as TOCs (tons)
AMWTP (BAE)	0.15	1.34	0.77	0.07	0.07	0.10
CFA (BAE)	0.00	0.21	0.05	0.03	0.02	0.00
INTEC (BAE)	0.07	6.24	1.56	1.03	0.72	0.06
NRF (BAE)	0.05	4.58	1.14	0.76	0.53	0.05
SMC (BAE)	0.02	1.74	0.43	0.29	0.20	0.02
INL Emergency ICE (BAE)	0.24	7.20	1.75	0.33	0.33	0.40
CPP-666 (BAE)	0.05	0.00	0.02	-	-	0.00
INTEC IWTU Boilers (PAE)	0.008	0.725	0.181	0.120	0.083	0.007
IWTU (PAE)	0.34	50.21	0.34	0.03	0.03	-
AMWTP TSA-RE (BAE)	Removed (mobile sources)			0.08	0.08	0.05
~~WMF-1617~~	Removed (mobile sources)					
~~WMF-1621~~	Removed (mobile sources)					
Total EE	0.93	72.23	6.24	2.74	2.06	0.68
PTE	9.9	437.3	98.9	33.9	27.0	14.8
Sig. Emission Rate	40	40	100	25	10	40
Operational Variability	9.9	9.1	33.5	24.0	9.0	14.8
Growth	59.2	13.7	50.3	63.3	73.9	74.5
Limit	**70.0**	**95.0**	**90.0**	**90.0**	**85.0**	**90.0**
BAE Total	0.58	21.30	5.73	2.59	1.95	0.67
PAE Total	0.35	50.93	0.52	0.14	0.11	0.007

	BAE									PAE		Removed		Total	
Hazardous and Toxic Air Pollutants	CFA Boilers (lbs)	INTEC Boilers (lbs)	NRF Boilers (lbs)	SMC Boilers (lbs)	Emergency ICE (lbs)	AMWTP[a] (lbs)	SDA Fugitive Emissions (lbs)	OU 7-08[a] (lbs)	INTEC Stacks[a] (lbs)	INTEC IWTU Boiler[a] (lbs)	INTEC IWTU[a] (lbs)	~~WMF-1617~~[a] ~~(lbs)~~	~~WMF-1621~~[a] ~~(lbs)~~	(lbs)	(Tons)
1,1,1-Trichloroethane	4.98E-03	1.47E-01	1.08E-01	4.10E-02		5.79E-01	5.68E-02		1.72E-02	1.71E-02				9.71E-01	4.85E-04
1,1,2,2-Tetrachloroethane					3.93E-04	3.47E-01	1.64E-01		2.76E-04					5.11E-01	2.56E-04
1,1,2-Trichloroethane					2.38E-04									2.38E-04	1.19E-07
1,1-Dichloroethane					1.76E-04	1.55E-02	2.12E-01							2.28E-01	1.14E-04
1,1-Dichloroethylene						3.62E-01	1.72E-02		4.17E-02					4.21E-01	2.10E-04
1,2-Dichloroethane					1.76E-04	3.62E-01	3.60E-02		2.76E-02					4.26E-01	2.13E-04
1,2-Dichloropropane					2.02E-04	6.49E-05	1.81E-02							1.84E-02	9.18E-06
1,3-Butadiene														0.00E+00	0.00E+00
1,3-Dichloropropene					1.97E-04									1.97E-04	9.85E-08
1,4-Dichlorobenzene						6.49E-05	2.74E-02							2.75E-02	1.37E-05
1,4 Dioxane														0.00E+00	0.00E+00
2-Butanone[b]						3.62E-01	4.54E-01		2.98E-03					8.19E-01	4.10E-04
2,2,4-Trimethylpentane						6.49E-05								6.49E-05	3.25E-08
2,4-Dinitrotoluene						1.87E-04								1.87E-04	9.34E-08
Acetaldehyde					1.24E+00									1.24E+00	6.20E-04
Acrylonitrile							2.96E-01							2.96E-01	1.48E-04
Acrolein					1.96E-01									1.96E-01	9.80E-05
Arsenic	1.15E-02	3.40E-01	2.50E-01	9.47E-02		1.64E-04			1.08E-11	3.95E-02	2.49E-02			7.61E-01	3.80E-04
Benzene	4.51E-03	1.33E-01	9.79E-02	3.72E-02	3.13E+00	3.62E-01	7.64E-01		1.45E-01	1.55E-02				4.69E+00	2.34E-03
Beryllium	8.62E-03	2.55E-01	1.87E-01	7.10E-02		1.91E-04				2.97E-02	7.96E-03			5.59E-01	2.80E-04
Cadmium	8.62E-03	2.55E-01	1.87E-01	7.10E-02		1.91E-04			8.00E+00	2.97E-02	1.44E+01			2.30E+01	1.15E-02
Carbon disulfide							3.92E-02							3.92E-02	1.96E-05
Carbon tetrachloride					2.75E-04	4.24E-01	8.58E+03		1.42E-01					8.58E+03	4.29E+00
Carbonyl sulfide							2.62E-02							2.62E-02	1.31E-05
Chlorobenzene					2.00E-04	1.55E-02	2.50E-02							4.07E-02	2.03E-05
Chloroform					2.13E-04	3.62E-01	3.18E-03		2.06E+00					2.43E+00	1.21E-03
Chromium	8.62E-03	2.55E-01	1.87E-01	7.10E-02		4.85E-05			1.59E-10	2.97E-02	2.71E+01			2.77E+01	1.38E-02
Cresols (m, p & o)						6.49E-05								6.49E-05	3.25E-08
Copper[b]	1.72E-02	5.10E-01	3.74E-01	1.42E-01						5.93E-02				1.10E+00	5.51E-04
Cyanide						1.87E-04			1.79E-14					1.87E-04	9.34E-08
Ethyl benzene	1.34E-03	3.97E-02	2.91E-02	1.10E-02	3.85E-04	3.62E-01	4.34E-01		2.07E-02	4.61E-03				9.03E-01	4.51E-04
Ethyl chloride							7.46E-02							7.46E-02	3.73E-05
Ethylene dibromide					3.31E-04		1.67E-04							4.98E-04	2.49E-07
Formaldehyde	6.96E-01	2.06E+01	1.51E+01	5.73E+00	2.25E+00					2.39E+00				4.68E+01	2.34E-02
Hexane							5.06E-01							5.06E-01	2.53E-04
Hexachlorobenzene						3.66E-09								3.66E-09	1.83E-12
Hexachloroethane						6.49E-05								6.49E-05	3.25E-08
Hydrochloric acid								1.57E+03			6.95E+01			1.64E+03	8.20E-01
Hydrogen sulfide[b]							1.09E+00							1.09E+00	5.45E-04
Lead	2.59E-02	7.65E-01	5.62E-01	2.13E-01		4.76E-03			7.66E-03	8.90E-02	1.45E-05			1.67E+00	8.34E-04
Manganese	1.72E-02	5.10E-01	3.74E-01	1.42E-01						5.93E-02				1.10E+00	5.51E-04
Mercury	8.62E-03	2.55E-01	1.87E-01	7.10E-02		3.85E-01	5.16E-05		2.22E-11	2.97E-02	2.81E+00			3.75E+00	1.87E-03
Methanol					4.75E-02	3.47E-01								3.94E-01	1.97E-04
Methyl isobutyl ketone						4.55E-09	1.69E-01							1.69E-01	8.45E-05
Methylene chloride					6.40E-04	3.48E-01	1.06E+00		1.11E+02					1.12E+02	5.60E-02
Naphthalene	2.38E-02	7.05E-01	5.17E-01	1.96E-01	4.15E-01				7.49E-03	8.19E-02				1.95E+00	9.73E-04
Nickel	8.62E-03	2.55E-01	1.87E-01	7.10E-02		4.30E-10			7.97E+00	2.97E-02	1.37E+01			2.22E+01	1.11E-02
Nitrobenzene						3.62E-01								3.62E-01	1.81E-04
Polychlorinated biphenyls						2.80E-03			5.40E-13					2.80E-03	1.40E-06
POM/PAH	6.96E-02	2.06E+00	1.51E+00	5.73E-01	7.20E-01					2.39E-01				5.17E+00	2.59E-03
Selenium	4.31E-02	1.28E+00	9.36E-01	3.55E-01		1.91E-04			2.98E-12	1.48E-01	3.70E-03			2.77E+00	1.38E-03

Emissions Summary

Hazardous and Toxic Air Pollutants	BAE									PAE		Removed		Total	
	CFA Boilers (lbs)	INTEC Boilers (lbs)	NRF Boilers (lbs)	SMC Boilers (lbs)	Emergency ICE (lbs)	AMWTP[a] (lbs)	SDA Fugitive Emissions (lbs)	OU 7-08[a] (lbs)	INTEC Stacks[a] (lbs)	INTEC IWTU Boiler[a] (lbs)	INTEC IWTU[a] (lbs)	~~WMF 1617[a] (lbs)~~	~~WMF 1621[a] (lbs)~~	(lbs)	(Tons)
Styrene					1.85E-04									1.85E-04	9.25E-08
Tetrachloroethylene						3.62E-01	5.46E-01		1.72E-02					9.25E-01	4.63E-04
Toluene	1.31E-01	3.87E+00	2.84E+00	1.08E+00	1.24E+00	3.62E-01	1.39E+01		7.23E+01	4.50E-01				9.62E+01	4.81E-02
Trichloroethylene						3.62E-01	3.26E-01		2.98E-03					6.91E-01	3.46E-04
Vinyl Chloride					1.12E-04		4.06E-01							4.06E-01	2.03E-04
Xylene	2.30E-03	6.80E-02	4.99E-02	1.89E-02	8.53E-01	3.47E-01	1.13E+00		6.00E-02	7.90E-03				2.54E+00	1.27E-03
Zinc[b]	1.15E-02	3.40E-01	2.50E-01	9.47E-02					3.28E-01	3.95E-02				1.06E+00	5.32E-04

a. Not included in Net Emissions Increase as defined in IDAPA 58.01.01.007.06.

b. State toxic air pollutants are not included in hazardous air pollutant total.

HAP Total 5.29E+00

Max HAP 4.29E+00

[a] AP-42: Table 1.5-1 Criteria Pollutant Emission Factors for Liquified Petroleum Gas Combustion: External Combustion Sources - Propane

Month/ Year	Total Used, Monthly	Emission Factor, lb/1000gal[a,b,c]	SO_2 (tons)	NO_x (tons)	CO (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)
			1.50	13.00	7.50	0.70	1.00
Jan, 11	27809		2.09E-02	1.81E-01	1.04E-01	9.73E-03	1.39E-02
Feb, 11	24837		1.86E-02	1.61E-01	9.31E-02	8.69E-03	1.24E-02
Mar, 11	17393		1.30E-02	1.13E-01	6.52E-02	6.09E-03	8.70E-03
Apr, 11	14219		1.07E-02	9.24E-02	5.33E-02	4.98E-03	7.11E-03
May, 11	13794		1.03E-02	8.97E-02	5.17E-02	4.83E-03	6.90E-03
June, 11	12319		9.24E-03	8.01E-02	4.62E-02	4.31E-03	6.16E-03
July, 11	10277		7.71E-03	6.68E-02	3.85E-02	3.60E-03	5.14E-03
Aug,11	9995		7.50E-03	6.50E-02	3.75E-02	3.50E-03	5.00E-03
Sept, 11	10415		7.81E-03	6.77E-02	3.91E-02	3.65E-03	5.21E-03
Oct, 11	13851		1.04E-02	9.00E-02	5.19E-02	4.85E-03	6.93E-03
Nov, 11	17723		1.33E-02	1.15E-01	6.65E-02	6.20E-03	8.86E-03
Dec, 11	23524		1.76E-02	1.53E-01	8.82E-02	8.23E-03	1.18E-02
Jan, 12	22052		1.65E-02	1.43E-01	8.27E-02	7.72E-03	1.10E-02
Feb, 12	19439		1.46E-02	1.26E-01	7.29E-02	6.80E-03	9.72E-03
Mar, 12	16190		1.21E-02	1.05E-01	6.07E-02	5.67E-03	8.10E-03
Apr, 12	13416		1.01E-02	8.72E-02	5.03E-02	4.70E-03	6.71E-03
May, 12	12765		9.57E-03	8.30E-02	4.79E-02	4.47E-03	6.38E-03
June, 12	14399		1.08E-02	9.36E-02	5.40E-02	5.04E-03	7.20E-03
July, 12	11156		8.37E-03	7.25E-02	4.18E-02	3.90E-03	5.58E-03
Aug,12	10897		8.17E-03	7.08E-02	4.09E-02	3.81E-03	5.45E-03
Sept, 12	39178		2.94E-02	2.55E-01	1.47E-01	1.37E-02	1.96E-02
Oct, 12	15222		1.14E-02	9.89E-02	5.71E-02	5.33E-03	7.61E-03
Nov, 12	16702		1.25E-02	1.09E-01	6.26E-02	5.85E-03	8.35E-03
Dec, 12	24181		1.81E-02	1.57E-01	9.07E-02	8.46E-03	1.21E-02
Total	4.12E+05		3.09E-01	2.68E+00	1.54E+00	1.44E-01	2.06E-01
Annual Average	2.06E+05		1.54E-01	1.34E+00	7.72E-01	7.21E-02	1.03E-01

Conversion Factors:

Commercial Propane Sulfur Content	15	gr/100 scf	Gas Processors Association Engineering Data Book (Ninth Edition, 1972), Figure 15-50 (GPA Liquefied Petroleum Gas Specifications, rev. 1979)

[a] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired

[b] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal for PM10) for a total of 3.3 lb/1000 gal.

[c] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-6 Cumulative Particle Size Distribution and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for a total of 2.3 lb/1000 gal.

[d] AP-42: Table 1.3-8 Emission Factors For Nitrous Oxide (N2O), Polycyclic Organic Matter (POM), And Formaldehyde (HCOH) From Fuel Oil Combustion

[e] AP-42: Table 1.3-9 Emission Factors for Speciated Organic Compounds From Fuel Oil Combustion: Oil Fired Boilers

[f] AP-42: Table 1.3.10 Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers, For SO_2, emission factor based on fuel containing 15 ppm sulfur by weight.

Ultra-low sulfur diesel fuel usage, gallons			**SO_2 (tons)**	**NO_x (tons)**	**CO (tons)**	**PM (tons)**	**PM-10/2.5 & Condensable (tons)**	**VOCs, as NMTOCs (tons)**	**Ethyl Benzene (lbs)**	**Toluene (lbs)**	**Anthra-cene (lbs)**	**Pyrene (lbs)**	**Xylene (lbs)**	**Benzo(g,h,i) perylene (lbs)**	**Indeno (1,2,3-cd)-pyrene (lbs)**	**Fluoranthene (lbs)**	**Acenaph-thylene (lbs)**	**Chrysene (lbs)**	**Formaldehyde (lbs)**	**Dibenzo(a,h)-anthracene (lbs)**
Month/ Year	**Total Used, Monthly**	**Emission Factor, lb/1000gal[a,b,c,d,e,f]**	0.213	20	5	3.3	2.3	0.2	6.36E-05	6.20E-03	1.22E-06	4.25E-06	1.09E-04	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06
Jan, 11	3,389		3.61E-04	3.39E-02	8.47E-03	5.59E-03	3.90E-03	3.39E-04	2.16E-04	2.10E-02	4.13E-06	1.44E-05	3.69E-04	7.66E-06	7.25E-06	1.64E-05	8.57E-07	8.07E-06	1.12E-01	5.66E-06
Feb, 11	3,905		4.16E-04	3.91E-02	9.76E-03	6.44E-03	4.49E-03	3.91E-04	2.48E-04	2.42E-02	4.76E-06	1.66E-05	4.26E-04	8.83E-06	8.36E-06	1.89E-05	9.88E-07	9.29E-06	1.29E-01	6.52E-06
Mar, 11	3,923		4.18E-04	3.92E-02	9.81E-03	6.47E-03	4.51E-03	3.92E-04	2.50E-04	2.43E-02	4.79E-06	1.67E-05	4.28E-04	8.87E-06	8.40E-06	1.90E-05	9.93E-07	9.34E-06	1.29E-01	6.55E-06
Apr, 11	2,631		2.80E-04	2.63E-02	6.58E-03	4.34E-03	3.03E-03	2.63E-04	1.67E-04	1.63E-02	3.21E-06	1.12E-05	2.87E-04	5.95E-06	5.63E-06	1.27E-05	6.66E-07	6.26E-06	8.68E-02	4.39E-06
May, 11	1,204		1.28E-04	1.20E-02	3.01E-03	1.99E-03	1.38E-03	1.20E-04	7.66E-05	7.46E-03	1.47E-06	5.12E-06	1.31E-04	2.72E-06	2.58E-06	5.83E-06	3.05E-07	2.87E-06	3.97E-02	2.01E-06
June, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
July, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sept, 11	19		2.02E-06	1.90E-04	4.75E-05	3.14E-05	2.19E-05	1.90E-06	1.21E-06	1.18E-04	2.32E-08	8.08E-08	2.07E-06	4.29E-08	4.07E-08	9.20E-08	4.81E-09	4.52E-08	6.27E-04	3.17E-08
Oct, 11	2,529		2.69E-04	2.53E-02	6.32E-03	4.17E-03	2.91E-03	2.53E-04	1.61E-04	1.57E-02	3.09E-06	1.07E-05	2.76E-04	5.72E-06	5.41E-06	1.22E-05	6.40E-07	6.02E-06	8.35E-02	4.22E-06
Nov, 11	3,913		4.17E-04	3.91E-02	9.78E-03	6.46E-03	4.50E-03	3.91E-04	2.49E-04	2.43E-02	4.77E-06	1.66E-05	4.27E-04	8.84E-06	8.37E-06	1.89E-05	9.90E-07	9.31E-06	1.29E-01	6.53E-06
Dec, 11	3,611		3.85E-04	3.61E-02	9.03E-03	5.96E-03	4.15E-03	3.61E-04	2.30E-04	2.24E-02	4.41E-06	1.53E-05	3.94E-04	8.16E-06	7.73E-06	1.75E-05	9.14E-07	8.59E-06	1.19E-01	6.03E-06
Jan, 12	4,208		4.48E-04	4.21E-02	1.05E-02	6.94E-03	4.84E-03	4.21E-04	2.68E-04	2.61E-02	5.13E-06	1.79E-05	4.59E-04	9.51E-06	9.01E-06	2.04E-05	1.06E-06	1.00E-05	1.39E-01	7.03E-06
Feb, 12	3,156		3.36E-04	3.16E-02	7.89E-03	5.21E-03	3.63E-03	3.16E-04	2.01E-04	1.96E-02	3.85E-06	1.34E-05	3.44E-04	7.13E-06	6.75E-06	1.53E-05	7.98E-07	7.51E-06	1.04E-01	5.27E-06
Mar, 12	1,915		2.04E-04	1.92E-02	4.79E-03	3.16E-03	2.20E-03	1.92E-04	1.22E-04	1.19E-02	2.34E-06	8.14E-06	2.09E-04	4.33E-06	4.10E-06	9.27E-06	4.84E-07	4.56E-06	6.32E-02	3.20E-06
Apr, 12	1,046		1.11E-04	1.05E-02	2.62E-03	1.73E-03	1.20E-03	1.05E-04	6.65E-05	6.49E-03	1.28E-06	4.45E-06	1.14E-04	2.36E-06	2.24E-06	5.06E-06	2.65E-07	2.49E-06	3.45E-02	1.75E-06
May, 12	620		6.60E-05	6.20E-03	1.55E-03	1.02E-03	7.13E-04	6.20E-05	3.94E-05	3.84E-03	7.56E-07	2.64E-06	6.76E-05	1.40E-06	1.33E-06	3.00E-06	1.57E-07	1.48E-06	2.05E-02	1.04E-06
June, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
July, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sept, 12	23		2.45E-06	2.30E-04	5.75E-05	3.80E-05	2.65E-05	2.30E-06	1.46E-06	1.43E-04	2.81E-08	9.78E-08	2.51E-06	5.20E-08	4.92E-08	1.11E-07	5.82E-09	5.47E-08	7.59E-04	3.84E-08
Oct, 12	1,559		1.66E-04	1.56E-02	3.90E-03	2.57E-03	1.79E-03	1.56E-04	9.92E-05	9.67E-03	1.90E-06	6.63E-06	1.70E-04	3.52E-06	3.34E-06	7.55E-06	3.94E-07	3.71E-06	5.14E-02	2.60E-06
Nov, 12	1,942		2.07E-04	1.94E-02	4.86E-03	3.20E-03	2.23E-03	1.94E-04	1.24E-04	1.20E-02	2.37E-06	8.25E-06	2.12E-04	4.39E-06	4.16E-06	9.40E-06	4.91E-07	4.62E-06	6.41E-02	3.24E-06
Dec, 12	2,572		2.74E-04	2.57E-02	6.43E-03	4.24E-03	2.96E-03	2.57E-04	1.64E-04	1.59E-02	3.14E-06	1.09E-05	2.80E-04	5.81E-06	5.50E-06	1.24E-05	6.51E-07	6.12E-06	8.49E-02	4.30E-06
Total	4.22E+04		4.49E-03	4.22E-01	1.05E-01	6.96E-02	4.85E-02	4.22E-03	2.68E-03	2.61E-01	5.14E-05	1.79E-04	4.60E-03	9.53E-05	9.02E-05	2.04E-04	1.07E-05	1.00E-04	1.39E+00	7.04E-05
Annual Average	2.11E+04		2.25E-03	2.11E-01	5.27E-02	3.48E-02	2.42E-02	2.11E-03	1.34E-03	1.31E-01	2.57E-05	8.96E-05	2.30E-03	4.76E-05	4.51E-05	1.02E-04	5.33E-06	5.02E-05	6.96E-01	3.52E-05

Conversion Factors:

Heating Value of Fuel Oil	19,300	Btu/lb
Density of Fuel Oil	0.85	
Water, lbs/gal	8.33	
Sulfur content	15	ppm
	0.0015	%

Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaphtlene (lbs)	Phenanthrene (lbs)	Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
4.01E-06	2.14E-04	2.36E-04	1.23E-03	8.18E-04	4.09E-04	4.09E-04	5.45E-04	4.09E-04	4.09E-04	4.09E-04	8.18E-04	5.45E-04	2.04E-03	2.11E-05	1.05E-05	4.47E-06	1.13E-03	1.48E-06	3.30E-03
1.36E-05	7.25E-04	8.00E-04	4.16E-03	2.77E-03	1.39E-03	1.39E-03	1.85E-03	1.39E-03	1.39E-03	1.39E-03	2.77E-03	1.85E-03	6.93E-03	7.15E-05	3.56E-05	1.51E-05	3.83E-03	5.02E-06	1.12E-02
1.57E-05	8.36E-04	9.22E-04	4.79E-03	3.19E-03	1.60E-03	1.60E-03	2.13E-03	1.60E-03	1.60E-03	1.60E-03	3.19E-03	2.13E-03	7.99E-03	8.24E-05	4.10E-05	1.75E-05	4.41E-03	5.78E-06	1.29E-02
1.57E-05	8.40E-04	9.26E-04	4.81E-03	3.21E-03	1.60E-03	1.60E-03	2.14E-03	1.60E-03	1.60E-03	1.60E-03	3.21E-03	2.14E-03	8.02E-03	8.28E-05	4.12E-05	1.75E-05	4.43E-03	5.81E-06	1.29E-02
1.06E-05	5.63E-04	6.21E-04	3.23E-03	2.15E-03	1.08E-03	1.08E-03	1.43E-03	1.08E-03	1.08E-03	1.08E-03	2.15E-03	1.43E-03	5.38E-03	5.55E-05	2.76E-05	1.18E-05	2.97E-03	3.89E-06	8.68E-03
4.83E-06	2.58E-04	2.84E-04	1.48E-03	9.85E-04	4.92E-04	4.92E-04	6.57E-04	4.92E-04	4.92E-04	4.92E-04	9.85E-04	6.57E-04	2.46E-03	2.54E-05	1.26E-05	5.38E-06	1.36E-03	1.78E-06	3.97E-03
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.62E-08	4.07E-06	4.48E-06	2.33E-05	1.55E-05	7.77E-06	7.77E-06	1.04E-05	7.77E-06	7.77E-06	7.77E-06	1.55E-05	1.04E-05	3.89E-05	4.01E-07	2.00E-07	8.49E-08	2.15E-05	2.81E-08	6.27E-05
1.01E-05	5.41E-04	5.97E-04	3.10E-03	2.07E-03	1.03E-03	1.03E-03	1.38E-03	1.03E-03	1.03E-03	1.03E-03	2.07E-03	1.38E-03	5.17E-03	5.34E-05	2.66E-05	1.13E-05	2.86E-03	3.74E-06	8.35E-03
1.57E-05	8.37E-04	9.23E-04	4.80E-03	3.20E-03	1.60E-03	1.60E-03	2.13E-03	1.60E-03	1.60E-03	1.60E-03	3.20E-03	2.13E-03	8.00E-03	8.26E-05	4.11E-05	1.75E-05	4.42E-03	5.79E-06	1.29E-02
1.45E-05	7.73E-04	8.52E-04	4.43E-03	2.95E-03	1.48E-03	1.48E-03	1.97E-03	1.48E-03	1.48E-03	1.48E-03	2.95E-03	1.97E-03	7.38E-03	7.62E-05	3.79E-05	1.61E-05	4.08E-03	5.34E-06	1.19E-02
1.69E-05	9.01E-04	9.93E-04	5.16E-03	3.44E-03	1.72E-03	1.72E-03	2.29E-03	1.72E-03	1.72E-03	1.72E-03	3.44E-03	2.29E-03	8.60E-03	8.88E-05	4.42E-05	1.88E-05	4.76E-03	6.23E-06	1.39E-02
1.27E-05	6.75E-04	7.45E-04	3.87E-03	2.58E-03	1.29E-03	1.29E-03	1.72E-03	1.29E-03	1.29E-03	1.29E-03	2.58E-03	1.72E-03	6.45E-03	6.66E-05	3.31E-05	1.41E-05	3.57E-03	4.67E-06	1.04E-02
7.68E-06	4.10E-04	4.52E-04	2.35E-03	1.57E-03	7.83E-04	7.83E-04	1.04E-03	7.83E-04	7.83E-04	7.83E-04	1.57E-03	1.04E-03	3.92E-03	4.04E-05	2.01E-05	8.56E-06	2.16E-03	2.83E-06	6.32E-03
4.19E-06	2.24E-04	2.47E-04	1.28E-03	8.56E-04	4.28E-04	4.28E-04	5.70E-04	4.28E-04	4.28E-04	4.28E-04	8.56E-04	5.70E-04	2.14E-03	2.21E-05	1.10E-05	4.68E-06	1.18E-03	1.55E-06	3.45E-03
2.49E-06	1.33E-04	1.46E-04	7.61E-04	5.07E-04	2.54E-04	2.54E-04	3.38E-04	2.54E-04	2.54E-04	2.54E-04	5.07E-04	3.38E-04	1.27E-03	1.31E-05	6.51E-06	2.77E-06	7.01E-04	9.18E-07	2.05E-03
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9.22E-08	4.92E-06	5.43E-06	2.82E-05	1.88E-05	9.41E-06	9.41E-06	1.25E-05	9.41E-06	9.41E-06	9.41E-06	1.88E-05	1.25E-05	4.70E-05	4.85E-07	2.42E-07	1.03E-07	2.60E-05	3.40E-08	7.59E-05
6.25E-06	3.34E-04	3.68E-04	1.91E-03	1.28E-03	6.38E-04	6.38E-04	8.50E-04	6.38E-04	6.38E-04	6.38E-04	1.28E-03	8.50E-04	3.19E-03	3.29E-05	1.64E-05	6.97E-06	1.76E-03	2.31E-06	5.14E-03
7.79E-06	4.16E-04	4.58E-04	2.38E-03	1.59E-03	7.94E-04	7.94E-04	1.06E-03	7.94E-04	7.94E-04	7.94E-04	1.59E-03	1.06E-03	3.97E-03	4.10E-05	2.04E-05	8.68E-06	2.19E-03	2.87E-06	6.41E-03
1.03E-05	5.50E-04	6.07E-04	3.16E-03	2.10E-03	1.05E-03	1.05E-03	1.40E-03	1.05E-03	1.05E-03	1.05E-03	2.10E-03	1.40E-03	5.26E-03	5.43E-05	2.70E-05	1.15E-05	2.91E-03	3.81E-06	8.49E-03
1.69E-04	9.02E-03	9.95E-03	5.17E-02	3.45E-02	1.72E-02	1.72E-02	2.30E-02	1.72E-02	1.72E-02	1.72E-02	3.45E-02	2.30E-02	8.62E-02	8.90E-04	4.43E-04	1.88E-04	4.76E-02	6.24E-05	1.39E-01
8.45E-05	4.51E-03	4.98E-03	2.59E-02	1.72E-02	8.62E-03	8.62E-03	1.15E-02	8.62E-03	8.62E-03	8.62E-03	1.72E-02	1.15E-02	4.31E-02	4.45E-04	2.21E-04	9.42E-05	2.38E-02	3.12E-05	6.96E-02

[a] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired

[b] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal for PM10) for a total of 3.3 lb/1000 gal.

[c] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-6 Cumulative Particle Size Distribution and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for a total of 2.3 lb/1000 gal.

[d] AP-42: Table 1.3-8 Emission Factors For Nitrous Oxide (N2O), Polycyclic Organic Matter (POM), And Formaldehyde (HCOH) From Fuel Oil Combustion

[e] AP-42: Table 1.3-9 Emission Factors for Speciated Organic Compounds From Fuel Oil Combustion: Oil Fired Boilers

[f] AP-42: Table 1.3.10 Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers, For SO_2, emission factor based on fuel containing 15 ppm sulfur by weight.

Ultra-low sulfur diesel fuel usage, gallons			SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as NMTOCs (tons)	Ethyl Benzene (lbs)	Toluene (lbs)	Anthra-cene (lbs)	Pyrene (lbs)	Xylene (lbs)	Benzo(g,h,i) perylene (lbs)	Indeno (1,2,3-cd)-pyrene (lbs)	Fluoranthene (lbs)	Acenaph-thylene (lbs)	Chrysene (lbs)	Formaldehyde (lbs)	Dibenzo(a,h)-anthracene (lbs)
Month/ Year	**Total Used, Monthly**	**Emission Factor, lb/1000gal[a,b,c,d,e,f]**	0.213	20	5	3.3	2.3	0.2	6.36E-05	6.20E-03	1.22E-06	4.25E-06	1.09E-04	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06
Jan, 11	103,979		1.11E-02	1.04E+00	2.60E-01	1.72E-01	1.20E-01	1.04E-02	6.61E-03	6.45E-01	1.27E-04	4.42E-04	1.13E-02	2.35E-04	2.23E-04	5.03E-04	2.63E-05	2.47E-04	3.43E+00	1.74E-04
Feb, 11	86,350		9.20E-03	8.64E-01	2.16E-01	1.42E-01	9.93E-02	8.64E-03	5.49E-03	5.35E-01	1.05E-04	3.67E-04	9.41E-03	1.95E-04	1.85E-04	4.18E-04	2.18E-05	2.06E-04	2.85E+00	1.44E-04
Mar, 11	72,293		7.70E-03	7.23E-01	1.81E-01	1.19E-01	8.31E-02	7.23E-03	4.60E-03	4.48E-01	8.82E-05	3.07E-04	7.88E-03	1.63E-04	1.55E-04	3.50E-04	1.83E-05	1.72E-04	2.39E+00	1.21E-04
Apr, 11	59,031		6.29E-03	5.90E-01	1.48E-01	9.74E-02	6.79E-02	5.90E-03	3.75E-03	3.66E-01	7.20E-05	2.51E-04	6.43E-03	1.33E-04	1.26E-04	2.86E-04	1.49E-05	1.40E-04	1.95E+00	9.86E-05
May, 11	27,629		2.94E-03	2.76E-01	6.91E-02	4.56E-02	3.18E-02	2.76E-03	1.76E-03	1.71E-01	3.37E-05	1.17E-04	3.01E-03	6.24E-05	5.91E-05	1.34E-04	6.99E-06	6.58E-05	9.12E-01	4.61E-05
June, 11	20,820		2.22E-03	2.08E-01	5.21E-02	3.44E-02	2.39E-02	2.08E-03	1.32E-03	1.29E-01	2.54E-05	8.85E-05	2.27E-03	4.71E-05	4.46E-05	1.01E-04	5.27E-06	4.96E-05	6.87E-01	3.48E-05
July, 11	20,446		2.18E-03	2.04E-01	5.11E-02	3.37E-02	2.35E-02	2.04E-03	1.30E-03	1.27E-01	2.49E-05	8.69E-05	2.23E-03	4.62E-05	4.38E-05	9.90E-05	5.17E-06	4.87E-05	6.75E-01	3.41E-05
Aug,11	13,346		1.42E-03	1.33E-01	3.34E-02	2.20E-02	1.53E-02	1.33E-03	8.49E-04	8.27E-02	1.63E-05	5.67E-05	1.45E-03	3.02E-05	2.86E-05	6.46E-05	3.38E-06	3.18E-05	4.40E-01	2.23E-05
Sept, 11	14,167		1.51E-03	1.42E-01	3.54E-02	2.34E-02	1.63E-02	1.42E-03	9.01E-04	8.78E-02	1.73E-05	6.02E-05	1.54E-03	3.20E-05	3.03E-05	6.86E-05	3.58E-06	3.37E-05	4.68E-01	2.37E-05
Oct, 11	49,011		5.22E-03	4.90E-01	1.23E-01	8.09E-02	5.64E-02	4.90E-03	3.12E-03	3.04E-01	5.98E-05	2.08E-04	5.34E-03	1.11E-04	1.05E-04	2.37E-04	1.24E-05	1.17E-04	1.62E+00	8.18E-05
Nov, 11	79,672		8.49E-03	7.97E-01	1.99E-01	1.31E-01	9.16E-02	7.97E-03	5.07E-03	4.94E-01	9.72E-05	3.39E-04	8.68E-03	1.80E-04	1.70E-04	3.86E-04	2.02E-05	1.90E-04	2.63E+00	1.33E-04
Dec, 11	97,253		1.04E-02	9.73E-01	2.43E-01	1.60E-01	1.12E-01	9.73E-03	6.19E-03	6.03E-01	1.19E-04	4.13E-04	1.06E-02	2.20E-04	2.08E-04	4.71E-04	2.46E-05	2.31E-04	3.21E+00	1.62E-04
Jan, 12	100,730		1.07E-02	1.01E+00	2.52E-01	1.66E-01	1.16E-01	1.01E-02	6.41E-03	6.25E-01	1.23E-04	4.28E-04	1.10E-02	2.28E-04	2.16E-04	4.88E-04	2.55E-05	2.40E-04	3.32E+00	1.68E-04
Feb, 12	90,023		9.59E-03	9.00E-01	2.25E-01	1.49E-01	1.04E-01	9.00E-03	5.73E-03	5.58E-01	1.10E-04	3.83E-04	9.81E-03	2.03E-04	1.93E-04	4.36E-04	2.28E-05	2.14E-04	2.97E+00	1.50E-04
Mar, 12	85,064		9.06E-03	8.51E-01	2.13E-01	1.40E-01	9.78E-02	8.51E-03	5.41E-03	5.27E-01	1.04E-04	3.62E-04	9.27E-03	1.92E-04	1.82E-04	4.12E-04	2.15E-05	2.02E-04	2.81E+00	1.42E-04
Apr, 12	56,963		6.07E-03	5.70E-01	1.42E-01	9.40E-02	6.55E-02	5.70E-03	3.62E-03	3.53E-01	6.95E-05	2.42E-04	6.21E-03	1.29E-04	1.22E-04	2.76E-04	1.44E-05	1.36E-04	1.88E+00	9.51E-05
May, 12	24,519		2.61E-03	2.45E-01	6.13E-02	4.05E-02	2.82E-02	2.45E-03	1.56E-03	1.52E-01	2.99E-05	1.04E-04	2.67E-03	5.54E-05	5.25E-05	1.19E-04	6.20E-06	5.84E-05	8.09E-01	4.09E-05
June, 12	18,739		2.00E-03	1.87E-01	4.68E-02	3.09E-02	2.15E-02	1.87E-03	1.19E-03	1.16E-01	2.29E-05	7.96E-05	2.04E-03	4.24E-05	4.01E-05	9.07E-05	4.74E-06	4.46E-05	6.18E-01	3.13E-05
July, 12	6,747		7.19E-04	6.75E-02	1.69E-02	1.11E-02	7.76E-03	6.75E-04	4.29E-04	4.18E-02	8.23E-06	2.87E-05	7.35E-04	1.52E-05	1.44E-05	3.27E-05	1.71E-06	1.61E-05	2.23E-01	1.13E-05
Aug,12	7,951		8.47E-04	7.95E-02	1.99E-02	1.31E-02	9.14E-03	7.95E-04	5.06E-04	4.93E-02	9.70E-06	3.38E-05	8.67E-04	1.80E-05	1.70E-05	3.85E-05	2.01E-06	1.89E-05	2.62E-01	1.33E-05
Sept, 12	7,954		8.47E-04	7.95E-02	1.99E-02	1.31E-02	9.15E-03	7.95E-04	5.06E-04	4.93E-02	9.70E-06	3.38E-05	8.67E-04	1.80E-05	1.70E-05	3.85E-05	2.01E-06	1.89E-05	2.62E-01	1.33E-05
Oct, 12	47,178		5.02E-03	4.72E-01	1.18E-01	7.78E-02	5.43E-02	4.72E-03	3.00E-03	2.93E-01	5.76E-05	2.01E-04	5.14E-03	1.07E-04	1.01E-04	2.28E-04	1.19E-05	1.12E-04	1.56E+00	7.88E-05
Nov, 12	66,591		7.09E-03	6.66E-01	1.66E-01	1.10E-01	7.66E-02	6.66E-03	4.24E-03	4.13E-01	8.12E-05	2.83E-04	7.26E-03	1.50E-04	1.43E-04	3.22E-04	1.68E-05	1.58E-04	2.20E+00	1.11E-04
Dec, 12	90,710		9.66E-03	9.07E-01	2.27E-01	1.50E-01	1.04E-01	9.07E-03	5.77E-03	5.62E-01	1.11E-04	3.86E-04	9.89E-03	2.05E-04	1.94E-04	4.39E-04	2.29E-05	2.16E-04	2.99E+00	1.51E-04
Total	1.25E+06		1.33E-01	1.25E+01	3.12E+00	2.06E+00	1.43E+00	1.25E-01	7.93E-02	7.73E+00	1.52E-03	5.30E-03	1.36E-01	2.82E-03	2.67E-03	6.04E-03	3.16E-04	2.97E-03	4.12E+01	2.08E-03
Annual Average	6.24E+05		6.64E-02	6.24E+00	1.56E+00	1.03E+00	7.17E-01	6.24E-02	3.97E-02	3.87E+00	7.61E-04	2.65E-03	6.80E-02	1.41E-03	1.33E-03	3.02E-03	1.58E-04	1.48E-03	2.06E+01	1.04E-03

Conversion Factors:

Heating Value of Fuel Oil	19,300	Btu/lb
Density of Fuel Oil	0.85	
Water, lbs/gal	8.33	
Sulfur content	15	ppm
	0.0015	%

Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaphtlene (lbs)	Phenanthrene (lbs)	Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
4.01E-06	2.14E-04	2.36E-04	1.23E-03	8.18E-04	4.09E-04	4.09E-04	5.45E-04	4.09E-04	4.09E-04	4.09E-04	8.18E-04	5.45E-04	2.04E-03	2.11E-05	1.05E-05	4.47E-06	1.13E-03	1.48E-06	3.30E-03
4.17E-04	2.23E-02	2.45E-02	1.28E-01	8.50E-02	4.25E-02	4.25E-02	5.67E-02	4.25E-02	4.25E-02	4.25E-02	8.50E-02	5.67E-02	2.13E-01	2.19E-03	1.09E-03	4.65E-04	1.17E-01	1.54E-04	3.43E-01
3.46E-04	1.85E-02	2.04E-02	1.06E-01	7.06E-02	3.53E-02	3.53E-02	4.71E-02	3.53E-02	3.53E-02	3.53E-02	7.06E-02	4.71E-02	1.77E-01	1.82E-03	9.07E-04	3.86E-04	9.76E-02	1.28E-04	2.85E-01
2.90E-04	1.55E-02	1.71E-02	8.87E-02	5.91E-02	2.96E-02	2.96E-02	3.94E-02	2.96E-02	2.96E-02	2.96E-02	5.91E-02	3.94E-02	1.48E-01	1.53E-03	7.59E-04	3.23E-04	8.17E-02	1.07E-04	2.39E-01
2.37E-04	1.26E-02	1.39E-02	7.24E-02	4.83E-02	2.41E-02	2.41E-02	3.22E-02	2.41E-02	2.41E-02	2.41E-02	4.83E-02	3.22E-02	1.21E-01	1.25E-03	6.20E-04	2.64E-04	6.67E-02	8.74E-05	1.95E-01
1.11E-04	5.91E-03	6.52E-03	3.39E-02	2.26E-02	1.13E-02	1.13E-02	1.51E-02	1.13E-02	1.13E-02	1.13E-02	2.26E-02	1.51E-02	5.65E-02	5.83E-04	2.90E-04	1.24E-04	3.12E-02	4.09E-05	9.12E-02
8.35E-05	4.46E-03	4.91E-03	2.55E-02	1.70E-02	8.51E-03	8.51E-03	1.14E-02	8.51E-03	8.51E-03	8.51E-03	1.70E-02	1.14E-02	4.26E-02	4.39E-04	2.19E-04	9.31E-05	2.35E-02	3.08E-05	6.87E-02
8.20E-05	4.38E-03	4.83E-03	2.51E-02	1.67E-02	8.36E-03	8.36E-03	1.11E-02	8.36E-03	8.36E-03	8.36E-03	1.67E-02	1.11E-02	4.18E-02	4.31E-04	2.15E-04	9.14E-05	2.31E-02	3.03E-05	6.75E-02
5.35E-05	2.86E-03	3.15E-03	1.64E-02	1.09E-02	5.46E-03	5.46E-03	7.28E-03	5.46E-03	5.46E-03	5.46E-03	1.09E-02	7.28E-03	2.73E-02	2.82E-04	1.40E-04	5.97E-05	1.51E-02	1.98E-05	4.40E-02
5.68E-05	3.03E-03	3.34E-03	1.74E-02	1.16E-02	5.79E-03	5.79E-03	7.73E-03	5.79E-03	5.79E-03	5.79E-03	1.16E-02	7.73E-03	2.90E-02	2.99E-04	1.49E-04	6.33E-05	1.60E-02	2.10E-05	4.68E-02
1.97E-04	1.05E-02	1.16E-02	6.01E-02	4.01E-02	2.00E-02	2.00E-02	2.67E-02	2.00E-02	2.00E-02	2.00E-02	4.01E-02	2.67E-02	1.00E-01	1.03E-03	5.15E-04	2.19E-04	5.54E-02	7.25E-05	1.62E-01
3.19E-04	1.70E-02	1.88E-02	9.78E-02	6.52E-02	3.26E-02	3.26E-02	4.34E-02	3.26E-02	3.26E-02	3.26E-02	6.52E-02	4.34E-02	1.63E-01	1.68E-03	8.37E-04	3.56E-04	9.00E-02	1.18E-04	2.63E-01
3.90E-04	2.08E-02	2.30E-02	1.19E-01	7.95E-02	3.98E-02	3.98E-02	5.30E-02	3.98E-02	3.98E-02	3.98E-02	7.95E-02	5.30E-02	1.99E-01	2.05E-03	1.02E-03	4.35E-04	1.10E-01	1.44E-04	3.21E-01
4.04E-04	2.16E-02	2.38E-02	1.24E-01	8.24E-02	4.12E-02	4.12E-02	5.49E-02	4.12E-02	4.12E-02	4.12E-02	8.24E-02	5.49E-02	2.06E-01	2.13E-03	1.06E-03	4.50E-04	1.14E-01	1.49E-04	3.32E-01
3.61E-04	1.93E-02	2.12E-02	1.10E-01	7.36E-02	3.68E-02	3.68E-02	4.91E-02	3.68E-02	3.68E-02	3.68E-02	7.36E-02	4.91E-02	1.84E-01	1.90E-03	9.45E-04	4.02E-04	1.02E-01	1.33E-04	2.97E-01
3.41E-04	1.82E-02	2.01E-02	1.04E-01	6.96E-02	3.48E-02	3.48E-02	4.64E-02	3.48E-02	3.48E-02	3.48E-02	6.96E-02	4.64E-02	1.74E-01	1.79E-03	8.93E-04	3.80E-04	9.61E-02	1.26E-04	2.81E-01
2.28E-04	1.22E-02	1.34E-02	6.99E-02	4.66E-02	2.33E-02	2.33E-02	3.11E-02	2.33E-02	2.33E-02	2.33E-02	4.66E-02	3.11E-02	1.16E-01	1.20E-03	5.98E-04	2.55E-04	6.44E-02	8.43E-05	1.88E-01
9.83E-05	5.25E-03	5.79E-03	3.01E-02	2.01E-02	1.00E-02	1.00E-02	1.34E-02	1.00E-02	1.00E-02	1.00E-02	2.01E-02	1.34E-02	5.01E-02	5.17E-04	2.57E-04	1.10E-04	2.77E-02	3.63E-05	8.09E-02
7.51E-05	4.01E-03	4.42E-03	2.30E-02	1.53E-02	7.66E-03	7.66E-03	1.02E-02	7.66E-03	7.66E-03	7.66E-03	1.53E-02	1.02E-02	3.83E-02	3.95E-04	1.97E-04	8.38E-05	2.12E-02	2.77E-05	6.18E-02
2.71E-05	1.44E-03	1.59E-03	8.28E-03	5.52E-03	2.76E-03	2.76E-03	3.68E-03	2.76E-03	2.76E-03	2.76E-03	5.52E-03	3.68E-03	1.38E-02	1.42E-04	7.08E-05	3.02E-05	7.62E-03	9.99E-06	2.23E-02
3.19E-05	1.70E-03	1.88E-03	9.76E-03	6.50E-03	3.25E-03	3.25E-03	4.34E-03	3.25E-03	3.25E-03	3.25E-03	6.50E-03	4.34E-03	1.63E-02	1.68E-04	8.35E-05	3.55E-05	8.98E-03	1.18E-05	2.62E-02
3.19E-05	1.70E-03	1.88E-03	9.76E-03	6.51E-03	3.25E-03	3.25E-03	4.34E-03	3.25E-03	3.25E-03	3.25E-03	6.51E-03	4.34E-03	1.63E-02	1.68E-04	8.35E-05	3.56E-05	8.99E-03	1.18E-05	2.62E-02
1.89E-04	1.01E-02	1.11E-02	5.79E-02	3.86E-02	1.93E-02	1.93E-02	2.57E-02	1.93E-02	1.93E-02	1.93E-02	3.86E-02	2.57E-02	9.65E-02	9.95E-04	4.95E-04	2.11E-04	5.33E-02	6.98E-05	1.56E-01
2.67E-04	1.43E-02	1.57E-02	8.17E-02	5.45E-02	2.72E-02	2.72E-02	3.63E-02	2.72E-02	2.72E-02	2.72E-02	5.45E-02	3.63E-02	1.36E-01	1.41E-03	6.99E-04	2.98E-04	7.52E-02	9.86E-05	2.20E-01
3.64E-04	1.94E-02	2.14E-02	1.11E-01	7.42E-02	3.71E-02	3.71E-02	4.95E-02	3.71E-02	3.71E-02	3.71E-02	7.42E-02	4.95E-02	1.85E-01	1.91E-03	9.52E-04	4.05E-04	1.03E-01	1.34E-04	2.99E-01
5.00E-03	2.67E-01	2.94E-01	1.53E+00	1.02E+00	5.10E-01	5.10E-01	6.80E-01	5.10E-01	5.10E-01	5.10E-01	1.02E+00	6.80E-01	2.55E+00	2.63E-02	1.31E-02	5.57E-03	1.41E+00	1.85E-03	4.12E+00
2.50E-03	1.33E-01	1.47E-01	7.65E-01	5.10E-01	2.55E-01	2.55E-01	3.40E-01	2.55E-01	2.55E-01	2.55E-01	5.10E-01	3.40E-01	1.28E+00	1.32E-02	6.55E-03	2.79E-03	7.05E-01	9.23E-04	2.06E+00

[a] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired

[b] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal for PM10) for a total of 3.3 lb/1000 gal.

[c] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-6 Cumulative Particle Size Distribution and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for a total of 2.3 lb/1000 gal.

[d] AP-42: Table 1.3-8 Emission Factors For Nitrous Oxide (N2O), Polycyclic Organic Matter (POM), And Formaldehyde (HCOH) From Fuel Oil Combustion

[e] AP-42: Table 1.3-9 Emission Factors for Speciated Organic Compounds From Fuel Oil Combustion: Oil Fired Boilers

[f] AP-42: Table 1.3.10 Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers, For SO_2, emission factor based on fuel containing 15 ppm sulfur by weight.

Ultra-low sulfur diesel fuel usage, gallons			SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as NMTOCs (tons)	Ethyl Benzene (lbs)	Toluene (lbs)	Anthra-cene (lbs)	Pyrene (lbs)	Xylene (lbs)	Benzo(g,h,i) perylene (lbs)	Indeno (1,2,3-cd)-pyrene (lbs)	Fluoranthene (lbs)	Acenaph-thylene (lbs)	Chrysene (lbs)	Formaldehyde (lbs)	Dibenzo(a,h)-anthracene (lbs)
Month/ Year	**Total Used, Monthly**	**Emission Factor, lb/1000gal[a,b,c,d,e,f]**	0.213	20	5	3.3	2.3	0.2	6.36E-05	6.20E-03	1.22E-06	4.25E-06	1.09E-04	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06
Jan, 11	90,524		9.64E-03	9.05E-01	2.26E-01	1.49E-01	1.04E-01	9.05E-03	5.76E-03	5.61E-01	1.10E-04	3.85E-04	9.87E-03	2.05E-04	1.94E-04	4.38E-04	2.29E-05	2.15E-04	2.99E+00	1.51E-04
Feb, 11	80,747		8.60E-03	8.07E-01	2.02E-01	1.33E-01	9.29E-02	8.07E-03	5.14E-03	5.01E-01	9.85E-05	3.43E-04	8.80E-03	1.82E-04	1.73E-04	3.91E-04	2.04E-05	1.92E-04	2.66E+00	1.35E-04
Mar, 11	68,151		7.26E-03	6.82E-01	1.70E-01	1.12E-01	7.84E-02	6.82E-03	4.33E-03	4.23E-01	8.31E-05	2.90E-04	7.43E-03	1.54E-04	1.46E-04	3.30E-04	1.72E-05	1.62E-04	2.25E+00	1.14E-04
Apr, 11	46,261		4.93E-03	4.63E-01	1.16E-01	7.63E-02	5.32E-02	4.63E-03	2.94E-03	2.87E-01	5.64E-05	1.97E-04	5.04E-03	1.05E-04	9.90E-05	2.24E-04	1.17E-05	1.10E-04	1.53E+00	7.73E-05
May, 11	10,441		1.11E-03	1.04E-01	2.61E-02	1.72E-02	1.20E-02	1.04E-03	6.64E-04	6.47E-02	1.27E-05	4.44E-05	1.14E-03	2.36E-05	2.23E-05	5.05E-05	2.64E-06	2.48E-05	3.45E-01	1.74E-05
June, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
July, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sept, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct, 11	24,590		2.62E-03	2.46E-01	6.15E-02	4.06E-02	2.83E-02	2.46E-03	1.56E-03	1.52E-01	3.00E-05	1.05E-04	2.68E-03	5.56E-05	5.26E-05	1.19E-04	6.22E-06	5.85E-05	8.11E-01	4.11E-05
Nov, 11	78,212		8.33E-03	7.82E-01	1.96E-01	1.29E-01	8.99E-02	7.82E-03	4.97E-03	4.85E-01	9.54E-05	3.32E-04	8.53E-03	1.77E-04	1.67E-04	3.79E-04	1.98E-05	1.86E-04	2.58E+00	1.31E-04
Dec, 11	87,035		9.27E-03	8.70E-01	2.18E-01	1.44E-01	1.00E-01	8.70E-03	5.54E-03	5.40E-01	1.06E-04	3.70E-04	9.49E-03	1.97E-04	1.86E-04	4.21E-04	2.20E-05	2.07E-04	2.87E+00	1.45E-04
Jan, 12	86,453		9.21E-03	8.65E-01	2.16E-01	1.43E-01	9.94E-02	8.65E-03	5.50E-03	5.36E-01	1.05E-04	3.67E-04	9.42E-03	1.95E-04	1.85E-04	4.18E-04	2.19E-05	2.06E-04	2.85E+00	1.44E-04
Feb, 12	74,483		7.93E-03	7.45E-01	1.86E-01	1.23E-01	8.57E-02	7.45E-03	4.74E-03	4.62E-01	9.09E-05	3.17E-04	8.12E-03	1.68E-04	1.59E-04	3.60E-04	1.88E-05	1.77E-04	2.46E+00	1.24E-04
Mar, 12	59,687		6.36E-03	5.97E-01	1.49E-01	9.85E-02	6.86E-02	5.97E-03	3.80E-03	3.70E-01	7.28E-05	2.54E-04	6.51E-03	1.35E-04	1.28E-04	2.89E-04	1.51E-05	1.42E-04	1.97E+00	9.97E-05
Apr, 12	19,827		2.11E-03	1.98E-01	4.96E-02	3.27E-02	2.28E-02	1.98E-03	1.26E-03	1.23E-01	2.42E-05	8.43E-05	2.16E-03	4.48E-05	4.24E-05	9.60E-05	5.02E-06	4.72E-05	6.54E-01	3.31E-05
May, 12	4,822		5.14E-04	4.82E-02	1.21E-02	7.96E-03	5.55E-03	4.82E-04	3.07E-04	2.99E-02	5.88E-06	2.05E-05	5.26E-04	1.09E-05	1.03E-05	2.33E-05	1.22E-06	1.15E-05	1.59E-01	8.05E-06
June, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
July, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sept, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct, 12	32,900		3.50E-03	3.29E-01	8.23E-02	5.43E-02	3.78E-02	3.29E-03	2.09E-03	2.04E-01	4.01E-05	1.40E-04	3.59E-03	7.44E-05	7.04E-05	1.59E-04	8.32E-06	7.83E-05	1.09E+00	5.49E-05
Nov, 12	64,301		6.85E-03	6.43E-01	1.61E-01	1.06E-01	7.39E-02	6.43E-03	4.09E-03	3.99E-01	7.84E-05	2.73E-04	7.01E-03	1.45E-04	1.38E-04	3.11E-04	1.63E-05	1.53E-04	2.12E+00	1.07E-04
Dec, 12	86,916		9.26E-03	8.69E-01	2.17E-01	1.43E-01	1.00E-01	8.69E-03	5.53E-03	5.39E-01	1.06E-04	3.69E-04	9.47E-03	1.96E-04	1.86E-04	4.21E-04	2.20E-05	2.07E-04	2.87E+00	1.45E-04
Total	9.15E+05		9.75E-02	9.15E+00	2.29E+00	1.51E+00	1.05E+00	9.15E-02	5.82E-02	5.68E+00	1.12E-03	3.89E-03	9.98E-02	2.07E-03	1.96E-03	4.43E-03	2.32E-04	2.18E-03	3.02E+01	1.53E-03
Annual Average	4.58E+05		4.87E-02	4.58E+00	1.14E+00	7.55E-01	5.26E-01	4.58E-02	2.91E-02	2.84E+00	5.58E-04	1.95E-03	4.99E-02	1.03E-03	9.79E-04	2.22E-03	1.16E-04	1.09E-03	1.51E+01	7.64E-04

Conversion Factors:

Heating Value of Fuel Oil	19,300	Btu/lb
Density of Fuel Oil	0.85	
Water, lbs/gal	8.33	
Sulfur content	15	ppm
	0.0015	%

Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaphtlene (lbs)	Phenanthrene (lbs)	Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
4.01E-06	2.14E-04	2.36E-04	1.23E-03	8.18E-04	4.09E-04	4.09E-04	5.45E-04	4.09E-04	4.09E-04	4.09E-04	8.18E-04	5.45E-04	2.04E-03	2.11E-05	1.05E-05	4.47E-06	1.13E-03	1.48E-06	3.30E-03
3.63E-04	1.94E-02	2.14E-02	1.11E-01	7.40E-02	3.70E-02	3.70E-02	4.94E-02	3.70E-02	3.70E-02	3.70E-02	7.40E-02	4.94E-02	1.85E-01	1.91E-03	9.51E-04	4.05E-04	1.02E-01	1.34E-04	2.99E-01
3.24E-04	1.73E-02	1.91E-02	9.91E-02	6.60E-02	3.30E-02	3.30E-02	4.40E-02	3.30E-02	3.30E-02	3.30E-02	6.60E-02	4.40E-02	1.65E-01	1.70E-03	8.48E-04	3.61E-04	9.12E-02	1.20E-04	2.66E-01
2.73E-04	1.46E-02	1.61E-02	8.36E-02	5.57E-02	2.79E-02	2.79E-02	3.72E-02	2.79E-02	2.79E-02	2.79E-02	5.57E-02	3.72E-02	1.39E-01	1.44E-03	7.16E-04	3.05E-04	7.70E-02	1.01E-04	2.25E-01
1.86E-04	9.90E-03	1.09E-02	5.68E-02	3.78E-02	1.89E-02	1.89E-02	2.52E-02	1.89E-02	1.89E-02	1.89E-02	3.78E-02	2.52E-02	9.46E-02	9.76E-04	4.86E-04	2.07E-04	5.23E-02	6.85E-05	1.53E-01
4.19E-05	2.23E-03	2.46E-03	1.28E-02	8.54E-03	4.27E-03	4.27E-03	5.69E-03	4.27E-03	4.27E-03	4.27E-03	8.54E-03	5.69E-03	2.14E-02	2.20E-04	1.10E-04	4.67E-05	1.18E-02	1.55E-05	3.45E-02
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9.86E-05	5.26E-03	5.80E-03	3.02E-02	2.01E-02	1.01E-02	1.01E-02	1.34E-02	1.01E-02	1.01E-02	1.01E-02	2.01E-02	1.34E-02	5.03E-02	5.19E-04	2.58E-04	1.10E-04	2.78E-02	3.64E-05	8.11E-02
3.14E-04	1.67E-02	1.85E-02	9.60E-02	6.40E-02	3.20E-02	3.20E-02	4.26E-02	3.20E-02	3.20E-02	3.20E-02	6.40E-02	4.26E-02	1.60E-01	1.65E-03	8.21E-04	3.50E-04	8.84E-02	1.16E-04	2.58E-01
3.49E-04	1.86E-02	2.05E-02	1.07E-01	7.12E-02	3.56E-02	3.56E-02	4.75E-02	3.56E-02	3.56E-02	3.56E-02	7.12E-02	4.75E-02	1.78E-01	1.84E-03	9.14E-04	3.89E-04	9.83E-02	1.29E-04	2.87E-01
3.47E-04	1.85E-02	2.04E-02	1.06E-01	7.07E-02	3.54E-02	3.54E-02	4.71E-02	3.54E-02	3.54E-02	3.54E-02	7.07E-02	4.71E-02	1.77E-01	1.82E-03	9.08E-04	3.86E-04	9.77E-02	1.28E-04	2.85E-01
2.99E-04	1.59E-02	1.76E-02	9.14E-02	6.09E-02	3.05E-02	3.05E-02	4.06E-02	3.05E-02	3.05E-02	3.05E-02	6.09E-02	4.06E-02	1.52E-01	1.57E-03	7.82E-04	3.33E-04	8.42E-02	1.10E-04	2.46E-01
2.39E-04	1.28E-02	1.41E-02	7.32E-02	4.88E-02	2.44E-02	2.44E-02	3.25E-02	2.44E-02	2.44E-02	2.44E-02	4.88E-02	3.25E-02	1.22E-01	1.26E-03	6.27E-04	2.67E-04	6.74E-02	8.83E-05	1.97E-01
7.95E-05	4.24E-03	4.68E-03	2.43E-02	1.62E-02	8.11E-03	8.11E-03	1.08E-02	8.11E-03	8.11E-03	8.11E-03	1.62E-02	1.08E-02	4.05E-02	4.18E-04	2.08E-04	8.86E-05	2.24E-02	2.93E-05	6.54E-02
1.93E-05	1.03E-03	1.14E-03	5.92E-03	3.94E-03	1.97E-03	1.97E-03	2.63E-03	1.97E-03	1.97E-03	1.97E-03	3.94E-03	2.63E-03	9.86E-03	1.02E-04	5.06E-05	2.16E-05	5.45E-03	7.14E-06	1.59E-02
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.32E-04	7.04E-03	7.76E-03	4.04E-02	2.69E-02	1.35E-02	1.35E-02	1.79E-02	1.35E-02	1.35E-02	1.35E-02	2.69E-02	1.79E-02	6.73E-02	6.94E-04	3.45E-04	1.47E-04	3.72E-02	4.87E-05	1.09E-01
2.58E-04	1.38E-02	1.52E-02	7.89E-02	5.26E-02	2.63E-02	2.63E-02	3.51E-02	2.63E-02	2.63E-02	2.63E-02	5.26E-02	3.51E-02	1.31E-01	1.36E-03	6.75E-04	2.87E-04	7.27E-02	9.52E-05	2.12E-01
3.49E-04	1.86E-02	2.05E-02	1.07E-01	7.11E-02	3.55E-02	3.55E-02	4.74E-02	3.55E-02	3.55E-02	3.55E-02	7.11E-02	4.74E-02	1.78E-01	1.83E-03	9.13E-04	3.89E-04	9.82E-02	1.29E-04	2.87E-01
3.67E-03	1.96E-01	2.16E-01	1.12E+00	7.49E-01	3.74E-01	3.74E-01	4.99E-01	3.74E-01	3.74E-01	3.74E-01	7.49E-01	4.99E-01	1.87E+00	1.93E-02	9.61E-03	4.09E-03	1.03E+00	1.35E-03	3.02E+00
1.84E-03	9.79E-02	1.08E-01	5.62E-01	3.74E-01	1.87E-01	1.87E-01	2.50E-01	1.87E-01	1.87E-01	1.87E-01	3.74E-01	2.50E-01	9.36E-01	9.66E-03	4.81E-03	2.05E-03	5.17E-01	6.77E-04	1.51E+00

[a] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired

[b] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-1 Criteria Pollutant Emission Factors for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal for PM10) for a total of 3.3 lb/1000 gal.

[c] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-6 Cumulative Particle Size Distribution and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for a total of 2.3 lb/1000 gal.

[d] AP-42: Table 1.3-8 Emission Factors For Nitrous Oxide (N2O), Polycyclic Organic Matter (POM), And Formaldehyde (HCOH) From Fuel Oil Combustion

[e] AP-42: Table 1.3-9 Emission Factors for Speciated Organic Compounds From Fuel Oil Combustion: Oil Fired Boilers

[f] AP-42: Table 1.3.10 Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers, For SO_2, emission factor based on fuel containing 15 ppm sulfur by weight.

Ultra-low sulfur diesel fuel usage, gallons			SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as NMTOCs (tons)	Ethyl Benzene (lbs)	Toluene (lbs)	Anthra-cene (lbs)	Pyrene (lbs)	Xylene (lbs)	Benzo(g,h,i) perylene (lbs)	Indeno (1,2,3-cd)-pyrene (lbs)	Fluoranthene (lbs)	Acenaph-thylene (lbs)	Chrysene (lbs)	Formaldehyde (lbs)	Dibenzo(a,h)-anthracene (lbs)
Month/ Year	**Total Used, Monthly**	**Emission Factor, lb/1000gal[a,b,c,d,e,f]**	0.213	20	5	3.3	2.3	0.2	6.36E-05	6.20E-03	1.22E-06	4.25E-06	1.09E-04	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06
Jan, 11	36,694		3.91E-03	3.67E-01	9.17E-02	6.05E-02	4.22E-02	3.67E-03	2.33E-03	2.28E-01	4.48E-05	1.56E-04	4.00E-03	8.29E-05	7.85E-05	1.78E-04	9.28E-06	8.73E-05	1.21E+00	6.13E-05
Feb, 11	33,800		3.60E-03	3.38E-01	8.45E-02	5.58E-02	3.89E-02	3.38E-03	2.15E-03	2.10E-01	4.12E-05	1.44E-04	3.68E-03	7.64E-05	7.23E-05	1.64E-04	8.55E-06	8.04E-05	1.12E+00	5.64E-05
Mar, 11	25,383		2.70E-03	2.54E-01	6.35E-02	4.19E-02	2.92E-02	2.54E-03	1.61E-03	1.57E-01	3.10E-05	1.08E-04	2.77E-03	5.74E-05	5.43E-05	1.23E-04	6.42E-06	6.04E-05	8.38E-01	4.24E-05
Apr, 11	18,944		2.02E-03	1.89E-01	4.74E-02	3.13E-02	2.18E-02	1.89E-03	1.20E-03	1.17E-01	2.31E-05	8.05E-05	2.06E-03	4.28E-05	4.05E-05	9.17E-05	4.79E-06	4.51E-05	6.25E-01	3.16E-05
May, 11	15,655		1.67E-03	1.57E-01	3.91E-02	2.58E-02	1.80E-02	1.57E-03	9.96E-04	9.71E-02	1.91E-05	6.65E-05	1.71E-03	3.54E-05	3.35E-05	7.58E-05	3.96E-06	3.73E-05	5.17E-01	2.61E-05
June, 11	6,567		6.99E-04	6.57E-02	1.64E-02	1.08E-02	7.55E-03	6.57E-04	4.18E-04	4.07E-02	8.01E-06	2.79E-05	7.16E-04	1.48E-05	1.41E-05	3.18E-05	1.66E-06	1.56E-05	2.17E-01	1.10E-05
July, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Sept, 11	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct, 11	7,213		7.68E-04	7.21E-02	1.80E-02	1.19E-02	8.29E-03	7.21E-04	4.59E-04	4.47E-02	8.80E-06	3.07E-05	7.86E-04	1.63E-05	1.54E-05	3.49E-05	1.82E-06	1.72E-05	2.38E-01	1.20E-05
Nov, 11	24,345		2.59E-03	2.43E-01	6.09E-02	4.02E-02	2.80E-02	2.43E-03	1.55E-03	1.51E-01	2.97E-05	1.03E-04	2.65E-03	5.50E-05	5.21E-05	1.18E-04	6.16E-06	5.79E-05	8.03E-01	4.07E-05
Dec, 11	28,622		3.05E-03	2.86E-01	7.16E-02	4.72E-02	3.29E-02	2.86E-03	1.82E-03	1.77E-01	3.49E-05	1.22E-04	3.12E-03	6.47E-05	6.13E-05	1.39E-04	7.24E-06	6.81E-05	9.45E-01	4.78E-05
Jan, 12	25,929		2.76E-03	2.59E-01	6.48E-02	4.28E-02	2.98E-02	2.59E-03	1.65E-03	1.61E-01	3.16E-05	1.10E-04	2.83E-03	5.86E-05	5.55E-05	1.25E-04	6.56E-06	6.17E-05	8.56E-01	4.33E-05
Feb, 12	20,162		2.15E-03	2.02E-01	5.04E-02	3.33E-02	2.32E-02	2.02E-03	1.28E-03	1.25E-01	2.46E-05	8.57E-05	2.20E-03	4.56E-05	4.31E-05	9.76E-05	5.10E-06	4.80E-05	6.65E-01	3.37E-05
Mar, 12	17,449		1.86E-03	1.74E-01	4.36E-02	2.88E-02	2.01E-02	1.74E-03	1.11E-03	1.08E-01	2.13E-05	7.42E-05	1.90E-03	3.94E-05	3.73E-05	8.45E-05	4.41E-06	4.15E-05	5.76E-01	2.91E-05
Apr, 12	14,148		1.51E-03	1.41E-01	3.54E-02	2.33E-02	1.63E-02	1.41E-03	9.00E-04	8.77E-02	1.73E-05	6.01E-05	1.54E-03	3.20E-05	3.03E-05	6.85E-05	3.58E-06	3.37E-05	4.67E-01	2.36E-05
May, 12	9,141		9.74E-04	9.14E-02	2.29E-02	1.51E-02	1.05E-02	9.14E-04	5.81E-04	5.67E-02	1.12E-05	3.88E-05	9.96E-04	2.07E-05	1.96E-05	4.42E-05	2.31E-06	2.18E-05	3.02E-01	1.53E-05
June, 12	395		4.21E-05	3.95E-03	9.88E-04	6.52E-04	4.54E-04	3.95E-05	2.51E-05	2.45E-03	4.82E-07	1.68E-06	4.31E-05	8.93E-07	8.45E-07	1.91E-06	9.99E-08	9.40E-07	1.30E-02	6.60E-07
July, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Aug,12	68		7.24E-06	6.80E-04	1.70E-04	1.12E-04	7.82E-05	6.80E-06	4.32E-06	4.22E-04	8.30E-08	2.89E-07	7.41E-06	1.54E-07	1.46E-07	3.29E-07	1.72E-08	1.62E-07	2.24E-03	1.14E-07
Sept, 12	0		0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Oct, 12	14,281		1.52E-03	1.43E-01	3.57E-02	2.36E-02	1.64E-02	1.43E-03	9.08E-04	8.85E-02	1.74E-05	6.07E-05	1.56E-03	3.23E-05	3.06E-05	6.91E-05	3.61E-06	3.40E-05	4.71E-01	2.38E-05
Nov, 12	20,263		2.16E-03	2.03E-01	5.07E-02	3.34E-02	2.33E-02	2.03E-03	1.29E-03	1.26E-01	2.47E-05	8.61E-05	2.21E-03	4.58E-05	4.34E-05	9.81E-05	5.13E-06	4.82E-05	6.69E-01	3.38E-05
Dec, 12	28,366		3.02E-03	2.84E-01	7.09E-02	4.68E-02	3.26E-02	2.84E-03	1.80E-03	1.76E-01	3.46E-05	1.21E-04	3.09E-03	6.41E-05	6.07E-05	1.37E-04	7.18E-06	6.75E-05	9.36E-01	4.74E-05
Total	3.47E+05		3.70E-02	3.47E+00	8.69E-01	5.73E-01	4.00E-01	3.47E-02	2.21E-02	2.15E+00	4.24E-04	1.48E-03	3.79E-02	7.85E-04	7.43E-04	1.68E-03	8.79E-05	8.27E-04	1.15E+01	5.80E-04
Annual Average	1.74E+05		1.85E-02	1.74E+00	4.34E-01	2.87E-01	2.00E-01	1.74E-02	1.10E-02	1.08E+00	2.12E-04	7.38E-04	1.89E-02	3.93E-04	3.72E-04	8.41E-04	4.39E-05	4.13E-04	5.73E+00	2.90E-04

Conversion Factors:

Heating Value of Fuel Oil	19,300	Btu/lb
Density of Fuel Oil	0.85	
Water, lbs/gal	8.33	
Sulfur content	15	ppm
	0.0015	%

Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaphtlene (lbs)	Phenanthrene (lbs)	Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
4.01E-06	2.14E-04	2.36E-04	1.23E-03	8.18E-04	4.09E-04	4.09E-04	5.45E-04	4.09E-04	4.09E-04	4.09E-04	8.18E-04	5.45E-04	2.04E-03	2.11E-05	1.05E-05	4.47E-06	1.13E-03	1.48E-06	3.30E-03
1.47E-04	7.85E-03	8.66E-03	4.50E-02	3.00E-02	1.50E-02	1.50E-02	2.00E-02	1.50E-02	1.50E-02	1.50E-02	3.00E-02	2.00E-02	7.50E-02	7.74E-04	3.85E-04	1.64E-04	4.15E-02	5.43E-05	1.21E-01
1.36E-04	7.23E-03	7.98E-03	4.15E-02	2.76E-02	1.38E-02	1.38E-02	1.84E-02	1.38E-02	1.38E-02	1.38E-02	2.76E-02	1.84E-02	6.91E-02	7.13E-04	3.55E-04	1.51E-04	3.82E-02	5.00E-05	1.12E-01
1.02E-04	5.43E-03	5.99E-03	3.11E-02	2.08E-02	1.04E-02	1.04E-02	1.38E-02	1.04E-02	1.04E-02	1.04E-02	2.08E-02	1.38E-02	5.19E-02	5.36E-04	2.67E-04	1.13E-04	2.87E-02	3.76E-05	8.38E-02
7.60E-05	4.05E-03	4.47E-03	2.32E-02	1.55E-02	7.75E-03	7.75E-03	1.03E-02	7.75E-03	7.75E-03	7.75E-03	1.55E-02	1.03E-02	3.87E-02	4.00E-04	1.99E-04	8.47E-05	2.14E-02	2.80E-05	6.25E-02
6.28E-05	3.35E-03	3.69E-03	1.92E-02	1.28E-02	6.40E-03	6.40E-03	8.54E-03	6.40E-03	6.40E-03	6.40E-03	1.28E-02	8.54E-03	3.20E-02	3.30E-04	1.64E-04	7.00E-05	1.77E-02	2.32E-05	5.17E-02
2.63E-05	1.41E-03	1.55E-03	8.06E-03	5.37E-03	2.69E-03	2.69E-03	3.58E-03	2.69E-03	2.69E-03	2.69E-03	5.37E-03	3.58E-03	1.34E-02	1.39E-04	6.90E-05	2.94E-05	7.42E-03	9.72E-06	2.17E-02
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.89E-05	1.54E-03	1.70E-03	8.85E-03	5.90E-03	2.95E-03	2.95E-03	3.93E-03	2.95E-03	2.95E-03	2.95E-03	5.90E-03	3.93E-03	1.47E-02	1.52E-04	7.57E-05	3.22E-05	8.15E-03	1.07E-05	2.38E-02
9.76E-05	5.21E-03	5.75E-03	2.99E-02	1.99E-02	9.96E-03	9.96E-03	1.33E-02	9.96E-03	9.96E-03	9.96E-03	1.99E-02	1.33E-02	4.98E-02	5.14E-04	2.56E-04	1.09E-04	2.75E-02	3.60E-05	8.03E-02
1.15E-04	6.13E-03	6.75E-03	3.51E-02	2.34E-02	1.17E-02	1.17E-02	1.56E-02	1.17E-02	1.17E-02	1.17E-02	2.34E-02	1.56E-02	5.85E-02	6.04E-04	3.01E-04	1.28E-04	3.23E-02	4.24E-05	9.45E-02
1.04E-04	5.55E-03	6.12E-03	3.18E-02	2.12E-02	1.06E-02	1.06E-02	1.41E-02	1.06E-02	1.06E-02	1.06E-02	2.12E-02	1.41E-02	5.30E-02	5.47E-04	2.72E-04	1.16E-04	2.93E-02	3.84E-05	8.56E-02
8.08E-05	4.31E-03	4.76E-03	2.47E-02	1.65E-02	8.25E-03	8.25E-03	1.10E-02	8.25E-03	8.25E-03	8.25E-03	1.65E-02	1.10E-02	4.12E-02	4.25E-04	2.12E-04	9.01E-05	2.28E-02	2.98E-05	6.65E-02
7.00E-05	3.73E-03	4.12E-03	2.14E-02	1.43E-02	7.14E-03	7.14E-03	9.51E-03	7.14E-03	7.14E-03	7.14E-03	1.43E-02	9.51E-03	3.57E-02	3.68E-04	1.83E-04	7.80E-05	1.97E-02	2.58E-05	5.76E-02
5.67E-05	3.03E-03	3.34E-03	1.74E-02	1.16E-02	5.79E-03	5.79E-03	7.71E-03	5.79E-03	5.79E-03	5.79E-03	1.16E-02	7.71E-03	2.89E-02	2.99E-04	1.49E-04	6.32E-05	1.60E-02	2.09E-05	4.67E-02
3.67E-05	1.96E-03	2.16E-03	1.12E-02	7.48E-03	3.74E-03	3.74E-03	4.98E-03	3.74E-03	3.74E-03	3.74E-03	7.48E-03	4.98E-03	1.87E-02	1.93E-04	9.60E-05	4.09E-05	1.03E-02	1.35E-05	3.02E-02
1.58E-06	8.45E-05	9.32E-05	4.85E-04	3.23E-04	1.62E-04	1.62E-04	2.15E-04	1.62E-04	1.62E-04	1.62E-04	3.23E-04	2.15E-04	8.08E-04	8.33E-06	4.15E-06	1.77E-06	4.46E-04	5.85E-07	1.30E-03
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.73E-07	1.46E-05	1.60E-05	8.34E-05	5.56E-05	2.78E-05	2.78E-05	3.71E-05	2.78E-05	2.78E-05	2.78E-05	5.56E-05	3.71E-05	1.39E-04	1.43E-06	7.14E-07	3.04E-07	7.68E-05	1.01E-07	2.24E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.73E-05	3.06E-03	3.37E-03	1.75E-02	1.17E-02	5.84E-03	5.84E-03	7.79E-03	5.84E-03	5.84E-03	5.84E-03	1.17E-02	7.79E-03	2.92E-02	3.01E-04	1.50E-04	6.38E-05	1.61E-02	2.11E-05	4.71E-02
8.13E-05	4.34E-03	4.78E-03	2.49E-02	1.66E-02	8.29E-03	8.29E-03	1.10E-02	8.29E-03	8.29E-03	8.29E-03	1.66E-02	1.10E-02	4.14E-02	4.28E-04	2.13E-04	9.06E-05	2.29E-02	3.00E-05	6.69E-02
1.14E-04	6.07E-03	6.69E-03	3.48E-02	2.32E-02	1.16E-02	1.16E-02	1.55E-02	1.16E-02	1.16E-02	1.16E-02	2.32E-02	1.55E-02	5.80E-02	5.99E-04	2.98E-04	1.27E-04	3.21E-02	4.20E-05	9.36E-02
1.39E-03	7.43E-02	8.20E-02	4.26E-01	2.84E-01	1.42E-01	1.42E-01	1.89E-01	1.42E-01	1.42E-01	1.42E-01	2.84E-01	1.89E-01	7.10E-01	7.33E-03	3.65E-03	1.55E-03	3.93E-01	5.14E-04	1.15E+00
6.97E-04	3.72E-02	4.10E-02	2.13E-01	1.42E-01	7.10E-02	7.10E-02	9.47E-02	7.10E-02	7.10E-02	7.10E-02	1.42E-01	9.47E-02	3.55E-01	3.67E-03	1.82E-03	7.76E-04	1.96E-01	2.57E-04	5.73E-01

IWTU Projection for NOx Emissions from INTEC Boilers (P-2008.0199)

1 Steam to the IWTU HVAC and Steam to the IWTU treatment process is measured/calculated by the DCS on steam load to CPP-1696. Steam to process is assumed as the maximum steam
2 Steam to HVAC is the steam from INTEC to IWTU for building HVAC. Values assumed as the steam load to IWTU during CY2017.
3 Vendor data for Cleaver Brooks efficiencey rates for INTEC Boilers (EDF-9370).

Vendor Data [3] [lbs Steam/gal fuel]					CAP Projected Actual Emission (lbs)														
120	**Projected Actual Emissions (PAE) (lb/yr) --->**				**15.446**	**1450.349**	**362.587**	**239.308**	**166.790**	**14.503**	**4.61E-03**	**4.50E-01**	**8.85E-05**	**3.08E-04**	**7.90E-03**	**1.64E-04**	**1.55E-04**	**3.51E-04**	**1.83E-05**	**1.73E-04**
	AP-42 Emission Factors (lb/1000gal) --->				0.213	20	5	3.3	2.3	0.2	0.0000636	0.0062	1.22E-06	4.25E-06	0.000109	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06
	Productions				CAP Emission (tons)														
Date	Steam to Process [1] FQ-B-175-1 [lbs]	Steam to HVAC [2] FQ-B-175-2 [lbs]	Steam to HVAC [2] FQ-B-175-3 [lbs]	Total Steam to IWTU [lbs]	SO2	Nox	CO	PM	PM10-2.5 & cond.	VOCs	Ethyl Benzene	Toluene	Anthracene	Pyrene	Xylene	Benzo(g,h,i) perylene	Indeno (1,2,3-cd) Pyrene	Fluoranthene	Acenaph-thylene	Chrysene
Jan-21	277,192	1,430,191.00	470,652.00	2,178,035	0.002	0.182	0.045	0.030	0.021	0.002	5.77E-07	5.63E-05	1.11E-08	3.86E-08	9.89E-07	2.05E-08	1.94E-08	4.39E-08	2.30E-09	2.16E-08
Feb-21	277,192	982,946.00	279,226.00	1,539,364	0.001	0.128	0.032	0.021	0.015	0.001	4.08E-07	3.98E-05	7.83E-09	2.73E-08	6.99E-07	1.45E-08	1.37E-08	3.10E-08	1.62E-09	1.53E-08
Mar-21	277,192	317,069.00	203,975.00	798,236	0.001	0.067	0.017	0.011	0.008	0.001	2.12E-07	2.06E-05	4.06E-09	1.41E-08	3.63E-07	7.52E-09	7.12E-09	1.61E-08	8.41E-10	7.92E-09
Apr-21	277,192	170,867.00	152,546.00	600,605	0.001	0.050	0.013	0.008	0.006	0.001	1.59E-07	1.55E-05	3.05E-09	1.06E-08	2.73E-07	5.66E-09	5.36E-09	1.21E-08	6.33E-10	5.96E-09
May-21	277,192	41,220.00	45,485.00	363,897	0.000	0.030	0.008	0.005	0.003	0.000	9.64E-08	9.40E-06	1.85E-09	6.44E-09	1.65E-07	3.43E-09	3.24E-09	7.34E-09	3.84E-10	3.61E-09
Jun-21	277,192	2,497.00	536.00	280,225	0.000	0.023	0.006	0.004	0.003	0.000	7.43E-08	7.24E-06	1.42E-09	4.96E-09	1.27E-07	2.64E-09	2.50E-09	5.65E-09	2.95E-10	2.78E-09
Jul-21	277,192	3,060.00	615.00	280,867	0.000	0.023	0.006	0.004	0.003	0.000	7.44E-08	7.26E-06	1.43E-09	4.97E-09	1.28E-07	2.64E-09	2.50E-09	5.66E-09	2.96E-10	2.79E-09
Aug-21	277,192	2,616.00	621.00	280,429	0.000	0.023	0.006	0.004	0.003	0.000	7.43E-08	7.24E-06	1.43E-09	4.97E-09	1.27E-07	2.64E-09	2.50E-09	5.66E-09	2.96E-10	2.78E-09
Sep-21	277,192	1,732.00	484.00	279,408	0.000	0.023	0.006	0.004	0.003	0.000	7.40E-08	7.22E-06	1.42E-09	4.95E-09	1.27E-07	2.63E-09	2.49E-09	5.63E-09	2.95E-10	2.77E-09
Oct-21	277,192	176,945.00	105,005.00	559,142	0.000	0.047	0.012	0.008	0.005	0.000	1.48E-07	1.44E-05	2.84E-09	9.90E-09	2.54E-07	5.27E-09	4.99E-09	1.13E-08	5.89E-10	5.54E-09
Nov-21	0	393,443.00	218,097.00	611,540	0.001	0.051	0.013	0.008	0.006	0.001	1.62E-07	1.58E-05	3.11E-09	1.08E-08	2.78E-07	5.76E-09	5.45E-09	1.23E-08	6.45E-10	6.06E-09
Dec-21	0	717,225.00	213,121.00	930,346	0.001	0.078	0.019	0.013	0.009	0.001	2.47E-07	2.40E-05	4.73E-09	1.65E-08	4.23E-07	8.76E-09	8.30E-09	1.88E-08	9.81E-10	9.23E-09
Jan-22	0	1,430,191.00	470,652.00	1,900,843	0.002	0.158	0.040	0.026	0.018	0.002	5.04E-07	4.91E-05	9.66E-09	3.37E-08	8.63E-07	1.79E-08	1.69E-08	3.83E-08	2.00E-09	1.89E-08
Feb-22	0	982,946.00	279,226.00	1,262,172	0.001	0.105	0.026	0.017	0.012	0.001	3.34E-07	3.26E-05	6.42E-09	2.24E-08	5.73E-07	1.19E-08	1.13E-08	2.55E-08	1.33E-09	1.25E-08
Mar-22	0	317,069.00	203,975.00	521,044	0.000	0.043	0.011	0.007	0.005	0.000	1.38E-07	1.35E-05	2.65E-09	9.23E-09	2.37E-07	4.91E-09	4.65E-09	1.05E-08	5.49E-10	5.17E-09
Apr-22	0	170,867.00	152,546.00	323,413	0.000	0.027	0.007	0.004	0.003	0.000	8.57E-08	8.35E-06	1.64E-09	5.73E-09	1.47E-07	3.05E-09	2.88E-09	6.52E-09	3.41E-10	3.21E-09
May-22	0	41,220.00	45,485.00	86,705	0.000	0.007	0.002	0.001	0.001	0.000	2.30E-08	2.24E-06	4.41E-10	1.54E-09	3.94E-08	8.16E-10	7.73E-10	1.75E-09	9.14E-11	8.60E-10
Jun-22	0	2,497.00	536.00	3,033	0.000	0.000	0.000	0.000	0.000	0.000	8.04E-10	7.84E-08	1.54E-11	5.37E-11	1.38E-09	2.86E-11	2.70E-11	6.12E-11	3.20E-12	3.01E-11
Jul-22	277,192	3,060.00	615.00	280,867	0.000	0.023	0.006	0.004	0.003	0.000	7.44E-08	7.26E-06	1.43E-09	4.97E-09	1.28E-07	2.64E-09	2.50E-09	5.66E-09	2.96E-10	2.79E-09
Aug-22	277,192	2,616.00	621.00	280,429	0.000	0.023	0.006	0.004	0.003	0.000	7.43E-08	7.24E-06	1.43E-09	4.97E-09	1.27E-07	2.64E-09	2.50E-09	5.66E-09	2.96E-10	2.78E-09
Sep-22	277,192	1,732.00	484.00	279,408	0.000	0.023	0.006	0.004	0.003	0.000	7.40E-08	7.22E-06	1.42E-09	4.95E-09	1.27E-07	2.63E-09	2.49E-09	5.63E-09	2.95E-10	2.77E-09
Oct-22	277,192	176,945.00	105,005.00	559,142	0.000	0.047	0.012	0.008	0.005	0.000	1.48E-07	1.44E-05	2.84E-09	9.90E-09	2.54E-07	5.27E-09	4.99E-09	1.13E-08	5.89E-10	5.54E-09
Nov-22	277,192	393,443.00	218,097.00	888,732	0.001	0.074	0.019	0.012	0.009	0.001	2.36E-07	2.30E-05	4.52E-09	1.57E-08	4.04E-07	8.37E-09	7.92E-09	1.79E-08	9.37E-10	8.81E-09
Dec-22	0	717,225.00	213,121.00	930,346	0.001	0.078	0.019	0.013	0.009	0.001	2.47E-07	2.40E-05	4.73E-09	1.65E-08	4.23E-07	8.76E-09	8.30E-09	1.88E-08	9.81E-10	9.23E-09
Jan-23	0	1,430,191	470,652	1,900,843	0.002	0.158	0.040	0.026	0.018	0.002	5.04E-07	4.91E-05	9.66E-09	3.37E-08	8.63E-07	1.79E-08	1.69E-08	3.83E-08	2.00E-09	1.89E-08
Feb-23	0	982,946	279,226	1,262,172	0.001	0.105	0.026	0.017	0.012	0.001	3.34E-07	3.26E-05	6.42E-09	2.24E-08	5.73E-07	1.19E-08	1.13E-08	2.55E-08	1.33E-09	1.25E-08
Mar-23	277,192	317,069	203,975	798,236	0.001	0.067	0.017	0.011	0.008	0.001	2.12E-07	2.06E-05	4.06E-09	1.41E-08	3.63E-07	7.52E-09	7.12E-09	1.61E-08	8.41E-10	7.92E-09
Apr-23	277,192	170,867	152,546	600,605	0.001	0.050	0.013	0.008	0.006	0.001	1.59E-07	1.55E-05	3.05E-09	1.06E-08	2.73E-07	5.66E-09	5.36E-09	1.21E-08	6.33E-10	5.96E-09
May-23	277,192	41,220	45,485	363,897	0.000	0.030	0.008	0.005	0.003	0.000	9.64E-08	9.40E-06	1.85E-09	6.44E-09	1.65E-07	3.43E-09	3.24E-09	7.34E-09	3.84E-10	3.61E-09
Jun-23	277,192	2,497	536	280,225	0.000	0.023	0.006	0.004	0.003	0.000	7.43E-08	7.24E-06	1.42E-09	4.96E-09	1.27E-07	2.64E-09	2.50E-09	5.65E-09	2.95E-10	2.78E-09
Jul-23	0	3,060	615	3,675	0.000	0.000	0.000	0.000	0.000	0.000	9.74E-10	9.49E-08	1.87E-11	6.51E-11	1.67E-09	3.46E-11	3.28E-11	7.41E-11	3.87E-12	3.64E-11
Aug-23	0	2,616	621	3,237	0.000	0.000	0.000	0.000	0.000	0.000	8.58E-10	8.36E-08	1.65E-11	5.73E-11	1.47E-09	3.05E-11	2.89E-11	6.53E-11	3.41E-12	3.21E-11
Sep-23	0	1,732	484	2,216	0.000	0.000	0.000	0.000	0.000	0.000	5.87E-10	5.72E-08	1.13E-11	3.92E-11	1.01E-09	2.09E-11	1.98E-11	4.47E-11	2.34E-12	2.20E-11
Oct-23	0	176,945	105,005	281,950	0.000	0.023	0.006	0.004	0.003	0.000	7.47E-08	7.28E-06	1.43E-09	4.99E-09	1.28E-07	2.66E-09	2.51E-09	5.69E-09	2.97E-10	2.80E-09
Nov-23	0	393,443	218,097	611,540	0.001	0.051	0.013	0.008	0.006	0.001	1.62E-07	1.58E-05	3.11E-09	1.08E-08	2.78E-07	5.76E-09	5.45E-09	1.23E-08	6.45E-10	6.06E-09
Dec-23	0	717,225	213,121	930,346	0.001	0.078	0.019	0.013	0.009	0.001	2.47E-07	2.40E-05	4.73E-09	1.65E-08	4.23E-07	8.76E-09	8.30E-09	1.88E-08	9.81E-10	9.23E-09
Total (tons)	**5,266,648**	**12,719,433**	**5,071,089**	**23,057,170**	**0.02**	**1.92**	**0.48**	**0.32**	**0.22**	**0.02**	**6.11E-06**	**5.96E-04**	**1.17E-07**	**4.08E-07**	**1.05E-05**	**2.17E-07**	**2.06E-07**	**4.65E-07**	**2.43E-08**	**2.29E-07**

	CAP 12-Mo Rolling Emission (tons)																
	SO2	Nox	CO	PM	PM10-2.5 & cond.	VOCs	Ethyl Benzene	Toluene	Anthracene	Pyrene	Xylene	Benzo(g,h,i) perylene	Indeno (1,2,3-cd) Pyrene	Fluoranthene	Acenaph-thylene	Chrysene
	0.008	0.725	0.181	0.120	0.083	0.007	2.306E-06	2.248E-04	4.424E-08	1.541E-07	3.952E-06	8.194E-08	7.759E-08	1.755E-07	9.173E-09	8.630E-08
	0.007	0.702	0.176	0.116	0.081	0.007	2.233E-06	2.176E-04	4.283E-08	1.492E-07	3.826E-06	7.933E-08	7.512E-08	1.699E-07	8.881E-09	8.355E-08
	0.007	0.679	0.170	0.112	0.078	0.007	2.159E-06	2.105E-04	4.142E-08	1.443E-07	3.700E-06	7.672E-08	7.265E-08	1.643E-07	8.589E-09	8.080E-08
	0.007	0.656	0.164	0.108	0.075	0.007	2.086E-06	2.033E-04	4.001E-08	1.394E-07	3.575E-06	7.411E-08	7.018E-08	1.587E-07	8.297E-09	7.805E-08
	0.007	0.633	0.158	0.104	0.073	0.006	2.012E-06	1.962E-04	3.860E-08	1.345E-07	3.449E-06	7.150E-08	6.771E-08	1.531E-07	8.005E-09	7.530E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.007	0.633	0.158	0.104	0.073	0.006	2.012E-06	1.962E-04	3.860E-08	1.345E-07	3.449E-06	7.150E-08	6.771E-08	1.531E-07	8.005E-09	7.530E-08
	0.007	0.656	0.164	0.108	0.075	0.007	2.086E-06	2.033E-04	4.001E-08	1.394E-07	3.575E-06	7.411E-08	7.018E-08	1.587E-07	8.297E-09	7.805E-08
	0.007	0.679	0.170	0.112	0.078	0.007	2.159E-06	2.105E-04	4.142E-08	1.443E-07	3.700E-06	7.672E-08	7.265E-08	1.643E-07	8.589E-09	8.080E-08
	0.007	0.702	0.176	0.116	0.081	0.007	2.233E-06	2.176E-04	4.283E-08	1.492E-07	3.826E-06	7.933E-08	7.512E-08	1.699E-07	8.881E-09	8.355E-08
	0.007	0.679	0.170	0.112	0.078	0.007	2.159E-06	2.105E-04	4.142E-08	1.443E-07	3.700E-06	7.672E-08	7.265E-08	1.643E-07	8.589E-09	8.080E-08
	0.007	0.656	0.164	0.108	0.075	0.007	2.086E-06	2.033E-04	4.001E-08	1.394E-07	3.575E-06	7.411E-08	7.018E-08	1.587E-07	8.297E-09	7.805E-08
	0.007	0.633	0.158	0.104	0.073	0.006	2.012E-06	1.962E-04	3.860E-08	1.345E-07	3.449E-06	7.150E-08	6.771E-08	1.531E-07	8.005E-09	7.530E-08
	0.006	0.610	0.152	0.101	0.070	0.006	1.939E-06	1.890E-04	3.719E-08	1.296E-07	3.323E-06	6.889E-08	6.524E-08	1.475E-07	7.712E-09	7.255E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
	0.006	0.587	0.147	0.097	0.067	0.006	1.865E-06	1.818E-04	3.578E-08	1.246E-07	3.197E-06	6.628E-08	6.276E-08	1.420E-07	7.420E-09	6.980E-08
Max --->	**0.008**	**0.725**	**0.181**	**0.120**	**0.083**	**0.007**	**2.31E-06**	**2.25E-04**	**4.42E-08**	**1.54E-07**	**3.95E-06**	**8.19E-08**	**7.76E-08**	**1.75E-07**	**9.17E-09**	**8.63E-08**

IWTU Projection for NOx Emissions from INTEC Boilers (P-2008.0199)

1 Steam to the IWTU HVAC and Steam to the IWTU treatment pro
2 Steam to HVAC is the steam from INTEC to IWTU for building HV
3 Vendor data for Cleaver Brooks efficiencey rates for INTEC Boile

Vendor Data [3] [lbs Steam/gal fuel]		HAP Projected Actual Emission (lbs)													
120	**Projected Actual Emissions (PAE) (lb/yr) --->**	**2.39E+00**	**1.21E-04**	**2.91E-04**	**1.55E-02**	**1.71E-02**	**8.90E-02**	**5.93E-02**	**2.97E-02**	**2.97E-02**	**3.95E-02**	**2.97E-02**	**2.97E-02**	**2.97E-02**	**5.93E-02**	**3.95E-02**
	AP-42 Emission Factors (lb/1000gal) --->	0.033	0.00000167	4.01E-06	0.000214	0.000236	0.001227	0.000818	0.000409	0.000409	0.000545	0.000409	0.000409	0.000409	0.000818	0.000545

	Productions				HAP Emission (tons)													
Date	Steam to Process [1] FQ-B-175-1 [lbs]	Steam to HVAC [2] FQ-B-175-2 [lbs]	Steam to HVAC [2] FQ-B-175-3 [lbs]	Total Steam to IWTU [lbs]	Formaldehyde	Dibenzo(A,H)-Anthracene	Benz(a)-anthracene	Benzene	1,1,1-Trichloro-ethane	Lead	Manganese	Mercury	Nickel	Arsenic	Beryllium	Cadmium	Chromium	Copper	Zinc
Jan-21	277,192	1,430,191.00	470,652.00	2,178,035	2.99E-04	1.52E-08	3.64E-08	1.94E-06	2.14E-06	1.11E-05	7.42E-06	3.71E-06	3.71E-06	4.95E-06	3.71E-06	3.71E-06	3.71E-06	7.42E-06	4.95E-06
Feb-21	277,192	982,946.00	279,226.00	1,539,364	2.12E-04	1.07E-08	2.57E-08	1.37E-06	1.51E-06	7.87E-06	5.25E-06	2.62E-06	2.62E-06	3.50E-06	2.62E-06	2.62E-06	2.62E-06	5.25E-06	3.50E-06
Mar-21	277,192	317,069.00	203,975.00	798,236	1.10E-04	5.55E-09	1.33E-08	7.12E-07	7.85E-07	4.08E-06	2.72E-06	1.36E-06	1.36E-06	1.81E-06	1.36E-06	1.36E-06	1.36E-06	2.72E-06	1.81E-06
Apr-21	277,192	170,867.00	152,546.00	600,605	8.26E-05	4.18E-09	1.00E-08	5.36E-07	5.91E-07	3.07E-06	2.05E-06	1.02E-06	1.02E-06	1.36E-06	1.02E-06	1.02E-06	1.02E-06	2.05E-06	1.36E-06
May-21	277,192	41,220.00	45,485.00	363,897	5.00E-05	2.53E-09	6.08E-09	3.24E-07	3.58E-07	1.86E-06	1.24E-06	6.20E-07	6.20E-07	8.27E-07	6.20E-07	6.20E-07	6.20E-07	1.24E-06	8.27E-07
Jun-21	277,192	2,497.00	536.00	280,225	3.85E-05	1.95E-09	4.68E-09	2.50E-07	2.76E-07	1.43E-06	9.55E-07	4.78E-07	4.78E-07	6.37E-07	4.78E-07	4.78E-07	4.78E-07	9.55E-07	6.37E-07
Jul-21	277,192	3,060.00	615.00	280,867	3.86E-05	1.95E-09	4.69E-09	2.50E-07	2.76E-07	1.44E-06	9.57E-07	4.79E-07	4.79E-07	6.38E-07	4.79E-07	4.79E-07	4.79E-07	9.57E-07	6.38E-07
Aug-21	277,192	2,616.00	621.00	280,429	3.86E-05	1.95E-09	4.69E-09	2.50E-07	2.76E-07	1.43E-06	9.56E-07	4.78E-07	4.78E-07	6.37E-07	4.78E-07	4.78E-07	4.78E-07	9.56E-07	6.37E-07
Sep-21	277,192	1,732.00	484.00	279,408	3.84E-05	1.94E-09	4.67E-09	2.49E-07	2.75E-07	1.43E-06	9.52E-07	4.76E-07	4.76E-07	6.35E-07	4.76E-07	4.76E-07	4.76E-07	9.52E-07	6.35E-07
Oct-21	277,192	176,945.00	105,005.00	559,142	7.69E-05	3.89E-09	9.34E-09	4.99E-07	5.50E-07	2.86E-06	1.91E-06	9.53E-07	9.53E-07	1.27E-06	9.53E-07	9.53E-07	9.53E-07	1.91E-06	1.27E-06
Nov-21	0	393,443.00	218,097.00	611,540	8.41E-05	4.26E-09	1.02E-08	5.45E-07	6.01E-07	3.13E-06	2.08E-06	1.04E-06	1.04E-06	1.39E-06	1.04E-06	1.04E-06	1.04E-06	2.08E-06	1.39E-06
Dec-21	0	717,225.00	213,121.00	930,346	1.28E-04	6.47E-09	1.55E-08	8.30E-07	9.15E-07	4.76E-06	3.17E-06	1.59E-06	1.59E-06	2.11E-06	1.59E-06	1.59E-06	1.59E-06	3.17E-06	2.11E-06
Jan-22	0	1,430,191.00	470,652.00	1,900,843	2.61E-04	1.32E-08	3.18E-08	1.69E-06	1.87E-06	9.72E-06	6.48E-06	3.24E-06	3.24E-06	4.32E-06	3.24E-06	3.24E-06	3.24E-06	6.48E-06	4.32E-06
Feb-22	0	982,946.00	279,226.00	1,262,172	1.74E-04	8.78E-09	2.11E-08	1.13E-06	1.24E-06	6.45E-06	4.30E-06	2.15E-06	2.15E-06	2.87E-06	2.15E-06	2.15E-06	2.15E-06	4.30E-06	2.87E-06
Mar-22	0	317,069.00	203,975.00	521,044	7.16E-05	3.63E-09	8.71E-09	4.65E-07	5.12E-07	2.66E-06	1.78E-06	8.88E-07	8.88E-07	1.18E-06	8.88E-07	8.88E-07	8.88E-07	1.78E-06	1.18E-06
Apr-22	0	170,867.00	152,546.00	323,413	4.45E-05	2.25E-09	5.40E-09	2.88E-07	3.18E-07	1.65E-06	1.10E-06	5.51E-07	5.51E-07	7.35E-07	5.51E-07	5.51E-07	5.51E-07	1.10E-06	7.35E-07
May-22	0	41,220.00	45,485.00	86,705	1.19E-05	6.03E-10	1.45E-09	7.73E-08	8.53E-08	4.43E-07	2.96E-07	1.48E-07	1.48E-07	1.97E-07	1.48E-07	1.48E-07	1.48E-07	2.96E-07	1.97E-07
Jun-22	0	2,497.00	536.00	3,033	4.17E-07	2.11E-11	5.07E-11	2.70E-09	2.98E-09	1.55E-08	1.03E-08	5.17E-09	5.17E-09	6.89E-09	5.17E-09	5.17E-09	5.17E-09	1.03E-08	6.89E-09
Jul-22	277,192	3,060.00	615.00	280,867	3.86E-05	1.95E-09	4.69E-09	2.50E-07	2.76E-07	1.44E-06	9.57E-07	4.79E-07	4.79E-07	6.38E-07	4.79E-07	4.79E-07	4.79E-07	9.57E-07	6.38E-07
Aug-22	277,192	2,616.00	621.00	280,429	3.86E-05	1.95E-09	4.69E-09	2.50E-07	2.76E-07	1.43E-06	9.56E-07	4.78E-07	4.78E-07	6.37E-07	4.78E-07	4.78E-07	4.78E-07	9.56E-07	6.37E-07
Sep-22	277,192	1,732.00	484.00	279,408	3.84E-05	1.94E-09	4.67E-09	2.49E-07	2.75E-07	1.43E-06	9.52E-07	4.76E-07	4.76E-07	6.35E-07	4.76E-07	4.76E-07	4.76E-07	9.52E-07	6.35E-07
Oct-22	277,192	176,945.00	105,005.00	559,142	7.69E-05	3.89E-09	9.34E-09	4.99E-07	5.50E-07	2.86E-06	1.91E-06	9.53E-07	9.53E-07	1.27E-06	9.53E-07	9.53E-07	9.53E-07	1.91E-06	1.27E-06
Nov-22	277,192	393,443.00	218,097.00	888,732	1.22E-04	6.18E-09	1.48E-08	7.92E-07	8.74E-07	4.54E-06	3.03E-06	1.51E-06	1.51E-06	2.02E-06	1.51E-06	1.51E-06	1.51E-06	3.03E-06	2.02E-06
Dec-22	0	717,225.00	213,121.00	930,346	1.28E-04	6.47E-09	1.55E-08	8.30E-07	9.15E-07	4.76E-06	3.17E-06	1.59E-06	1.59E-06	2.11E-06	1.59E-06	1.59E-06	1.59E-06	3.17E-06	2.11E-06
Jan-23	0	1,430,191	470,652	1,900,843	2.61E-04	1.32E-08	3.18E-08	1.69E-06	1.87E-06	9.72E-06	6.48E-06	3.24E-06	3.24E-06	4.32E-06	3.24E-06	3.24E-06	3.24E-06	6.48E-06	4.32E-06
Feb-23	0	982,946	279,226	1,262,172	1.74E-04	8.78E-09	2.11E-08	1.13E-06	1.24E-06	6.45E-06	4.30E-06	2.15E-06	2.15E-06	2.87E-06	2.15E-06	2.15E-06	2.15E-06	4.30E-06	2.87E-06
Mar-23	277,192	317,069	203,975	798,236	1.10E-04	5.55E-09	1.33E-08	7.12E-07	7.85E-07	4.08E-06	2.72E-06	1.36E-06	1.36E-06	1.81E-06	1.36E-06	1.36E-06	1.36E-06	2.72E-06	1.81E-06
Apr-23	277,192	170,867	152,546	600,605	8.26E-05	4.18E-09	1.00E-08	5.36E-07	5.91E-07	3.07E-06	2.05E-06	1.02E-06	1.02E-06	1.36E-06	1.02E-06	1.02E-06	1.02E-06	2.05E-06	1.36E-06
May-23	277,192	41,220	45,485	363,897	5.00E-05	2.53E-09	6.08E-09	3.24E-07	3.58E-07	1.86E-06	1.24E-06	6.20E-07	6.20E-07	8.27E-07	6.20E-07	6.20E-07	6.20E-07	1.24E-06	8.27E-07
Jun-23	277,192	2,497	536	280,225	3.85E-05	1.95E-09	4.68E-09	2.50E-07	2.76E-07	1.43E-06	9.55E-07	4.78E-07	4.78E-07	6.37E-07	4.78E-07	4.78E-07	4.78E-07	9.55E-07	6.37E-07
Jul-23	0	3,060	615	3,675	5.05E-07	2.56E-11	6.14E-11	3.28E-09	3.61E-09	1.88E-08	1.25E-08	6.26E-09	6.26E-09	8.35E-09	6.26E-09	6.26E-09	6.26E-09	1.25E-08	8.35E-09
Aug-23	0	2,616	621	3,237	4.45E-07	2.25E-11	5.41E-11	2.89E-09	3.18E-09	1.65E-08	1.10E-08	5.52E-09	5.52E-09	7.35E-09	5.52E-09	5.52E-09	5.52E-09	1.10E-08	7.35E-09
Sep-23	0	1,732	484	2,216	3.05E-07	1.54E-11	3.70E-11	1.98E-09	2.18E-09	1.13E-08	7.55E-09	3.78E-09	3.78E-09	5.03E-09	3.78E-09	3.78E-09	3.78E-09	7.55E-09	5.03E-09
Oct-23	0	176,945	105,005	281,950	3.88E-05	1.96E-09	4.71E-09	2.51E-07	2.77E-07	1.44E-06	9.61E-07	4.80E-07	4.80E-07	6.41E-07	4.80E-07	4.80E-07	4.80E-07	9.61E-07	6.41E-07
Nov-23	0	393,443	218,097	611,540	8.41E-05	4.26E-09	1.02E-08	5.45E-07	6.01E-07	3.13E-06	2.08E-06	1.04E-06	1.04E-06	1.39E-06	1.04E-06	1.04E-06	1.04E-06	2.08E-06	1.39E-06
Dec-23	0	717,225	213,121	930,346	1.28E-04	6.47E-09	1.55E-08	8.30E-07	9.15E-07	4.76E-06	3.17E-06	1.59E-06	1.59E-06	2.11E-06	1.59E-06	1.59E-06	1.59E-06	3.17E-06	2.11E-06
Total (tons)	**5,266,648**	**12,719,433**	**5,071,089**	**23,057,170**	**3.17E-03**	**1.60E-07**	**3.85E-07**	**2.06E-05**	**2.27E-05**	**1.18E-04**	**7.86E-05**	**3.93E-05**	**3.93E-05**	**5.24E-05**	**3.93E-05**	**3.93E-05**	**3.93E-05**	**7.86E-05**	**5.24E-05**

HAP 12-Mo Rolling Emission (tons)														
Formaldehyde	Dibenzo(A,H)-Anthracene	Benz(a)-anthracene	Benzene	1,1,1-Trichloro-ethane	Lead	Manganese	Mercury	Nickel	Arsenic	Beryllium	Cadmium	Chromium	Copper	Zinc
1.197E-03	6.055E-08	1.454E-07	7.759E-06	8.557E-06	4.449E-05	2.966E-05	1.483E-05	1.483E-05	1.977E-05	1.483E-05	1.483E-05	1.483E-05	2.966E-05	1.977E-05
1.158E-03	5.862E-08	1.408E-07	7.512E-06	8.284E-06	4.307E-05	2.871E-05	1.436E-05	1.436E-05	1.914E-05	1.436E-05	1.436E-05	1.436E-05	2.871E-05	1.914E-05
1.120E-03	5.669E-08	1.361E-07	7.265E-06	8.012E-06	4.165E-05	2.777E-05	1.388E-05	1.388E-05	1.851E-05	1.388E-05	1.388E-05	1.388E-05	2.777E-05	1.851E-05
1.082E-03	5.477E-08	1.315E-07	7.018E-06	7.739E-06	4.024E-05	2.682E-05	1.341E-05	1.341E-05	1.788E-05	1.341E-05	1.341E-05	1.341E-05	2.682E-05	1.788E-05
1.044E-03	5.284E-08	1.269E-07	6.771E-06	7.467E-06	3.882E-05	2.588E-05	1.294E-05	1.294E-05	1.725E-05	1.294E-05	1.294E-05	1.294E-05	2.588E-05	1.725E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
1.044E-03	5.284E-08	1.269E-07	6.771E-06	7.467E-06	3.882E-05	2.588E-05	1.294E-05	1.294E-05	1.725E-05	1.294E-05	1.294E-05	1.294E-05	2.588E-05	1.725E-05
1.082E-03	5.477E-08	1.315E-07	7.018E-06	7.739E-06	4.024E-05	2.682E-05	1.341E-05	1.341E-05	1.788E-05	1.341E-05	1.341E-05	1.341E-05	2.682E-05	1.788E-05
1.120E-03	5.669E-08	1.361E-07	7.265E-06	8.012E-06	4.165E-05	2.777E-05	1.388E-05	1.388E-05	1.851E-05	1.388E-05	1.388E-05	1.388E-05	2.777E-05	1.851E-05
1.158E-03	5.862E-08	1.408E-07	7.512E-06	8.284E-06	4.307E-05	2.871E-05	1.436E-05	1.436E-05	1.914E-05	1.436E-05	1.436E-05	1.436E-05	2.871E-05	1.914E-05
1.120E-03	5.669E-08	1.361E-07	7.265E-06	8.012E-06	4.165E-05	2.777E-05	1.388E-05	1.388E-05	1.851E-05	1.388E-05	1.388E-05	1.388E-05	2.777E-05	1.851E-05
1.082E-03	5.477E-08	1.315E-07	7.018E-06	7.739E-06	4.024E-05	2.682E-05	1.341E-05	1.341E-05	1.788E-05	1.341E-05	1.341E-05	1.341E-05	2.682E-05	1.788E-05
1.044E-03	5.284E-08	1.269E-07	6.771E-06	7.467E-06	3.882E-05	2.588E-05	1.294E-05	1.294E-05	1.725E-05	1.294E-05	1.294E-05	1.294E-05	2.588E-05	1.725E-05
1.006E-03	5.091E-08	1.222E-07	6.524E-06	7.194E-06	3.740E-05	2.493E-05	1.247E-05	1.247E-05	1.662E-05	1.247E-05	1.247E-05	1.247E-05	2.493E-05	1.662E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
9.679E-04	4.898E-08	1.176E-07	6.276E-06	6.922E-06	3.598E-05	2.399E-05	1.199E-05	1.199E-05	1.599E-05	1.199E-05	1.199E-05	1.199E-05	2.399E-05	1.599E-05
Max --->	**1.20E-03**	**6.06E-08**	**1.45E-07**	**7.76E-06**	**8.56E-06**	**4.45E-05**	**2.97E-05**	**1.48E-05**	**1.48E-05**	**1.98E-05**	**1.48E-05**	**1.48E-05**	**1.48E-05**	**2.97E-05**	**1.98E-05**

IWTU Projection for NOx Emissions from INTEC Boilers (P-2008.0199)

1 Steam to the IWTU HVAC and Steam to the IWTU treatment pro
2 Steam to HVAC is the steam from INTEC to IWTU for building HV
3 Vendor data for Cleaver Brooks efficiencey rates for INTEC Boile

Vendor Data [3] [lbs Steam/gal fuel]												
120	**Projected Actual Emissions (PAE) (lb/yr) --->**				**1.48E-01**	**1.53E-03**	**7.61E-04**	**3.24E-04**	**8.19E-02**	**1.07E-04**	**2.39E-01**
	AP-42 Emission Factors (lb/1000gal) --->				0.002045	2.11E-05	1.05E-05	4.47E-06	0.00113	1.48E-06	0.0033
	Productions										
Date	Steam to Process [1] FQ-B-175-1 [lbs]	Steam to HVAC [2] FQ-B-175-2 [lbs]	Steam to HVAC [2] FQ-B-175-3 [lbs]	Total Steam to IWTU [lbs]	Selenium	Acenaph-tlene	Phenan-threne	Fluorene	Naphthalene	Benzo(b,k) Fluoranthene	POM
Jan-21	277,192	1,430,191.00	470,652.00	2,178,035	1.86E-05	1.91E-07	9.53E-08	4.06E-08	1.03E-05	1.34E-08	2.99E-05
Feb-21	277,192	982,946.00	279,226.00	1,539,364	1.31E-05	1.35E-07	6.73E-08	2.87E-08	7.25E-06	9.49E-09	2.12E-05
Mar-21	277,192	317,069.00	203,975.00	798,236	6.80E-06	7.02E-08	3.49E-08	1.49E-08	3.76E-06	4.92E-09	1.10E-05
Apr-21	277,192	170,867.00	152,546.00	600,605	5.12E-06	5.28E-08	2.63E-08	1.12E-08	2.83E-06	3.70E-09	8.26E-06
May-21	277,192	41,220.00	45,485.00	363,897	3.10E-06	3.20E-08	1.59E-08	6.78E-09	1.71E-06	2.24E-09	5.00E-06
Jun-21	277,192	2,497.00	536.00	280,225	2.39E-06	2.46E-08	1.23E-08	5.22E-09	1.32E-06	1.73E-09	3.85E-06
Jul-21	277,192	3,060.00	615.00	280,867	2.39E-06	2.47E-08	1.23E-08	5.23E-09	1.32E-06	1.73E-09	3.86E-06
Aug-21	277,192	2,616.00	621.00	280,429	2.39E-06	2.47E-08	1.23E-08	5.22E-09	1.32E-06	1.73E-09	3.86E-06
Sep-21	277,192	1,732.00	484.00	279,408	2.38E-06	2.46E-08	1.22E-08	5.20E-09	1.32E-06	1.72E-09	3.84E-06
Oct-21	277,192	176,945.00	105,005.00	559,142	4.76E-06	4.92E-08	2.45E-08	1.04E-08	2.63E-06	3.45E-09	7.69E-06
Nov-21	0	393,443.00	218,097.00	611,540	5.21E-06	5.38E-08	2.68E-08	1.14E-08	2.88E-06	3.77E-09	8.41E-06
Dec-21	0	717,225.00	213,121.00	930,346	7.93E-06	8.18E-08	4.07E-08	1.73E-08	4.38E-06	5.74E-09	1.28E-05
Jan-22	0	1,430,191.00	470,652.00	1,900,843	1.62E-05	1.67E-07	8.32E-08	3.54E-08	8.95E-06	1.17E-08	2.61E-05
Feb-22	0	982,946.00	279,226.00	1,262,172	1.08E-05	1.11E-07	5.52E-08	2.35E-08	5.94E-06	7.78E-09	1.74E-05
Mar-22	0	317,069.00	203,975.00	521,044	4.44E-06	4.58E-08	2.28E-08	9.70E-09	2.45E-06	3.21E-09	7.16E-06
Apr-22	0	170,867.00	152,546.00	323,413	2.76E-06	2.84E-08	1.41E-08	6.02E-09	1.52E-06	1.99E-09	4.45E-06
May-22	0	41,220.00	45,485.00	86,705	7.39E-07	7.62E-09	3.79E-09	1.61E-09	4.08E-07	5.35E-10	1.19E-06
Jun-22	0	2,497.00	536.00	3,033	2.58E-08	2.67E-10	1.33E-10	5.65E-11	1.43E-08	1.87E-11	4.17E-08
Jul-22	277,192	3,060.00	615.00	280,867	2.39E-06	2.47E-08	1.23E-08	5.23E-09	1.32E-06	1.73E-09	3.86E-06
Aug-22	277,192	2,616.00	621.00	280,429	2.39E-06	2.47E-08	1.23E-08	5.22E-09	1.32E-06	1.73E-09	3.86E-06
Sep-22	277,192	1,732.00	484.00	279,408	2.38E-06	2.46E-08	1.22E-08	5.20E-09	1.32E-06	1.72E-09	3.84E-06
Oct-22	277,192	176,945.00	105,005.00	559,142	4.76E-06	4.92E-08	2.45E-08	1.04E-08	2.63E-06	3.45E-09	7.69E-06
Nov-22	277,192	393,443.00	218,097.00	888,732	7.57E-06	7.81E-08	3.89E-08	1.66E-08	4.18E-06	5.48E-09	1.22E-05
Dec-22	0	717,225.00	213,121.00	930,346	7.93E-06	8.18E-08	4.07E-08	1.73E-08	4.38E-06	5.74E-09	1.28E-05
Jan-23	0	1,430,191	470,652	1,900,843	1.62E-05	1.67E-07	8.32E-08	3.54E-08	8.95E-06	1.17E-08	2.61E-05
Feb-23	0	982,946	279,226	1,262,172	1.08E-05	1.11E-07	5.52E-08	2.35E-08	5.94E-06	7.78E-09	1.74E-05
Mar-23	277,192	317,069	203,975	798,236	6.80E-06	7.02E-08	3.49E-08	1.49E-08	3.76E-06	4.92E-09	1.10E-05
Apr-23	277,192	170,867	152,546	600,605	5.12E-06	5.28E-08	2.63E-08	1.12E-08	2.83E-06	3.70E-09	8.26E-06
May-23	277,192	41,220	45,485	363,897	3.10E-06	3.20E-08	1.59E-08	6.78E-09	1.71E-06	2.24E-09	5.00E-06
Jun-23	277,192	2,497	536	280,225	2.39E-06	2.46E-08	1.23E-08	5.22E-09	1.32E-06	1.73E-09	3.85E-06
Jul-23	0	3,060	615	3,675	3.13E-08	3.23E-10	1.61E-10	6.84E-11	1.73E-08	2.27E-11	5.05E-08
Aug-23	0	2,616	621	3,237	2.76E-08	2.85E-10	1.42E-10	6.03E-11	1.52E-08	2.00E-11	4.45E-08
Sep-23	0	1,732	484	2,216	1.89E-08	1.95E-10	9.70E-11	4.13E-11	1.04E-08	1.37E-11	3.05E-08
Oct-23	0	176,945	105,005	281,950	2.40E-06	2.48E-08	1.23E-08	5.25E-09	1.33E-06	1.74E-09	3.88E-06
Nov-23	0	393,443	218,097	611,540	5.21E-06	5.38E-08	2.68E-08	1.14E-08	2.88E-06	3.77E-09	8.41E-06
Dec-23	0	717,225	213,121	930,346	7.93E-06	8.18E-08	4.07E-08	1.73E-08	4.38E-06	5.74E-09	1.28E-05
Total (tons)	**5,266,648**	**12,719,433**	**5,071,089**	**23,057,170**	**1.96E-04**	**2.03E-06**	**1.01E-06**	**4.29E-07**	**1.09E-04**	**1.42E-07**	**3.17E-04**

Selenium	Acenaph-tlene	Phenan-threne	Fluorene	Naphthalene	Benzo(b,k) Fluoranthene	POM
7.414E-05	7.651E-07	3.807E-07	1.621E-07	4.097E-05	5.366E-08	1.197E-04
7.178E-05	7.407E-07	3.686E-07	1.569E-07	3.967E-05	5.195E-08	1.158E-04
6.942E-05	7.163E-07	3.565E-07	1.518E-07	3.836E-05	5.024E-08	1.120E-04
6.706E-05	6.919E-07	3.443E-07	1.466E-07	3.706E-05	4.853E-08	1.082E-04
6.470E-05	6.676E-07	3.322E-07	1.414E-07	3.575E-05	4.683E-08	1.044E-04
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
6.470E-05	6.676E-07	3.322E-07	1.414E-07	3.575E-05	4.683E-08	1.044E-04
6.706E-05	6.919E-07	3.443E-07	1.466E-07	3.706E-05	4.853E-08	1.082E-04
6.942E-05	7.163E-07	3.565E-07	1.518E-07	3.836E-05	5.024E-08	1.120E-04
7.178E-05	7.407E-07	3.686E-07	1.569E-07	3.967E-05	5.195E-08	1.158E-04
6.942E-05	7.163E-07	3.565E-07	1.518E-07	3.836E-05	5.024E-08	1.120E-04
6.706E-05	6.919E-07	3.443E-07	1.466E-07	3.706E-05	4.853E-08	1.082E-04
6.470E-05	6.676E-07	3.322E-07	1.414E-07	3.575E-05	4.683E-08	1.044E-04
6.234E-05	6.432E-07	3.201E-07	1.363E-07	3.445E-05	4.512E-08	1.006E-04
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
5.997E-05	6.188E-07	3.080E-07	1.311E-07	3.314E-05	4.341E-08	9.679E-05
Max --->	**7.41E-05**	**7.65E-07**	**3.81E-07**	**1.62E-07**	**4.10E-05**	**5.37E-08**	**1.20E-04**

STK-SRE-140 Criteria Pollutant Emission Rates						
Feed Rate [gpm]		NOx [1,2] [lb/hr]	CO [2] [lb/hr]	SO2 [2] [lb/hr]	PM [2] [lb/hr]	Pb [3] [lb/hr]
Nominal [4]	1.60	18.5	0.12	0.121	0.009	1.70E-06
Maximum [5]	2.5	28.9	0.188	0.189	0.014	2.66E-06

STK-SRE-140 Emissions, Regular Operations					
Criteria Pollutant	NOx [1] [tons]	CO [tons]	SO2 [tons]	PM [tons]	Pb [tons]
PAE [6]	50.21	3.36E-01	3.39E-01	2.52E-02	4.76E-06
Total	98.58	6.70E-01	6.75E-01	5.02E-02	9.49E-06

Volume Treated (Totals)	
SBW, Regular Operations [7]	819,810 gallons
SBW Solids + Flush, Regular Operations [7]	208,020 gallons
Total, Regular Operations [7]	1,027,830 gallons

STK-SRE-140 Regular Emissions from SBW Treatment @ 1.6 gpm CY 2021 [10]						
Month	Volume Treated [gal]	NOx [1] [tons]	CO [tons]	SO2 [tons]	PM [tons]	Pb [tons]
January [7]	n/a	n/a	n/a	n/a	n/a	n/a
February [7]	n/a	n/a	n/a	n/a	n/a	n/a
March [7,8]	48,384	4.66	3.02E-02	3.05E-02	2.27E-03	4.28E-07
April	64,512	6.22	4.03E-02	4.07E-02	3.02E-03	5.71E-07
May	80,640	7.77	5.04E-02	5.08E-02	3.78E-03	7.14E-07
June	65,155	6.28	5.04E-02	5.08E-02	3.78E-03	7.14E-07
July	63,869	6.09	3.87E-02	3.90E-02	2.90E-03	5.48E-07
August	80,640	7.69	4.84E-02	4.88E-02	3.63E-03	6.86E-07
September	64,512	6.15	3.87E-02	3.90E-02	2.90E-03	5.48E-07
October	56,208	5.36	3.87E-02	3.90E-02	2.90E-03	5.48E-07
November [9]	-	-	-	-	-	-
December [9]	-	-	-	-	-	-
Total	523,920	50.21	3.36E-01	3.39E-01	2.52E-02	4.76E-06

STK-SRE-140 Regular Emissions from SBW Treatment @ 1.6 gpm CY 2022 [10]						
Month	Volume Treated [gal]	NOx [1] [tons]	CO [tons]	SO2 [tons]	PM [tons]	Pb [tons]
January [9]	-	-	-	-	-	-
February [9]	-	-	-	-	-	-
March [9]	-	-	-	-	-	-
April [9]	-	-	-	-	-	-
May [9]	-	-	-	-	-	-
June [9]	-	-	-	-	-	-
July	16,128	1.55	1.01E-02	1.02E-02	7.56E-04	1.43E-07
August	64,512	6.22	4.03E-02	4.07E-02	3.02E-03	5.71E-07
September	64,512	6.22	4.03E-02	4.07E-02	3.02E-03	5.71E-07
October	80,640	7.77	5.04E-02	5.08E-02	3.78E-03	7.14E-07
November	70,098	6.75	5.04E-02	5.08E-02	3.78E-03	7.14E-07
December [9]	-	-	-	-	-	-
Total	295,890	28.51	1.92E-01	1.93E-01	1.44E-02	2.71E-06

STK-SRE-140 Regular Emissions from SBW Treatment @ 1.6 gpm CY 2023 [10]						
Month	Volume Treated [gal]	NOx [1] [tons]	CO [tons]	SO2 [tons]	PM [tons]	Pb [tons]
January [9]	-	-	-	-	-	-
February [9]	-	-	-	-	-	-
March	34,038	3.27	3.02E-02	3.05E-02	2.27E-03	4.28E-07
April	64,512	6.15	4.03E-02	4.07E-02	3.02E-03	5.71E-07
May	80,640	7.69	5.04E-02	5.08E-02	3.78E-03	7.14E-07
June	28,830	2.76	2.13E-02	2.15E-02	1.60E-03	3.01E-07
July	-	-	-	-	-	-
August	-	-	-	-	-	-
September	-	-	-	-	-	-
October	-	-	-	-	-	-
November	-	-	-	-	-	-
December	-	-	-	-	-	-
Total	208,020	19.86	1.42E-01	1.43E-01	1.07E-02	2.01E-06

1 NOx is calculated as the molar weight of NOx measured in the IWTU off-gas. NOx in the IWTU off-gas is 10% NO and 90% NO2.

2 Emission rates measured during TI-102-Part 5 preliminary system performance test. See "Integrated Waste Treatment Unit Engineering Data Analysis of TI-102-Part 5" (RPT-1717), Appendix C "Off-Gas Sampling Results. VOCs are assumed to be zero and are therefore were not calculated for potential actual emissions;

3 Lead (Pb) was not analyzed during TI-102-Part 5, as simulant does not contain RCRA heavy metals. Extensive pilot scale testing of steam reforming technology for SBW treatment was conducted prior to the construction of the IWTU. Therefore, the emission rate for Pb is provided by "Pilot Plant Test, Preliminary

4 IWTU waste feedrate at steady-state is nominal at 1.6 gpm as documented in "IWTU Safety Significant Mass and Energy Balance" (EDF-11067, Appendix A, Table 2) and "System Plan for the Treatment of INTEC Sodium-Bearing Waste Using the Steam Reforming Process" (PLN-2019). Emissions rates documented in RPT-

5 Maximum feed rate is 2.5 gpm, an upper limit condition specified by the HWMA/RCRA Part B Permit. Emission rates for maximum feed rate was calculated as a basis for emission limits. Calculations of emission rates at 2.5 gpm assume a linear relationship between the maximum and nominal feedrates.

6 "Potential Actual Emissions" (PAE) is defined under IDAPA 58.01.01.007.08.a as "the maximum annual rate, in tons per year, at which an existing emissions unit is projected to emit a regulated air pollutant in any one (1) of the five (5) years (twelve (12) month period) following the date the unit resumes regular operation

7 Regular operation of the IWTU is defined as the continuation of IWTU operations after the System Performance Test (SPT) processing SBW. Regular operations are allowed to commence following the SPT under the HWMA/RCRA Part B Permit, Appendix D-6. Emissions from the IWTU prior to and during the SPT are not

8 Regular operations as defined in footnote 7 are anticipated to begin on March 14, 2021.

9 PLN-2019 identifies the operating schedule for the IWTU. PLN-2019 documents that a six to twelve month outage is required to changeout the spent granular activated carbon from the IWTU mercury absorbers. PLN-2019 also documents that the completion of SBW treatment to the vessel heels and the treatment of

10 PLN-2019 identifies the operating schedule for the IWTU to require 3 to 7 years of operations, with a nominal 5 year operating period, based on Witness software. Potential actual emissions calculations over three calendar years, broken up by the minimum required shutdown periods identified by footnote 8, represent the

IWTU Stack Emissions

	1,1,1-Trichloroethane	1,1,2,2-Tetrachloro-ethane	1,1-Dichloroethylene	1,2-Dichloroethane	2-Butanone	Arsenic compounds	Benzene	Cadmium compounds	Carbon tetrachloride	Chloroform	Chromium compounds	Cyanide compounds	Ethyl Benzene	Lead compounds	Mercury compounds	Methylene chloride
Total INTEC Stack Emissions (Main, 659/666) (lbs/yr)	1.72E-02	2.76E-04	4.17E-02	2.76E-02	2.98E-03	1.08E-11	1.45E-01	8.00E+00	1.42E-01	2.06E+00	1.59E-10	1.79E-14	2.07E-02	7.66E-03	2.22E-11	1.11E+02

	Naphthalene	Nickel compounds	PCBs	Selenium compounds	Tetrachloroethylene	Toluene	Trichloro-ethylene	Xylene
Total INTEC Stack Emissions (Main, 659/666) (lbs/yr)	7.49E-03	7.97E+00	5.40E-13	2.98E-12	1.72E-02	7.23E+01	2.98E-03	6.00E-02

INTEC Main Stack Emissions[a,b]				
	Ethyl Benzene (lbs/yr)	Lead (lbs/yr)	Nickel (lbs/yr)	Naphthalene (lbs/yr)
INTEC Main Stack (CPP-708-001) average (lb/yr)	6.94E-04	7.66E-03	7.97E+00	7.49E-03
INTEC Main Stack (CPP-708-001) for CY 2011	Ethyl Benzene (lbs/yr)	Lead (lbs/yr)	Nickel (lbs/yr)	Naphthalene (lbs/yr)
PEWE VOCs	2.47E-06			4.85E-06
PEWE SVOCs				1.55E-05
PEWE Metals		7.53E-07	6.55E-06	
LET&D VOCs	9.71E-04			1.72E-03
LET&D SVOCs				8.75E-03
LET&D Metals		1.07E-02	1.12E+01	
INTEC Main Stack Emissions (lb/yr)	0.0010	0.0107	11.1805	0.0105
INTEC Main Stack (CPP-708-001) for CY 2012	Ethyl Benzene (lbs/yr)	Lead (lbs/yr)	Nickel (lbs/yr)	Naphthalene (lbs/yr)
PEWE VOCs	1.01E-06			1.99E-06
PEWE SVOCs				6.35E-06
PEWE Metals		3.09E-07	2.68E-06	
LET&D VOCs	4.14E-04			7.34E-04
LET&D SVOCs				3.73E-03
LET&D Metals		4.58E-03	4.77E+00	
INTEC Main Stack Emissions (lb/yr)	0.0004	0.0046	4.7684	0.0045
a. EDF-10447, Supporting Tables, January 2013. Only HAPS with detecable emissions are included.				
b.OS-ETSD-12-039, Idaho National Laboratory 2011 Periodic Emissions Inventory and Title V Emissions Registration, March 2012.				

CPP-659/666 Repack Operations Emissions	
HAP	Emissions (lbs/yr)[a]
1,1,1-Trichloroethane	1.72E-02
1,1,2,2-Tetrachloroethane	2.76E-04
1,1-Dichloroethylene	4.17E-02
1,2-Dichloroethane	2.76E-02
2-Butanone	2.98E-03
Arsenic compounds	1.08E-11
Benzene	1.45E-01
Cadmium compounds	7.00E-10
Carbon tetrachloride	1.42E-01
Chloroform	2.06E+00
Chromium compounds	1.59E-10
Cyanide compounds	1.79E-14
Lead compounds	7.00E-09
Mercury compounds	2.22E-11
Methylene chloride	2.73E-02
Nickel compounds	6.22E-11
Polychlorinated biphenyls	5.40E-13
Selenium compounds	2.98E-12
Tetrachloroethylene	1.72E-02
Toluene	1.72E-02
Trichloroethylene	2.98E-03
a. See Excel file "CY13 HAP Emissions_CPP-659 & CPP-666.xlsx" contained in Supporting Information files.	

Sodium Distillation and Treatment at CPP-666[a]							
Contributor	CO (lbs/yr)	NO_x (lbs/yr)	SO_2 (lbs/yr)	VOC (lbs/yr)		HAP	Usage (lb)
Lubricants	3.36E+01	3.00E-03	1.05E+02			Methylene chloride	1.11E+02
RTV				4.50E-02		Toluene	7.23E+01
Total	3.36E+01	3.00E-03	1.05E+02	4.50E-02		Ethyl benzene	2.00E-02
						Xylene	6.00E-02
						Cadmium and compounds	8.00E+00
a. EDF-10422, Air Permitting Applicability Determination (APAD) for Sodium Distillation and Treatment at CPP-666.							

TSA-RE (Retrieval/Inner Contamination Enclosure and Cargo Contamination Enclosure) - Emissions								AMWTF Emissions									
Pollutant	Worst Case Overall wt%[e]	Breached Container Retrieval Emission Rate (Unabated) (lb/hr)	Contaminated Soil Emission Rate (Unabated) (lb/hr)	Liquid Treatment Emission Rate (Unabated) (lb/hr)	Repackaging/Sizing Emission Rate (Unabated) (lb/hr)	Total Emission Rate (Unabated) (lb/hr)	TSA-RE Total Emissions (Unabated) (lb/yr)	Pollutant	Worst Case Non-Debris wt%[f]	Worst Case Debris wt%	DWHE/DWPG (lb/hr)	Box Lines (lb/hr)	Supercompactor Glovebox (lb/hr)	Special Case Waste Glovebox (lb/hr)	Total Emission Rate (lb/yr)	AMWTF Total Emissions (lb/yr)	AMWTP Total (lbs/yr)
Total VOCs (lb/hr)[a]		**9.10E-05**	**2.23E-06**	**6.30E-03**	**1.00E-04**	**6.49E-03**		**Total VOCs (lb/hr)[c]**			**4.93E-04**	**1.74E-03**	**1.72E-03**	**1.77E-04**	**4.13E-03**		
Total PM (lb/hr)[b]		**8.40E-03**	**2.06E-04**	**8.40E-04**	**9.24E-03**	**1.87E-02**		**Total PM (lb/hr)[d]**			**5.27E-09**	**1.86E-08**	**1.84E-08**	**4.91E-12**	**4.23E-08**		
1,1,1-Trichloroethane	2.3	2.09E-06	5.14E-08	1.45E-04	2.30E-06	1.49E-04	1.49E-04	1,1,1-Trichloroethane	15	1	4.93E-06	1.74E-05	1.72E-05	2.65E-05	6.6E-05	5.79E-01	5.79E-01
1,1,2,2-Tetrachloroethane	0.00001	9.10E-12	2.23E-13	6.30E-10	1.00E-11	6.49E-10	6.49E-10	1,1,2,2-Tetrachloroethane	0	1	4.93E-06	1.74E-05	1.72E-05	0.00E+00	4.0E-05	3.47E-01	3.47E-01
1,1-Dichloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	1,1-Dichloroethane	1	0	0.00E+00	0.00E+00	0.00E+00	1.77E-06	1.8E-06	1.55E-02	1.55E-02
1,1-Dichloroethylene	0.01	9.10E-09	2.23E-10	6.30E-07	1.00E-08	6.49E-07	6.49E-07	1,1-Dichloroethylene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
1,2-Dichloroethane	0.00226	2.06E-09	5.05E-11	1.42E-07	2.26E-09	1.47E-07	1.47E-07	1,2-Dichloroethane	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
1,2-Dichloropropane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	1,2-Dichloropropane									6.49E-05
1,4-Dichlorobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	1,4-Dichlorobenzene									6.49E-05
2,2,4-Trimethyl pentane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	2,2,4-Trimethyl pentane									6.49E-05
2,4-Dinitrotoluene	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.87E-04	2,4-Dinitrotoluene									1.87E-04
2-Butanone	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	2-Butanone	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Arsenic	0.86	7.22E-05	1.77E-06	7.22E-06	7.95E-05	1.61E-04	1.61E-04	Arsenic	1	1	5.27E-11	1.86E-10	1.84E-10	4.91E-14	4.2E-10	3.70E-06	1.64E-04
Benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Benzene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Beryllium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.87E-04	Beryllium	1	1	5.27E-11	1.86E-10	1.84E-10	4.91E-14	4.2E-10	3.70E-06	1.91E-04
Cadmium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.87E-04	Cadmium	1	1	5.27E-11	1.86E-10	1.84E-10	4.91E-14	4.2E-10	3.70E-06	1.91E-04
Carbon tetrachloride	0.78	7.10E-07	1.74E-08	4.91E-05	7.81E-07	5.06E-05	5.06E-05	Carbon tetrachloride[c]	5	1	4.93E-06	1.74E-05	1.72E-05	8.83E-06	4.8E-05	4.24E-01	4.24E-01
Chlorobenzene	0.00005	4.55E-11	1.12E-12	3.15E-09	5.01E-11	3.25E-09	3.25E-09	Chlorobenzene	1	0	0.00E+00	0.00E+00	0.00E+00	1.77E-06	1.8E-06	1.55E-02	1.55E-02
Chloroform	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Chloroform	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Chromium	0.24	2.02E-05	4.95E-07	2.02E-06	2.22E-05	4.48E-05	4.48E-05	Chromium	1	1	5.27E-11	1.86E-10	1.84E-10	4.91E-14	4.2E-10	3.70E-06	4.85E-05
Cresols (m, p & o)	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Cresols (m, p & o)									6.49E-05
Cyanide	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.87E-04	Cyanide	1	0	0.00E+00	0.00E+00	0.00E+00	4.91E-14	4.9E-14	4.30E-10	1.87E-04
Ethyl benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Ethyl benzene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Hexachlorobenzene	0.0000564	5.13E-11	1.26E-12	3.55E-09	5.65E-11	3.66E-09	3.66E-09	Hexachlorobenzene									3.66E-09
Hexachloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Hexachloroethane									6.49E-05
Lead	25	2.10E-03	5.15E-05	2.10E-04	2.31E-03	4.67E-03	4.67E-03	Lead	1	25	1.32E-09	4.66E-09	4.59E-09	4.91E-14	1.1E-08	9.26E-05	4.76E-03
Mercury	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Mercury	2.5	1	4.93E-06	1.74E-05	1.72E-05	4.42E-06	4.4E-05	3.85E-01	3.85E-01
Methanol	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Methanol	0.003	1	4.93E-06	1.74E-05	1.72E-05	5.30E-09	4.0E-05	3.47E-01	3.47E-01
Methyl isobutyl ketone	0.00007	6.37E-11	1.56E-12	4.41E-09	7.01E-11	4.55E-09	4.55E-09	Methyl isobutyl ketone									4.55E-09
Methylene chloride	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Methylene chloride	0.07	1	4.93E-06	1.74E-05	1.72E-05	1.24E-07	4.0E-05	3.48E-01	3.48E-01
Nickel							0.00E+00	Nickel	1	0	0.00E+00	0.00E+00	0.00E+00	4.91E-14	4.9E-14	4.30E-10	4.30E-10
Nitrobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Nitrobenzene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Polychlorinated Biphenyls	15	1.26E-03	3.09E-05	1.26E-04	1.39E-03	2.80E-03	2.80E-03	Polychlorinated Biphenyls									2.80E-03
Selenium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.87E-04	Selenium	1	1	5.27E-11	1.86E-10	1.84E-10	4.91E-14	4.2E-10	3.70E-06	1.91E-04
Tetrachloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Tetrachloroethylene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Toluene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Toluene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Trichloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Trichloroethylene	1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.62E-01
Xylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	6.49E-05	Xylene	0.005	1	4.93E-06	1.74E-05	1.72E-05	8.83E-09	4.0E-05	3.47E-01	3.47E-01

a. See Appendix C page - "TSA-RE Total VOCs"

b. See Appendix C page "TSA-RE Total PM"

c. See Appendix C page "AMWTF Total VOCs"

d. See Appendix C page "AMWTF Total PM"

e. TSA-RE Permit to Construct Application

f. AMWTF Permit to Construct Application

Operation	Container Type	Process Rate de/day)	Containers Breached %	Waste Density (lb/dm)	Waste Throughput (ton/hr)	Liquid Throughput[a] (ton/hr)	Emission Factor[b] lb/ton	Total VOC Emitted (lb/hr)
DWHE/DWPG	55-gal drum equivalent	43	1	294	2.63E-01	6.85E-04	0.72	4.93E-04
Box Lines	55-gal drum equivalent	152	1	294	9.31E-01	2.42E-03	0.72	1.74E-03
Supercompactor Gloveboxes	55-gal drum equivalent	150	1	294	9.19E-01	2.39E-03	0.72	1.72E-03
SCW Glovebox System[c]	55-gal drum equivalent	0.025	1	471	2.45E-04	2.45E-04	0.72	1.77E-04
							Total Contaminated VOC Emitted =	**4.13E-03**

a. The quantity of liquid in the waste (except for SCW - see footnote) is assumed to be up to 1% in up to 26% of the containers; therefore, Liquid Throughput = 0.01 x 0.26 x Waste Throughput.

b. Emission factors are from AP-42, Table 4.7-1, Emission Facotrs for Solvent Reclaiming. Processess handling (disturbing) waste use 0.72 lb VOCs emitted per ton of solvent (liquid).

c. The worst-case VOC emissions in the SCW Glovebox system is assumed from one (5-liters, maximum) container per day of organic sludge that is assumed to be in liquid form.

Operation	Container Type	Process Rate (55 gal de/day)	Containers Breached %	Waste Density (lb/dm)	Waste Throughput (ton/hr)	Emission Factor[a] 1%	Three HEPA Filers 99.9% efficiency	Total PM Emitted (lb/hr)
DWHE/DWPG	55-gal drum equivalent	43	1	294	2.63E-01	0.01	1.00E-09	5.3E-09
Box Lines	55-gal drum equivalent	152	1	294	9.31E-01	0.01	1.00E-09	1.9E-08
Supercompactor Gloveboxes	55-gal drum equivalent	150	1	294	9.19E-01	0.01	1.00E-09	1.8E-08
SCW Glovebox System[b]	55-gal drum equivalent	0.025	1	471	2.45E-04	0.01	1.00E-09	4.9E-12
						Total Contaminated PM Emitted =		**4.2E-08**

a. Worst-case PM emissions are assumed to be generated by this process at a conservative assumption of 1%. The PM emission factor of 1% (20lb/ton) is 200 times greater than the emission factor for concrete batching (0.1 lb emitted/ton processed), which is a much dustier operation that waste sorting/sizing, supercompaction, or open container handling. Emission factors for concrete batching can be found in AP-42, Table 11.12-2 "Emission Factors for Concrete Batching."

b. The worst-case PM emissions in the SCW Glovebox system is assumed from one (5-liters, maximum) container per day of organic sludge.

Operation	Container Type	Process Rate[a] (55 gal de/day)	Containers Breached %	Waste Density[b] (lb/dm)	Waste Throughput[c] (ton/hr)	Liquid Throughput[d,e,f] (ton/hr)	Emission Factor[g,h] lb/ton	Total VOC Emitted[i] (lb/hr)
Retrieval	55-gal drum equivalent	160	1	525	1.7500	0.0046	0.02	9.10E-05
Contaminated Soil Removal	55-gal drum equivalent	3	1	687	0.0429	0.0001	0.02	2.23E-06
Liquid Treatment	55-gal drum equivalent	16	1	525	0.1750	0.0088	0.72	6.30E-03
Repackaging/Sizing of Waste (Drums & Cargos)	55-gal drum equivalent	176	1	525	1.9250	0.0050	0.02	1.00E-04
							Total VOCs Emitted =	**6.49E-03**

a. A standard size box is 3.172 m3/box. A retrieval rate of 10 boxes per day equates to 152.5 55-gal drums/day. The soil process rate is based on an estimated volume of soil equal to 4,000 m3 (~19,230 55 gal de) remaining to be removed during retrieval operations. Assuming all soil is removed within one year, it is assumed that 53 55-gal de/day of soil will be removed. Based on the retrieval of previous soil removal activites (~36,000 m3), contaminated soil makes up less than 3% of the total volume. Therefore, a conservative 5% soil contamination rate was used (3 55-gal de/dy contaminated soil, 50 55-gal de/dy non-contaminated soil).

b. Non-debris waste density used for overall waste density for conservatism, as non-debris has a higher density than debris waste. Waste density is based upon average value calculated from Ravio report.

c. Waste Throughput (Ton/hr) = Process Rate (dm/day) x Waste Density (lb/dm) x Containers Breached (%) / (2000 lb/ton x 24 hr/day)

d. The quantity of liquid for the retrieval of containers and repackaging is assumed to be up to 1% in 26% of the containers; therefore, Liquid Throughput (Retrieval/Repackaging) = 0.01 x .26 x Waste Throughput. This was also assumed for contaminated soil, which is not expected to contain any free liquids. Therefore, the calculations are for contaminated soil is conservative.

e. Sizing of waste is not assumed to occur on any waste with liquids. However, for conservatism, the volume of waste sized is incorporated with the volume of waste repackaged. The volume of liquid for waste repackaged is assumed to be 1% in up to 26% of the containers.

f. The quantity of liquid in the waste stream for the treatment of waste with liquids is assumed to be 5% of the waste volume; therefore, Liquid Throughput = 0.05 x Waste Throughput.

g. Emission factors are from AP-42, Table 4.7-1, Emission Factors for Solvent Reclaiming. Processes treating liquid waste use an emission factor of 0.72 lb VOCs per ton of solvent (liquid). This assumption is considered conservative, as liquids are not mainly VOCs (mostly aqeous or oil).

h. Emission factors are from AP-42, Table 4.7-1, Emission Factors for Solvent Reclaiming. Retrieval processes where liquid waste is not is not disturbed use 0.02 lb/ton (factor for a solvent storage tank). This assumption is considered conservative, as liquids are not mainly VOCs (mostly aqeous or oil).

i. Total VOC Emitted (lb/hr) = Liquid Throughput (ton/hr) x Emission Factor (lb/ton).

Operation	Container Type	Process Rate[a] (55 gal de/day)	Containers Breached %	Waste Density[b] (lb/dm)	Waste Throughput[c] (ton/hr)	Emission Factor[d] lb/ton	Total PM Emitted[e] (lb/hr)
Drum Equivalent Retrieval	55-gal drum equivalent	160	1	525	1.7500	0.0048	8.40E-03
Contaminated Soil Removal	55-gal drum equivalent	3	1	687	0.0429	0.0048	2.06E-04
Liquid Treatment	55-gal drum equivalent	16	1	525	0.1750	0.0048	8.40E-04
Repackaging/Sizing of Waste (Drums & Cargos)	55-gal drum equivalent	176	1	525	1.9250	0.0048	9.24E-03
						Total Contaminated PM Emitted =	**1.87E-02**

a. A standard size box is 3.172 m^3/box. A retrieval rate of 10 boxes per day equates to 152.5 55-gal drums/day. The soil process rate is based on an estimated volume of soil equal to 4,000 m^3 (~19,230 55 gal de) remaining to be removed during retrieval operations. Assuming all soil is removed within one year, it is assumed that 53 55-gal de/day of soil will be removed. Based on the retrieval of previous soil removal activites (~36,000 m^3), contaminated soil makes up less than 3% of the total volume. Therefore, a conservative 5% soil contamination rate was used (3 55-gal de/dy contaminated soil, 50 55-gal de/dy non-contaminated soil).

b. Non-debris waste density used for overall waste density for conservatism, as non-debris has a higher density than debris waste. Waste density is based upon average value calculated from Ravio report. The soil density was based on an average soil denisty of 1.5 g/cm^3.

c. Waste Throughput (Ton/hr) = Process Rate (dm/day) x Waste Density (lb/dm) x Containers Breached (%) / (2000 lb/ton x 24 hr/day)

d. Worst-case PM emissions are assumed to be generated at a conservative rate of 0.0048 lb emitted per ton processed. This value was determined from an emission rate for concrete batching (i.e., 0.0048 lb/ton), which is provided in Table 11.12-2 of AP-42, Emission Factors for Concrete Batching (Weigh hopper loading). Concrete batching is a much dustier operation than any of the operations performed in WMF-636. Therefore, the calculations of PM-10 emitted are conservative.

e. Total PM Emitted (lb/hr) = Waste Throughput (ton/hr) x Emission Factor (lb/ton).

[a] Idaho National Laboratory Application for a Synthetic Minor Sitewide Air Quality Permit to Construct, Appendix A, Addendum to Form EU5

[b] AP-42: Table 1.5-1 Criteria Pollutant Emission Factors for Liquified Petroleum Gas Combustion: External Combustion Sources - Propane

[c] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Liquified Petroleum Gas Combustion: External Combustion Sources, Boilers < 100 MMBtu/hr, Distillate oil

[d] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion (1.3 lb/1000 gal for No. 2 oil fired) and Table 1.3-6 Cumulative Particle Size Distribution and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (0.25 lb/1000 gal for PM2.5) for a total of 1.55 lb/1000 gal.

[e] AP-42: Sum of Table 1.3-2 Condensable Particulate Matter Emission Factors for Oil Combustion

Facility	Rated Capacity	Design Capacity Consumption Rate[a]		SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM 10 + Condensable PM (lbs/hr)	Condensable PM	VOCs, as NMTOCs (lbs/hr)
Propane	(MMBtu/hr)	(gal/hr)	Emission Factor[b] (lb/1000gal)	1.5	13	7.5	0.7	0.5	1
WMF-676-004A	12.55	138.7		2.08E-01	1.80E+00	1.04E+00	9.71E-02	6.94E-02	1.39E-01
WMF-676-005B	12.55	138.7		2.08E-01	1.80E+00	1.04E+00	9.71E-02	6.94E-02	1.39E-01
WMF-676-006C	12.55	138.7		2.08E-01	1.80E+00	1.04E+00	9.71E-02	6.94E-02	1.39E-01
Total		416.1							
#2 Diesel	(MMBtu/hr)	(gal/hr)	Emission Factor[c, d, e] (lb/1000gal)	0.213	20	5	2.3	1.3	0.2
CFA-608	1.5	10.7		2.28E-03	2.14E-01	5.35E-02	2.46E-02	1.39E-02	2.14E-03
CFA-609	2.1	15		3.20E-03	3.00E-01	7.50E-02	3.45E-02	1.95E-02	3.00E-03
CPP-606-061	36.4	216		4.60E-02	4.32E+00	1.08E+00	4.97E-01	2.81E-01	4.32E-02
CPP-606-062	36.4	216		4.60E-02	4.32E+00	1.08E+00	4.97E-01	2.81E-01	4.32E-02
CPP-606-063	36.4	216		4.60E-02	4.32E+00	1.08E+00	4.97E-01	2.81E-01	4.32E-02
CPP-606-064	36.4	216		4.60E-02	4.32E+00	1.08E+00	4.97E-01	2.81E-01	4.32E-02
NRF Boiler 4	29.3	209		4.45E-02	4.18E+00	1.05E+00	4.81E-01	2.72E-01	4.18E-02
NRF Boiler 5	29.3	209		4.45E-02	4.18E+00	1.05E+00	4.81E-01	2.72E-01	4.18E-02
TAN 679-067a	25	167.5		3.57E-02	3.35E+00	8.38E-01	3.85E-01	2.18E-01	3.35E-02
TAN 679-068	25	167.5		3.57E-02	3.35E+00	8.38E-01	3.85E-01	2.18E-01	3.35E-02
Total		1642.7							

Conversion Factors:

Fuel Oil Sulfur Content	15	ppm
	0.0015	%
Commercial Propane Sulfur Content	15	gr/100 scf

Gas Processors Association Engineering Data Book (Ninth Edition, 1972), Figure 15-50 (GPA Liquefied Petroleum Gas Specifications, rev. 1979)

[a]AP-42: Table 3.3-1 Emission Factors for Uncontrolled Gasoline and Diesel Engines: Gasoline And Diesel Industrial Engines, Distillate oil fired
[b]AP-42: Table 3.4-1 Gaseous Emission Factors for for Large Stationary Diesel and all Stationary Duel-Fuel Engines: Large Stationary Diesel And All Stationary Dual-fuel Engines

Facility	Engine ID	Manufacturer	Model	Testing/ Maintenance Frequency	Design Hourly Fuel Use		SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM-10/2.5/ Condensible (lbs/hr)	VOCs, as TOCs (lbs/hr)
Emergency ICE ≤ 600 hp						Emission Factor[a] (lb/MMBtu)	0.29	4.41	0.95	0.31	0.36
MFC	ANL-785-017	Waukesha	EM200	Q	28.0		1.14E+00	1.73E+01	3.72E+00	1.22E+00	1.41E+00
ATR Complex	619-10	Detroit Diesel-Allison	71237300	W	26.0		1.06E+00	1.61E+01	3.46E+00	1.13E+00	1.31E+00
				A	26.0		1.06E+00	1.61E+01	3.46E+00	1.13E+00	1.31E+00
SMC	TAN 675-010	Caterpillar	3408	M	15.6		6.33E-01	9.63E+00	2.07E+00	6.77E-01	7.86E-01
Emergency ICE > 600 hp						Emission Factor[b] (lb/MMBtu)	1.52E-03	3.2	0.85	6.97E-02	9.00E-02
AMWTP	BGEN-812-001	Cummins/Onan	QSX15-G9	M	27.1		5.75E-03	1.21E+01	3.22E+00	2.64E-01	3.41E-01
AMWTP	BGEN-812-002	Cummins/Onan	VTA-28-05	M	44.2		9.37E-03	1.98E+01	5.26E+00	4.31E-01	5.57E-01
AMWTP	WMF-734	Caterpillar	3412	M	39.4		8.36E-03	1.77E+01	4.69E+00	3.84E-01	4.96E-01
ATR Complex	670-M-42	Enterprise	DSQ-38	M	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
				Q	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
ATR Complex	670-M-43	Enterprise	DSQ-38	M	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
				Q	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
ATR Complex	674-M-6	Caterpillar	3516	M	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
				Q	44.0		9.33E-03	1.97E+01	5.24E+00	4.29E-01	5.54E-01
ATR Complex	786-M-1	Caterpillar	3516B TA	Q	123.1		2.61E-02	5.51E+01	1.46E+01	1.20E+00	1.55E+00
INTEC	GEN-WCS-002	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01	1.42E+01	1.16E+00	1.50E+00
INTEC	GEN-WCS-004	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01	1.42E+01	1.16E+00	1.50E+00
INTEC	GEN-WCS-006	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01	1.42E+01	1.16E+00	1.50E+00
MFC	ANL-768-003	Waukesha	VLRPD	Q	32.0		6.79E-03	1.43E+01	3.81E+00	3.12E-01	4.03E-01
NRF	686-016	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01	8.29E+00	6.80E-01	8.78E-01
NRF	686-017	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01	8.29E+00	6.80E-01	8.78E-01
NRF	686-018	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01	8.29E+00	6.80E-01	8.78E-01
NRF	686-019	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01	8.29E+00	6.80E-01	8.78E-01
SMC	GEN-HP-960	Generac	MD1000 Femini	M	20.0		4.24E-03	8.96E+00	2.38E+00	1.95E-01	2.52E-01
SMC	TAN 679-012	Caterpillar	3412	M	20.4		4.33E-03	9.14E+00	2.43E+00	1.99E-01	2.57E-01

Conversion Factors:

Heating Value of Fuel Oil	140000	Btu/gal
Sulfur content	15	ppm
	0.0015	%

Demonstration of preconstruction compliance with toxic air pollutant (TAP) standards is required by IDAPA 58.1.01.210. "Demonstration of Preconstruction Compliance with Toxic Standards," for new non-prevention of significant deterioration or modified minor sources. Compliance methods are described in "Toxic Air Pllutant (TA) Preconstruction Compliance Application Completeness Checklist." Contribution of treatment and remediation sources were not included in the net emission increase calculations per IDAPA 58/.01.01.007.06.c.iii.

In accordance with IDAPA 58.01.01.210.20, complance demonstrations are not required to include TAPs that are regulated by an applicable New Source Performance Standard or National Emission Standard for Hazardous Air Pollutant. DEQ has determind that all TAP from internal combustion engines are regulated by 40 CFR 60, Subparts IIII and JJJJ; 40 CFR 63 Subpart ZZZZ. Additionally, DEQ has determined the mercury, POM, arsenic, beryllium, cadmium, chromium, manganese, nickel, ethylene dioxide, PCBs, acetaldehyde, acrolein, dioxins, formaldehyde, and benzene emissions from boilers are regulated by 40 CFR 63 Subpart JJJJJJ. No further toxic air pollutant preconstruction compliance demonstration is necessary for INL engines subject to the state subparts, nor pollutants from boiler emissions regulated by 40 CFR 63 Subpart JJJJJJ.

Post-project emission rates for non-carcinogens for boilers at the INL were calculated using nameplate fuel consumption rates at 100% power with all units operating concurrently.

Notes:
Assumptions:
8,760 hours operating
Diesel Boiler operating capacity in gallons annually:
16,130,915

Non-Carcinogenic TAPs (sum of all emissions)	2015 Application 24-hr Average Emissions Rates for Units at the Facility (lb/hr)	Boiler No.2 D Emission Factor (lb/1,000 gal)	Application Mod. 24-hr Average Emissions Rates for Units at the Facility (lb/hr)	Chnge in 24-hr Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level?
1,1,1-Trichloroethane	5.66E-04	2.36E-04	4.35E-04	-1.31E-04	1.27E+02	No
Copper	2.01E-03	8.40E-04	1.55E-03	-4.63E-04	6.70E-02	No
Ethyl Benzene	1.52E-04	6.36E-05	1.17E-04	-3.49E-05	2.90E+01	No
Naphthalene	2.71E-03	1.13E-03	2.08E-03	-6.29E-04	3.33E+00	No
Selenium	5.04E-03	2.04E-03	3.76E-03	-1.28E-03	1.30E-02	No
Toluene	1.49E-02	6.20E-03	1.14E-02	-3.48E-03	2.50E+01	No
Xylene	2.61E-04	1.09E-04	2.01E-04	-6.03E-05	2.90E+01	No
Zinc	1.34E-03	5.60E-04	1.03E-03	-3.09E-04	6.67E-01	No

Napthalene is a PAH, so it is included with the Carcinogenic TAPs

Carcinogenic TAPs (sum of all emissions)	2015 Application Annual Average Emissions Rates for Units at the Facility (lb/hr)	Boiler No.2 D Emission Factor (lb/1,000 gal)	Application Mod. Annual Average Emissions Rates for Units at the Facility (lb/hr)	Chnge in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emissions Level (lb/hr)	Exceeds Screening Level?
Naphthalene	2.35E-03	1.13E-03	2.08E-03	-2.69E-04	9.00E-05	No

a AP-42: Table 1.3-9. Emission Factors for Speciated Organic Compounds From Fuel Oil Combustion: Oil Fired Boilers
b AP-42: Table 1.3.10. Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers

Emergency ICE Emissions

		SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)			1,3-Butadiene (lbs)		Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)			
	Emission Factor (lb/MMBtu)[a,b]	0.29	4.41	0.95	0.31	0.31	0.36			3.91E-05		7.67E-04	9.25E-05	9.33E-04			
Emergency ICE ≤ 600 hp																	
Annual Fuel usage (gallons)	11756	2.39E-01	3.63E+00	7.82E-01	2.55E-01	2.55E-01	2.96E-01			6.44E-02		1.26E+00	1.52E-01	1.54E+00			
	Emission Factor (lb/MMBtu)[c,d,e,g]	1.52E-03	3.2	0.85	0.0697	0.0697	0.09					2.52E-05	7.88E-06	7.76E-04			
Emergency ICE > 600 hp																	
Annual Fuel usage (gallons)	15893	1.69E-03	3.56E+00	9.46E-01	7.75E-02	7.75E-02	1.00E-01					5.61E-02	1.75E-02	1.73E+00			
	Total	2.40E-01	7.19E+00	1.73E+00	3.33E-01	3.33E-01	3.96E-01			6.44E-02		1.32E+00	1.70E-01	3.26E+00			

Heating Value of Fuel Oil	140000	Btu/gal

		SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)	1,1,2,2-Tetra-chloroethane (lbs)	1,1,2-Trichloro-ethane (lbs)	1,3-Butadiene (lbs)	1,3-Dichloro-propene (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)	Carbon Tetra-chloride (lbs)	Chloro-benzene (lbs)	Chloroform (lbs)
	Emission Factor (lb/MMBtu)[f]	5.88E-04	2.27E+00	3.72E+00	1.94E-02	1.94E-02	2.96E-02	2.53E-05	1.53E-05	6.63E-04	1.27E-05	2.79E-03	2.63E-03	1.58E-03	1.77E-05	1.29E-05	1.37E-05
Propane (gallons)	47	1.25E-06	4.82E-03	7.89E-03	4.12E-05	4.12E-05	6.28E-05	1.07E-04	6.49E-05	2.81E-03	5.39E-05	1.18E-02	1.12E-02	6.70E-03	7.51E-05	5.47E-05	5.81E-05
Natural Gas (ft^3)	6154.0	1.94E-06	7.51E-03	1.23E-02	6.42E-05	6.42E-05	9.79E-05	1.67E-04	1.01E-04	4.39E-03	8.40E-05	1.85E-02	1.74E-02	1.05E-02	1.17E-04	8.53E-05	9.06E-05
	Total	3.19E-06	1.23E-02	2.02E-02	1.05E-04	1.05E-04	1.61E-04	2.75E-04	1.66E-04	7.20E-03	1.38E-04	3.03E-02	2.86E-02	1.72E-02	1.92E-04	1.40E-04	1.49E-04

Heating Value of Propane	91000	Btu/gal
Heating Value of Natural Gas	1075	Btu/ft^3

	SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensible (tons)	VOCs, as TOCs (tons)	1,1,2,2-Tetra-chloroethane (lbs)	1,1,2-Trichloro-ethane (lbs)	1,3-Butadiene (lbs)	1,3-Dichloro-propene (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)	Carbon Tetra-chloride (lbs)	Chloro-benzene (lbs)	Chloroform (lbs)
All ICE - Total	2.40E-01	7.20E+00	1.75E+00	3.33E-01	3.33E-01	3.97E-01	2.75E-04	1.66E-04	7.16E-02	1.38E-04	1.35E+00	1.98E-01	3.28E+00	1.92E-04	1.40E-04	1.49E-04

a AP-42: Table 3.3-1 Emission Factors for Uncontrolled Gasoline and Diesel Engines: Gasoline And Diesel Industrial Engines, Distillate oil fired

b AP-42: Table 3.3-2 Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engine

c AP-42: Table 3.4-1 Gaseous Emission Factors for for Large Stationary Diesel and all Stationary Duel-Fuel Engines: Large Stationary Diesel And All Stationary Dual-fuel Engines

d AP-42: Table 3.4-3 Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines: Large Stationary Diesel And All Stationary Dual-fuel Engines

e AP-42: Table 3.4-4 PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines: Large Stationary Diesel And All Stationary Dual-fuel Engines

f AP-42: Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines: Natural Gas-fired Reciprocating Engines (PM includes PM-10 and condensable PM fractions)

g AP-42: Table 3.4-2 Particulate and Particle-Sizing Emission Factors for Large Uncontrolled Stationary Diesel Engines

Conversion Factors:

Sulfur content	15	ppm
	0.0015	%

Emergency ICE Emissions

					Formaldehyde (lbs)			Naphthalene (lbs)	PAH (lbs)		Toluene (lbs)		Xylenes (lbs)
					1.18E-03			8.48E-05	1.68E-04		4.09E-04		2.85E-04
					1.94E+00			1.40E-01	2.77E-01		6.73E-01		4.69E-01
					7.89E-05			1.30E-04	2.12E-04		2.81E-04		1.93E-04
					1.76E-01			2.89E-01	4.72E-01		6.25E-01		4.29E-01
					2.12E+00			4.29E-01	7.48E-01		1.30E+00		8.98E-01

1,1-Dichloroethane (lbs)	1,2-Dichloroethane (lbs)	1,2-Dichloro-propane (lbs)	Ethyl-benzene (lbs)	Ethylene Dibromide (lbs)	Formaldehyde (lbs)	Methanol (lbs)	Methylene Chloride (lbs)	Naphthalene (lbs)	PAH (lbs)	Styrene (lbs)	Toluene (lbs)	Vinyl Chloride (lbs)	Xylene (lbs)
1.13E-05	1.13E-05	1.30E-05	2.48E-05	2.13E-05	2.05E-02	3.06E-03	4.12E-05	9.71E-05	1.41E-04	1.19E-05	5.58E-04	7.18E-06	1.95E-04
4.79E-05	4.79E-05	5.52E-05	1.05E-04	9.04E-05	8.70E-02	1.30E-02	1.75E-04	4.12E-04	5.98E-04	5.05E-05	2.37E-03	3.05E-05	8.27E-04
7.48E-05	7.48E-05	8.60E-05	1.64E-04	1.41E-04	1.36E-01	2.02E-02	2.73E-04	6.42E-04	9.33E-04	7.87E-05	3.69E-03	4.75E-05	1.29E-03
1.23E-04	1.23E-04	1.41E-04	2.69E-04	2.31E-04	2.23E-01	3.32E-02	4.47E-04	1.05E-03	1.53E-03	1.29E-04	6.06E-03	7.80E-05	2.12E-03

1,1-Dichloroethane (lbs)	1,2-Dichloroethane (lbs)	1,2-Dichloro-propane (lbs)	Ethyl-benzene (lbs)	Ethylene Dibromide (lbs)	Formaldehyde (lbs)	Methanol (lbs)	Methylene Chloride (lbs)	Naphthalene (lbs)	PAH (lbs)	Styrene (lbs)	Toluene (lbs)	Vinyl Chloride (lbs)	Xylene (lbs)
1.23E-04	1.23E-04	1.41E-04	2.69E-04	2.31E-04	2.34E+00	3.32E-02	4.47E-04	4.30E-01	7.50E-01	1.29E-04	1.30E+00	7.80E-05	9.01E-01

Emergency ICE Fuel Useage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Frequency	Duration (min)	Annual Fuel Consumption (gal or ft^3)
Engines ≤ 600 hp							
AMWTP	BGEN-RCE-001	115	4.90	gal/hr	M	15	14.7
AMWTP	BGEN-232-001	380	16.80	gal/hr	M	15	50.4
ATR Complex	609-M-87	250	13.10	gal/hr	W	30	340.6
ATR Complex	619-10	558	26.00	gal/hr	W	30	676.0
					A	120	52.0
ATR Complex	633-M-1	315	16.10	gal/hr	W	30	418.6
					A	120	32.2
ATR Complex	680-M-1	250	11.10	gal/hr	Q	60	44.4
ATR Complex	688-M-1	368	20.00	gal/hr	W	30	520.0
					A	120	40.0
ATR Complex	688-M-2	368	20.00	gal/hr	W	30	520.0
					A	120	40.0
CFA	ARA-632	217	7.40	gal/hr	W	30	192.4
CFA	B27-601	69	2.88	gal/hr	W	30	74.9
CFA	B27-607/609	320	14.90	gal/hr	W	30	387.4
CFA	TAN-687	66	3.26	gal/hr	A	66	3.6
CFA	CFA-609-001	166	8.33	gal/hr	Q	44	24.4
CFA	CFA-609-002	99	4.30	gal/hr	W	3	11.2
CFA	CFA-1603-001	196	10.00	gal/hr	W	42	364.0
CFA	CFA-1603-002	196	10.00	gal/hr	W	37	320.7
CFA	PER-638-004	196	10.00	gal/hr	W	34	294.7
CFA	TAN-601	69	3.44	gal/hr	W	30	89.4
CFA	TAN-665-002	310	14.00	gal/hr	W	31	376.1
CFA	B8-601	61	3.12	gal/hr	A	22	1.1
CFA	CFA-668-001	345	16.40	gal/hr	M	50	164.0
INTEC	MOT-YDA-202	87	4.50	gal/hr	M	30	27.0
INTEC	P-UTI-608	340	17.59	gal/hr	M	30	105.5
INTEC	P-UTI-673	370	19.15	gal/hr	W	30	497.9
INTEC	P-UTI-672	370	19.15	gal/hr	W	30	497.9
INTEC	COM-UTI-616	460	23.80	gal/hr	W	30	618.8
RWMC	BA-CMP-T1101	28	1.45	gal/hr	M	30	8.7
RWMC	FW-ENG-4301	140	7.24	gal/hr	W	30	188.2
RWMC	HV-GEN-RE301	364	8.20	gal/hr	M	30	49.2
RWMC	S-GEN-1	398	19.00	gal/hr	M	30	114.0
RWMC	S-GEN-RE501	157	8.12	gal/hr	W	30	211.1
RWMC	S-GEN-RE401	364	8.20	gal/hr	M	30	49.2
RWMC	S-GEN-RE701	364	8.20	gal/hr	M	30	49.2
RWMC	S-GEN-RE801	364	8.20	gal/hr	M	30	49.2
RWMC	S-GEN-RE901	324	15.50	gal/hr	M	15	46.5
RWMC	FW-ENG-3901	255	13.20	gal/hr	W	30	343.2
RWMC	S-GEN-301	398	20.61	gal/hr	W	30	535.9
MFC	ANL-720-18	46	2.80	gal/hr	Q	200	37.3
MFC	ANL-725	46	2.80	gal/hr	Q	220	41.1
MFC	ANL-733	65.1	4.00	gal/hr	Q	220	58.7
MFC	ANL-754-003	77	4.00	gal/hr	M	140	112.0
MFC	ANL-704-015	86	4.00	gal/hr	Q	160	42.7
MFC	ANL-785-016	110	5.00	gal/hr	Q	120	40.0
MFC	ANL-701-009	143	9.40	gal/hr	Q	120	75.2
MFC	ANL-774-001	166	9.00	gal/hr	Q	60	36.0
MFC	ANL-720-17	173	9.00	gal/hr	A	60	9.0
MFC	ANL-1728	230	10.40	gal/hr	M	150	312.0

Emergency ICE Fuel Useage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Frequency	Duration (min)	Annual Fuel Consumption (gal or ft^3)
MFC	ANL-1729	235	13.60	gal/hr	Q	200	181.3
MFC	ANL-1740	237	12.00	gal/hr	W	40	416.0
MFC	ANL-787	286	10.60	gal/hr	M	60	127.2
MFC	ANL-752A-001	390	20.00	gal/hr	M	60	240.0
MFC	ANL-756	450	22.70	gal/hr	Q	30	45.4
MFC	ANL-765	18.1	1.08	gal/hr	A	30	0.5
MFC	ANL-765A	18.1	1.08	gal/hr	A	30	0.5
MFC	ANL-792A-002	450	21.00	gal/hr	Q	200	280.0
MFC	ANL-707-002	460	21.00	gal/hr	M	90	378.0
MFC	ANL-709-008	475	24.00	gal/hr	Q	180	288.0
MFC	ANL-709-016	475	24.00	gal/hr	Q	180	288.0
MFC	ANL-785-017	525	28.00	gal/hr	Q	150	280.0
SMC	TAN 675-010	598	15.60	gal/hr	M	60	187.2
						Total	11756.3
Liquified Natural Gas							
CFA	CFA-1611	220	1810.00	ft3/hr	M	17	6154.0
						Total	6154.0
Propane							
AMWTP	S1-GEN 1001	225	11.00	gal/hr	M	15	33.0
CFA	GE-B28-601	61	8.40	gal/hr	Q	14	7.8
RWMC	S-GEN-T1401	15	1.93	gal/hr	M	15	5.8
						Total	46.6
Engines > 600 hp							
AMWTP	WMF-734	745	39.40	gal/hr	M	15	118.2
AMWTP	BGEN-812-001	755	27.10	gal/hr	M	15	81.3
AMWTP	BGEN-812-002	900	44.20	gal/hr	M	15	132.6
ATR Complex	670-M-42	2118	44.00	gal/hr	M	60	528.0
					Q	180	528.0
ATR Complex	670-M-43	2118	44.00	gal/hr	M	60	528.0
					Q	180	528.0
ATR Complex	674-M-6	2132	44.00	gal/hr	M	60	528.0
					Q	180	528.0
ATR Complex	786-M-1	2593	123.10	gal/hr	Q	480	3939.2
INTEC	GEN-WCS-002	2304	119.23	gal/hr	M	60	1430.8
INTEC	GEN-WCS-004	2304	119.23	gal/hr	M	60	1430.8
INTEC	GEN-WCS-006	2304	119.23	gal/hr	M	60	1430.8
MFC	ANL-768-003	741	32.00	gal/hr	Q	200	426.7
NRF	NRF-686-016	1443	69.70	gal/hr	M	60	836.4
NRF	NRF-686-017	1443	69.70	gal/hr	M	60	836.4
NRF	NRF-686-018	1443	69.70	gal/hr	M	60	836.4
NRF	NRF-686-019	1443	69.70	gal/hr	M	60	836.4
SMC	GEN-HP-960	1514	20.00	gal/hr	M	30	120.0
SMC	TAN 679-012	890	22.40	gal/hr	M	60	268.8
						Total	15892.6

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

M E M O R A N D U M

DATE: October 30, 2020

TO: Chris Duerschner, Permit Writer, Air Program

FROM: Pao Baylon, Modeling Review Analyst, Air Program

PROJECT: P-2020.0045 PROJ 62470, Facility Emissions Cap Modification to Increase the Emission Limits for the Idaho National Laboratory Located in Southeastern Idaho.

SUBJECT: Demonstration of Compliance with IDAPA 58.01.01.203.02 (NAAQS) and 203.03 (TAPs) as it relates to air quality impact analyses.

Contents

Acronyms, Units, and Chemical Nomenclature 3

1.0 Summary 5

2.0 Background Information 8

2.1 Project Description 8

2.2 Facility Location and Area Classification 8

2.3 Air Impact Analyses Required for All Permits to Construct 12

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses 12

2.5 Toxic Air Pollutant Analyses 14

3.0 Analytical Methods and Data 15

3.1 Emission Source Data 15

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emission Rates 15

3.1.2 TAPs Modeling Applicability 20

3.1.3 Emission Release Parameters 21

3.1.4 Emission Release Parameter Justification 24

3.2 Background Concentrations 28

3.3 Impact Modeling Methodology 30

3.3.1 General Overview of Impact Analyses 30

3.3.2 Modeling Protocol 30

3.3.3 Modeling Methodology 32

3.3.4 Model Selection 32

3.3.5 Meteorological Data 32

3.3.6 Effects of Terrain on Modeled Impacts 33
3.3.7 Facility Layout and Downwash 34
3.3.8 NOx Chemistry 34
3.3.9 Ambient Air Boundary 35
3.3.10 Nearby Co-Contributing Sources 35
3.3.11 Receptor Network 35
3.3.12 Good Engineering Practice Stack Height 36
4.0 NAAQS and TAPs Impact Modeling Results 36
4.1 Results for NAAQS Analyses 36
4.1.1 Significant Impact Level Analysis 36
4.1.2 Cumulative NAAQS Impact Analysis 36
4.1.3 DEQ's Sensitivity Analysis for a Shorter CFAFEC Stack Height 38
4.2 Results for TAPs Impact Analyses 39
5.0 Conclusions 39
References 41

Acronyms, Units, and Chemical Nomenclature

AAC	Acceptable Ambient Concentration of a Non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AMWTP	Advanced Mixed Waste Treatment Project
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
ASOS	Automated Surface Observing System
ATR	Advanced Test Reactor
BAE	Baseline Actual Emission
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
DEQ	Idaho Department of Environmental Quality
DOE-ID	United States Department of Energy, Idaho Operations Office
DV	Design Values
EBR-I	Experimental Breeder Reactor-I
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
FEC	Facility Emissions Cap
GEP	Good Engineering Practice
hp	Horsepower
hr	Hours
ICE	Internal Combustion Engine
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
INL	United States Department of Energy – Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
ISCST3	Industrial Source Complex Short Term 3 dispersion model
IWTU	Integrated Waste Treatment Unit
K	Kelvin
km	Kilometers
km^2	Square kilometers
lb/hr	Pounds per hour
m	Meters
m/sec	Meters per second
MMBtu/hr	Million British thermal units per hour
MFC	Material and Fuels Complex
mi	Miles
mi^2	Square miles

NAAQS	National Ambient Air Quality Standards
NED	National Elevation Dataset
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOAA	United States National Oceanic and Atmospheric Administration
NOx	Oxides of Nitrogen
NRF	Naval Reactors Facility
NW AIRQUEST	Northwest International Air Quality Environmental Science and Technology Consortium
O_3	Ozone
OV&G	Operational Variability and Growth
PAE	Projected Actual Emission
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
POM	Polycyclic Organic Matter
ppb	Parts per billion
ppm	Parts per million
PRIME	Plume Rise Model Enhancement
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
RWMC	Radioactive Waste Management Complex
SIL	Significant Impact Level
SMC	Specific Manufacturing Capability
SO_2	Sulfur Dioxide
TAN	Test Area North
TAP	Toxic Air Pollutant
tpy	Tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
^{o}	Degrees Latitude or Longitude
^{o}F	Degrees Fahrenheit
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

The U.S. Department of Energy Idaho Operations Office (DOE-ID) submitted a Permit to Construct (PTC) application to modify PTC P-2015.0023 issued to U.S. Department of Energy – Idaho National Laboratory (INL) on January 11, 2018 by the Idaho Department of Environmental Quality (DEQ). This PTC allowed INL to become a synthetic minor source of air pollutants using a facility emissions cap (FEC). INL is a science-based, applied engineering national laboratory that supports the DOE's missions in nuclear and energy research, science, and national defense. The current project involves modifications to the FEC limits set out in the original permit. Specifically, INL is requesting higher FEC limits for criteria air pollutants except for nitrogen oxides which will remain the same.

Project-specific air quality analyses involving atmospheric dispersion modeling of estimated emissions associated with the facility were submitted to DEQ to demonstrate that applicable emissions do not result in violation of a National Ambient Air Quality Standard (NAAQS) or Toxic Air Pollutant (TAP) increment as required by the Idaho Administrative Procedures Act 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 203.03). This memorandum provides a summary of the applicability assessment for analyses and air impact analyses used to demonstrate compliance with applicable NAAQS and TAP increments, as required by Idaho Air Rules Section 203.02 and 203.03.

INL prepared the PTC application and performed ambient air impact analyses for this project. DEQ review of submitted data and DEQ analyses summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that estimated emissions associated with operation of the facility, as allowed by the FEC permit, will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not address/evaluate compliance with other rules or analyses not pertaining to the air impact analyses. Evaluation of emission estimates was the responsibility of the DEQ permit writer and is addressed in the main body of the DEQ Statement of Basis, and emission calculation methods were not evaluated in this modeling review memorandum.

Table 1 presents key assumptions and results to be considered in the development of the permit. Idaho Air Rules require air impact analyses be conducted in accordance with methods outlined in 40 CFR 51, Appendix W *Guideline on Air Quality Models* (Appendix W). Appendix W requires that air quality impacts be assessed using atmospheric dispersion models with emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

The submitted information and analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emission estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that estimated potential/allowable emissions are at a level defined as below regulatory concern (BRC) and do not require a NAAQS compliance demonstration; b) that predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or c) that predicted pollutant concentrations from emissions associated with the project, when appropriately combined with co-contributing sources and background concentrations, were below applicable NAAQS at ambient air locations where and when the project has a significant impact; 5) showed that TAP emission increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments. This conclusion assumes that conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition. The DEQ permit writer should use Table 1 and other information presented in this memorandum to generate appropriate permit provisions/restrictions to assure emissions do not exceed applicable regulatory thresholds requiring

further analyses and to assure the requirements of Appendix W are met regarding emissions representative of design capacity or permit allowable rates.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES.

Criteria/Assumption/Result	Explanation/Consideration
General Emission Rates. Modeled emission rates must represent those associated with design capacity or as limited by a permit restriction corresponding to the applicable averaging period of the NAAQS, as required by 40 CFR 51, Appendix W - *Guideline on Air Quality Models* (Appendix W).	Compliance has not been demonstrated for emission rates greater than those used in the air impact analyses. Although a FEC permit allows certain facility changes to be made, provided the annual FEC limit is not exceeded, modeled rates must still meet the requirements of Appendix W.
Modeling for Changes. Any operating scenarios, additional emission points, emission rates greater than modeled, altered release point location, or altered physical release parameters not accurately represented in the air impact analyses must be evaluated for compliance with any applicable significant impact level (SIL); and if a SIL is exceeded by the change, compliance with the applicable NAAQS must be demonstrated. We note that SIL analyses were not conducted by INL for this project.	As required by Idaho Air Rules Section 181, the air impact modeling analysis must be modified for changes from the analyses finalized at the date of permit issuance. Notification must be provided to DEQ for changes in impacts exceeding the SIL. For those changes that are less than the SIL, the applicant must maintain documentation on-site.
Facility Emissions Cap Limits. Facility Emissions Caps (FECs) are annual limitations in units of tons per year (tpy) which are specifically requested by the applicant. The three components to the FEC limitation are: • Baseline Actual Emissions [BAE] (or Projected Actual Emissions [PAE] for units that do not have existing emissions data) • Operational Variability Emissions • Future Growth Emissions. INL modeled emissions that were the sum of BAE/PAE, Operational Variability, and Future Growth to demonstrate compliance with the NAAQS.	The following are the requested FECs: • PM_{10}[a] FEC = 85 tpy • $PM_{2.5}$[b] FEC = 85 tpy • CO[c] FEC = 90 tpy • SO_2[d] FEC = 70 tpy • NOx[e] FEC = 95 tpy Modeling analyses must be revised if any future changes result in emission increases beyond what was used in the model or result in a substantial change in release characteristics from what was used in the model (such that resulting modeled concentrations could be affected). Idaho Air Rules Section 181 specifies how facility changes are handled under a FEC. This memo's model set-up and meteorological data form the basis for the ambient impact analyses used to evaluate the ambient impacts due to the change. If the change in modeled impacts (from what was submitted in the application and approved by this memorandum) does not cause exceedance of the annual FEC limit and the change in the modeled design value is less than the SIL, INL may make the process and/or equipment change without notifying DEQ. If the change in AERMOD model output design concentrations exceeds any SIL (but does not cause or contribute to a NAAQS violation), notice must be provided to DEQ as per Idaho Air Rules Section 181.b. Ambient background concentrations, AERMOD model version, and the meteorological data files for the effective term of this permit will be the same as those used for the application's final ambient impact analyses.
Modeling Operational Variability and Growth. There are currently seven main facility areas at the INL Site that are potential sources of pollutant emissions. Emission increases up to FEC limits that are attributable to operational variability and growth (OV&G) were modeled by releasing the entire OV&G increase for each pollutant from a single source at each of the seven facilities one at a time. OV&G emissions were assumed to be released from an existing boiler stack at each facility. For facilities without a boiler stack, OV&G emissions were assumed to be released from a generic, conservative stack at a location near an existing non-boiler source.	Determination of operational variability and growth components up to FEC limits are consistent as defined in IDAPA 58.01.01.176.03.e and f.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES.	
Criteria/Assumption/Result	**Explanation/Consideration**
Air Impact Analyses for Criteria Pollutant Emissions. All criteria pollutants were modeled with the exception of lead (Pb) and ozone.	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutant increases above BRC thresholds, or for pollutants having an emissions increase that is greater than Level I modeling applicability thresholds (where the BRC exclusion cannot be used).
Air Impact Analyses for TAP Emissions. Modeling was not performed for toxic air pollutants (TAPs) as uncontrolled emissions did not exceed screening emission levels (ELs) for carcinogenic and non-carcinogenic TAPs.	A TAP increment compliance demonstration would be required for any TAPs with emissions above ELs.
Random Testing of Emergency Stationary Internal Combustion Engines. The facility includes 20 emergency stationary internal combustion engines (ICEs) which were modeled using a random testing schedule based on their testing frequency and duration. One of the 20 ICEs will be tested weekly, 16 will be tested monthly, and three will be tested quarterly. Engine 61910 will also be tested annually which will replace the regular weekly tests. Engines 670M42, 670M43, and 674M6 will also be tested quarterly which will replace the regular monthly tests. The random testing schedule was determined by DEQ modeling staff. No restrictions were placed on the times or conditions under which the ICEs could be tested. For 1-hour NO_2 modeling, emergency stationary ICE sources were not included.	Emissions modeled accounted for intermittent operation of ICEs. Only emissions from testing are required to be included in the analyses for emergency ICEs. If testing is conducted on a more frequent basis, then the air impact analyses should be modified to reflect this change. NOx emissions from ICEs were exempted by policy for the 1-hour NO_2 NAAQS compliance demonstrations according to guidance in *State of Idaho Guideline for Performing Air Quality Impact Analyses*.
Background Concentrations. Background concentrations for all modeled pollutants were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST). Design values from 143 points on or inside the INL Site boundary were used to estimate average background concentrations on the INL Site.	Pollutant background concentrations determined using the NW AIRQUEST online tool use regional scale modeling of pollutants in Washington, Oregon, and Idaho, with model results adjusted according to available monitoring data. The relatively small standard deviation for the 143 locations indicates very little variation across the grid points.
NOx Chemistry. NOx chemistry was not considered in the modeling.	Results for NOx modeling conservatively assume 100% of the NOx concentrations convert to NO_2.
Release Parameters for Emission Points. Stack heights are no shorter than what is indicated in this memorandum. Stack diameters are no larger than what is indicated in this memorandum. Exhaust flow rates and temperatures at the point of release are not less than the values indicated in this memorandum. Emission source CFAFEC was modeled with a stack height of 10.5 meters. DEQ's sensitivity analysis suggests that the 1-hour SO_2 NAAQS is violated if CFAFEC were modeled with a stack height shorter than ~9.7 meters.	Compliance with applicable air quality standards is not assured if release parameters vary substantially from what was used in impact analyses. Modeling results show that the greatest impact of adding the OV&G increase occurred when it was released at the CFA facility. Emission source CFAFEC was modeled with a stack height of 10.5 meters. This assumption is critical to the 1-hour SO_2 NAAQS compliance demonstration (see Section 4.1.3 of this memorandum).

[a.] Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
[b.] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
[c.] Carbon monoxide.
[d.] Sulfur dioxide.
[e.] Nitrogen oxides; NOx FEC is the same limit set out in the original permit.

Summary of Submittals and Actions

June 11, 2020 Application received by DEQ.

June 23, 2020 Regulatory start date.

July 21, 2020 Application determined incomplete by DEQ.

August 8, 2020 Revised application received by DEQ.

September 10, 2020 Application determined complete by DEQ.

2.0 Background Information

This section provides background information applicable to the project and the site proposed for the facility. It also provides a brief description of the applicable air impact analyses requirements for the project.

2.1 Project Description

At the time of the original application (submitted in 2015), INL requested operational variability and growth (OV&G) components for air emissions that were reasonable for their current and anticipated future operations, construction, and modification to stationary sources of air pollutions. Since issuance of the original permit, changes have occurred to anticipated INL Site projects due to congressional action. As a result, INL proposed modifications to the FEC limits set out in the original permit. Specifically, INL is requesting FEC limits for criteria pollutants be raised to 90 tons per year (tpy) for carbon monoxide (CO), 85 tpy for particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), 85 tpy for particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$), and 70 tpy for sulfur dioxide (SO_2). The limit of 95 tpy for nitrogen oxides (NOx) in the original permit will remain the same.

There are currently seven main facility areas at the INL Site that are potential sources of pollutant emissions that were considered for this analysis. They are:

- Advanced Mixed Waste Treatment Project (AMWTP), which includes the neighboring Radioactive Waste Management Complex (RWMC)
- Advanced Test Reactor (ATR) Complex
- Central Facilities Area (CFA)
- Idaho Nuclear Technology and Engineering Center (INTEC)
- Materials and Fuels Complex (MFC)
- Naval Reactors Facility (NRF)
- Test Area North (TAN), which includes the Specific Manufacturing Capability (SMC) facility.

The modeling analysis for the revised permit is essentially rerunning the approved modeling analysis for the original permit but with updated parameters, emission rates for some units, and meteorological data. Deviations from the original modeling performed for the revised permit are enumerated in Section 3.3.2 of this memorandum.

The PTC addresses all air pollutant-emitting activities associated with the INL Site.

2.2 Facility Location and Area Classification

The INL Site (see Figure 1) occupies approximately 2,305 square kilometers (km^2) (890 square miles [mi^2]) in southeastern Idaho, extending approximately 63 kilometers (km) (36 miles [mi]) from north to south and approximately 58 km (36 mi) from east to west at its broadest point. It is located on the eastern

Snake River Plain, west of the Snake River, and encompasses portions of five Idaho counties: Bingham, Bonneville, Butte, Clark, and Jefferson (see Figure 2). Population centers near the INL Site are Idaho Falls to the east, Blackfoot to the southeast, Pocatello to the south-southeast, and Arco to the west. The INL Site is located in Universal Transverse Mercator (UTM) Zone 12. The air quality status of the INL Site is designated as unclassifiable for SO_2, NO_2, CO, lead (Pb), ozone (O_3), PM_{10}, and $PM_{2.5}$.

The INL Site is situated on a high desert plain with relatively flat terrain. Facility elevations range from 1,460 meters (m) (4,790 feet [ft]) above mean sea level at TAN to 1,532 m (5,025 ft) above mean sea level at AMWTP/RWMC. The climate of the INL Site is affected by the surrounding mountains and its location in the eastern Snake River Plain. Because of the northeast-southwest orientation of the eastern Snake River Plain between the surrounding mountains, the prevailing wind is southwesterly. The Centennial and Bitterroot mountain ranges to the north act as a barrier to movement of most of the cold winter air masses passing to the south out of Canada. Air masses entering the INL Site are typically dry because heavy precipitation usually has occurred while crossing nearby mountain barriers. Therefore, annual rainfall is light, cloud cover is sparse, and the air is relatively dry.

Winds at the INL Site typically blow from the southwest, moving up the eastern Snake River Plain. Winds from the northeast also are common, especially at night when movement of cool air back down the eastern Snake River Plain reverses the daytime flows. Continuous measurements are made from 30 weather stations in and around the INL Site by the U.S. National Oceanic and Atmospheric Administration (NOAA).

The natural vegetation of the INL Site consists of a shrub overstory with a forb and grass understory. General plant communities include shadescale-steppe vegetation with sagebrush and grass-dominated communities. Sagebrush communities are the dominant vegetation occupying approximately 80% of the INL Site.

Figure 1. IDAHO NATIONAL LABORATORY SITE AND MAIN FACILITIES.

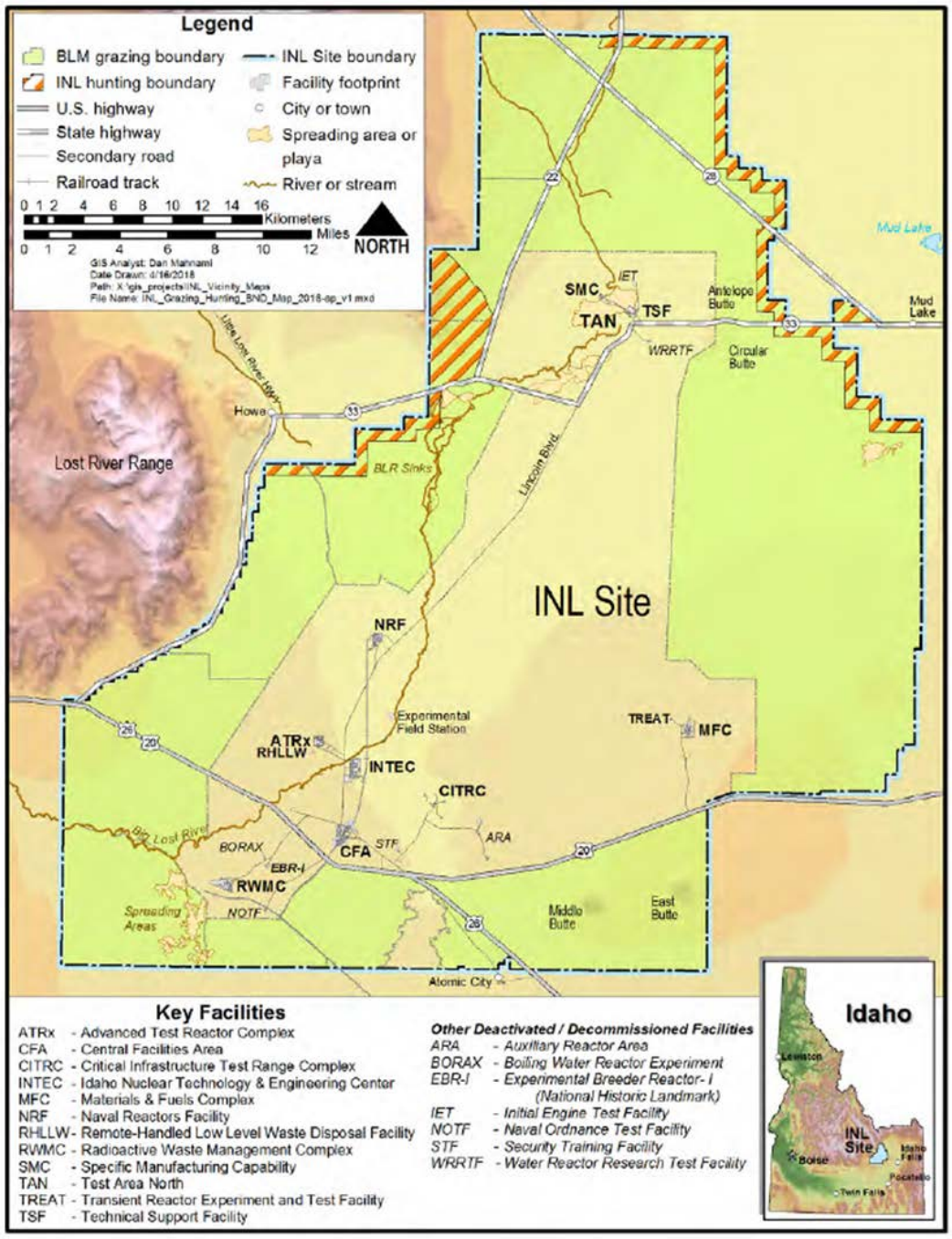


Figure from the submitted modeling report.

Figure 2. POPULATION CENTERS NEAR THE IDAHO NATIONAL LABORATORY SITE.

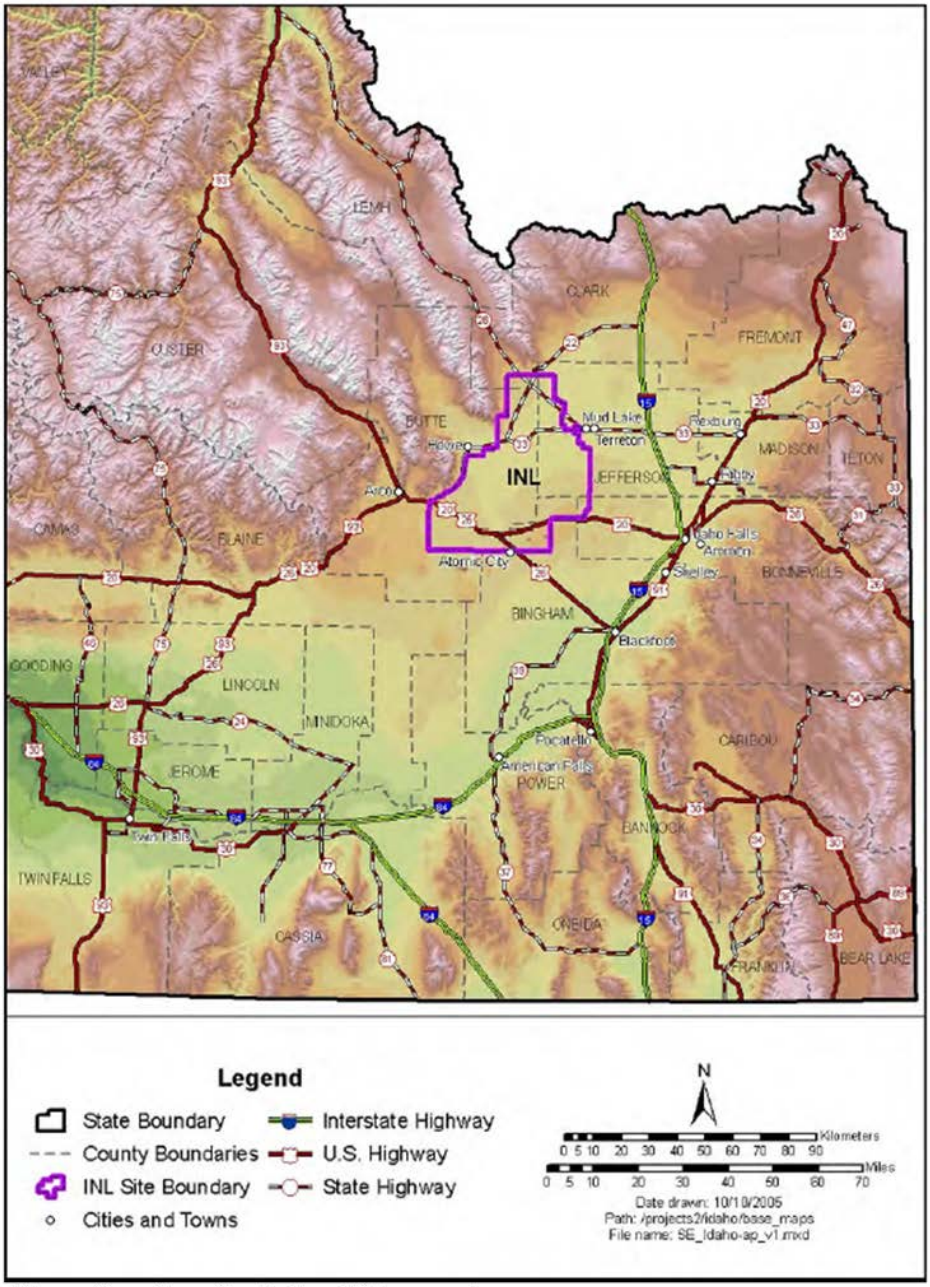


Figure from the submitted modeling report.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

> *No permit to construct shall be granted for a new or modified stationary source unless the applicant shows to the satisfaction of the Department all of the following:*
>
> ***02. NAAQS**. The stationary source or modification would not cause or significantly contribute to a violation of any ambient air quality standard.*
>
> ***03. Toxic Air Pollutants.** Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Atmospheric dispersion modeling, using computerized simulations, is used to demonstrate compliance with both NAAQS and TAPs. Idaho Air Rules Section 202.02 states:

> ***02. Estimates of Ambient Concentrations**. All estimates of ambient concentrations shall be based on the applicable air quality models, data bases, and other requirements specified in 40 CFR 51 Appendix W (Guideline on Air Quality Models).*

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

If specific criteria pollutant emission increases associated with the proposed permitting project cannot qualify for a BRC exemption as per Idaho Air Rules Section 221, then the permit cannot be issued unless the application demonstrates that applicable emission increases will not cause or significantly contribute to a violation of NAAQS, as required by Idaho Air Rules Section 203.02.

The first phase of a NAAQS compliance demonstration is to evaluate whether the proposed facility/project could have a significant impact to ambient air. Section 3.1.1 of this memorandum describes the applicability evaluation of Idaho Air Rules Section 203.02. The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted in accordance with methods outlined in Appendix W. Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

A facility or modification is considered to have a significant impact on air quality if maximum modeled impacts to ambient air exceed the established SIL listed in Idaho Air Rules Section 006 (referred to as a "significant contribution" in Idaho Air Rules) or as incorporated by reference as per Idaho Air Rules Section 107.03.b. Table 2 lists the applicable SILs.

Table 2. APPLICABLE REGULATORY LIMITS.				
Pollutant	**Averaging Period**	**Significant Impact Levels[a] (µg/m^3)[b]**	**Regulatory Limit[c] (µg/m^3)**	**Modeled Design Value Used[d]**
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.2	12[k]	Mean of maximum 1st highest[l]
Carbon Monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/m^3)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 tpy VOC[v]	70 ppb[w]	Not typically modeled

a. Idaho Air Rules Section 006 (definition for significant contribution) or as incorporated by reference as per Idaho Air Rules Section 107.03.b.
b. Micrograms per cubic meter.
c. Incorporated into Idaho Air Rules by reference, as per Idaho Air Rules Section 107.
d. The maximum 1st highest modeled value is always used for the significant impact analysis unless indicated otherwise. Modeled design values are calculated for each ambient air receptor.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Not to be exceeded more than once per year on average over 3 years.
g. Concentration at any modeled receptor when using five years of meteorological data.
h. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
i. 3-year mean of the upper 98th percentile of the annual distribution of 24-hour concentrations.
j. 5-year mean of the 8th highest modeled 24-hour concentrations at the modeled receptor for each year of meteorological data modeled. For the SIL analysis, the 5-year mean of the 1st highest modeled 24-hour impacts at the modeled receptor for each year.
k. 3-year mean of annual concentration.
l. 5-year mean of annual averages at the modeled receptor.
m. Not to be exceeded more than once per year.
n. Concentration at any modeled receptor.
o. Interim SIL established by EPA policy memorandum.
p. 3-year mean of the upper 99th percentile of the annual distribution of maximum daily 1-hour concentrations.
q. 5-year mean of the 4th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of 1st highest modeled 1-hour impacts for each year is used.
r. Not to be exceeded in any calendar year.
s. 3-year mean of the upper 98th percentile of the annual distribution of maximum daily 1-hour concentrations.
t. 5-year mean of the 8th highest daily 1-hour maximum modeled concentrations for each year of meteorological data modeled. For the significant impact analysis, the 5-year mean of maximum modeled 1-hour impacts for each year is used.
u. 3-month rolling average.
v. An annual emissions rate of 40 ton/year of VOCs is considered significant for O_3.
w. Annual 4th highest daily maximum 8-hour concentration averaged over three years.

If modeled maximum pollutant impacts to ambient air from the emission sources associated with a new facility or modification exceed the SILs, then a cumulative NAAQS impact analysis is necessary to demonstrate compliance with NAAQS and Idaho Air Rules Section 203.02.

A cumulative NAAQS impact analysis for attainment area pollutants involves assessing ambient impacts (typically the design values consistent with the form of the standard) from potential/allowable emissions resulting from the project and emissions from any nearby co-contributing sources (including existing emissions from the facility that are unrelated to the project), and then adding a DEQ-approved background concentration value to the modeled result that is appropriate for the criteria pollutant/averaging-period at the facility location and the area of significant impact. The resulting pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. Table 2 also

specifies the modeled design value that must be used for comparison to the NAAQS. NAAQS compliance is evaluated on a receptor-by-receptor basis for the modeling domain.

If the cumulative NAAQS impact analysis indicates an exceedance of NAAQS, a culpability analysis can determine if this exceedance is due to emissions from the proposed project. The permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permitting requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the total project-wide emission increase of any TAP associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emission increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. The DEQ permit writer evaluates the applicability of specific TAPs to the Section

210.20 exclusion.

3.0 Analytical Methods and Data

This section describes the methods and data used in the analyses to demonstrate compliance with applicable air quality impact requirements. The DEQ Statement of Basis provides a discussion of the methods and data used to estimate criteria and TAP emission rates.

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the INL Site were estimated by INL for various applicable averaging periods. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emission rates used in the impact modeling applicability analyses and any modeling analyses, as listed in this memorandum, should be reviewed by the DEQ permit writer and compared with those in the final emission inventory. All modeled criteria air pollutant and TAP emission rates must be equal to or greater than the facility's potential emissions calculated in the PTC emission inventory or proposed permit allowable emission rates.

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emission Rates

If project-specific emission increases for criteria pollutants would qualify for a BRC permit exemption as per Idaho Air Rules Section 221 if it were not for potential emissions of one or more pollutants exceeding the BRC threshold of 10 percent of emissions defined by Idaho Air Rules as significant, then a NAAQS compliance demonstration may not be required for those pollutants with emissions below BRC levels. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules is that: "A DEQ NAAQS compliance assertion will not be made by the DEQ modeling group for specific criteria pollutants having a project emissions increase below BRC levels, provided the proposed project would have qualified for a Category I Exemption for BRC emissions quantities except for the emissions of another criteria pollutant.[1]" The interpretation policy also states that the exemption criteria of uncontrolled potential to emit (PTE) not to exceed 100 ton/year (Idaho Air Rules Section 220.01.a.i) is not applicable when evaluating whether a NAAQS impact analyses is required. A permit will be issued limiting PTE below 100 ton/year, thereby negating the need to maintain calculated uncontrolled PTE under 100 ton/year. The BRC exemption cannot be used to exempt a project from a pollutant-specific NAAQS compliance demonstration in most cases where a PTC is required for the action regardless of emission quantities, such as the modification of an existing emission or throughput limit.

A NAAQS compliance demonstration must be performed for pollutant increases that would not qualify for the BRC exemption from the requirement to demonstrate compliance with NAAQS.

Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling applicability thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are

provided in the *Idaho Air Modeling Guideline*[2]. These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

If total project-specific emission rate increases of a pollutant are below Level I Modeling Applicability Thresholds, then project-specific air impact analyses are not necessary for permitting. Use of Level II Modeling Applicability Thresholds is conditional, requiring DEQ approval. DEQ approval is based on dispersion-affecting characteristics of the emission sources such as stack height, stack gas exit velocity, stack gas temperature, distance from sources to ambient air, presence of elevated terrain, and potential exposure to sensitive public receptors.

For this FEC permit, the quantity of annual emissions, consisting of the baseline emission rate plus the rates associated with operational variability and the proposed growth component, was compared to BRC levels to evaluate NAAQS compliance demonstration requirement applicability.

Baseline Emissions

Baseline emissions were estimated using the Baseline Actual Emissions (BAE) from existing emission units and Projected Actual Emissions (PAE) for units that do not have existing emission data. There are no sources of regulated fugitive or secondary emissions at INL.

Criteria pollutant source changes from the original permit include:

- Temporary mobile equipment sources at TSA-RE, WMF-1617, and WMF-1621 were no longer included (letter from Dan Pitman of DEQ to Mark Verdoorn of INL dated 02-24-2020).
- The 2 Million British thermal units per hour (MMBtu/hr) boiler at AMWTP included in the original permit has been replaced with a 0.5 MMBtu/hr propane boiler.
- The original permit modeling included two existing 52.4 MMBtu/hr diesel boilers and one proposed new 29.3 MMBtu/hr diesel boiler at NRF. Since that time, the two 52.4 MMBtu/hr diesel boilers have been removed from service and replaced with two new 29.3 MMBtu/hr diesel boilers. The two new boilers are the same as the proposed new boiler in the original permit. The PTE for the two new NRF boilers was included in the revised modeling, but the BAEs for NRF boilers were not changed.
- A 1,514 horsepower (hp) emergency internal combustion engine (ICE) was put into service since the original permit was issued and this ICE was included in the BAE calculation and the criteria air pollutant modeling.

Table 3 summarizes the INL Site baseline emissions by source for all modeled criteria pollutants.

Table 3. IDAHO NATIONAL LABORATORY BASELINE EMISSIONS (TONS PER YEAR) FOR CRITERIA POLLUTANTS.

Emission Unit	Sulfur dioxide	Nitrogen oxides	Carbon monoxide	PM_{10}[a] and $PM_{2.5}$[b]
AMWTP Boilers	0.15	1.34	0.77	0.07
CFA Boilers	0.002	0.21	0.05	0.02
INTEC Boilers[c]	0.07	6.24	1.56	0.72
NRF Boilers[d]	0.05	4.58	1.14	0.53
SMC Boilers	0.02	1.74	0.43	0.20
INL Emergency ICE	0.24	7.20	1.75	0.33
* INTEC Boilers[c]	0.008	0.725	0.181	0.083
* IWTU – Treatment	0.34	50.21	0.34	0.03

CPP-666	0.05	0.00	0.02	-
Remediation Mobile Sources[e]	Removed (mobile sources)			0.08
INL Site Baseline Emissions Total	**0.93**	**72.23**	**6.24**	**2.06**

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers. PM_{10} emissions include total PM and condensable PM.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. $PM_{2.5}$ emissions include total PM and condensable PM.
c. BAEs for INTEC boilers include emissions from process steam demand due to IWTU operations.
d. BAEs for NRF boilers are based on the 2011–2012 operation of two 52.4 MMBtu/hr boilers and a 29.3 MMBtu/hr boiler being proposed at the time of the original permit. Since the original permit, the two 52.4 MMBtu/hr boilers have been replaced with two more efficient 29.3 MMBtu/hr boilers. BAEs for the two new boilers are less than the original boilers, but the BAE was not changed.
e. Temporary mobile-equipment sources removed since original permit application include sources at TSA-RE, WMF-1617, and WMF-1621.

Operational Variability and Growth Emissions

For criteria pollutants, INL requested operational variability and growth (OV&G) components as defined in IDAPA 58.01.01.176.03.e and f. The definition for the operational variability component allows for an emission rate up to the significant emission rate (SER) minus one tpy but no more than the facility's potential to emit (PTE). The PTE for SO_2 is less than the SER, so the operational variability component was limited to the PTE. Both the PTE and the SER for NOx and CO were higher than the FEC would allow, so operational variability for NOx and CO was set by the difference between the baseline emissions and the emission rate that modeled within the NAAQS ambient concentrations and then proportioned at a 40/60 ratio between operational flexibility and growth component, respectively. The operational variability for PM_{10} and $PM_{2.5}$ was set as the SER minus one tpy. These values are summarized in Table 4.

Table 4. IDAHO NATIONAL LABORATORY POTENTIAL TO EMIT (TONS PER YEAR) WITH FEC COMPONENTS.

Component	Sulfur dioxide	Nitrogen oxides	Carbon monoxide	PM_{10}[a] and $PM_{2.5}$[b]
PTE[c]	9.9	437.3	98.9	27.0
BAE[d,e]	0.58	21.3	5.73	1.95
PAE[e,f]	0.35	50.9	0.52	0.11
Operational Variability	9.9	9.1	33.5	9.0
Growth	59.2	13.7	50.3	73.9
FEC	**70.0**	**95.0[g]**	**90.0**	**85.0**
SER[h]	40	40	100	15 (PM_{10}) 10 ($PM_{2.5}$)
BRC[i] (10% of SER)	4.0	4.0	10.0	1.5 (PM_{10}) 1.0 ($PM_{2.5}$)
Modeling Required?	**Yes**	**Yes**	**Yes**	**Yes**

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers. PM_{10} emissions include total PM and condensable PM.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. $PM_{2.5}$ emissions include total PM and condensable PM.
c. Potential to Emit.
d. Baseline Actual Emissions.
e. The sum of BAE and PAE is equal to the INL Site Baseline Emissions Total listed in Table 3.
f. Projected Actual Emissions.
g. No change from original permit.
h. Significant Emission Rates.
i. Below Regulatory Concern.

The FEC limit was calculated as the sum of BAE, PAE, and OV&G. For this FEC permit, the quantity of annual emissions was compared to BRC levels (10% of SER) to evaluate NAAQS compliance demonstration requirement applicability. Table 4 shows that the FEC limits exceed BRC thresholds for SO_2, NOx, CO, PM_{10}, and $PM_{2.5}$. Therefore, modeling was required for these criteria pollutants.

Modeled Criteria Pollutant Emission Rates

A SIL analysis was not performed for the project. Table 5 lists criteria pollutant emission rates used in the cumulative NAAQS impact analyses. Description for each source ID is listed later in Table 7.

Table 5. MODELED EMISSION RATES FOR CUMULATIVE NAAQS IMPACT ANALYSES.

Source ID	24-hr PM_{10}[a] (lb/hr)[b]	24-hr $PM_{2.5}$[c] (lb/hr)	Annual $PM_{2.5}$ (tpy)[d]	1-hour, 8-hour CO[e] (lb/hr)	1-hour, 3-hour SO_2[f] (lb/hr)	1-hour NO_2[g] (lb/hr)	Annual NO_2 (tpy)
AMWBOIA	9.68E-02	9.68E-02	4.24E-01	1.04E+00	2.08E-01	1.80E+00	7.89E+00
AMWBOIB	9.68E-02	9.68E-02	4.24E-01	1.04E+00	2.08E-01	1.80E+00	7.89E+00
AMWBOIC	9.68E-02	9.68E-02	4.24E-01	1.04E+00	2.08E-01	1.80E+00	7.89E+00
CFBOI608	2.46E-02	2.46E-02	1.08E-01	5.35E-02	2.28E-03	2.14E-01	9.39E-01
CFBOI609	3.45E-02	3.45E-02	1.51E-01	7.50E-02	3.20E-03	3.00E-01	1.31E+00
INTBOI1	4.97E-01	4.97E-01	2.18E+00	1.08E+00	4.60E-02	4.32E+00	1.89E+01
INTBOI2	4.97E-01	4.97E-01	2.18E+00	1.08E+00	4.60E-02	4.32E+00	1.89E+01
INTBOI3	4.97E-01	4.97E-01	2.18E+00	1.08E+00	4.60E-02	4.32E+00	1.89E+01
INTBOI4	4.97E-01	4.97E-01	2.18E+00	1.08E+00	4.60E-02	4.32E+00	1.89E+01
IWTUTMT	1.40E-02	1.40E-02	6.12E-02	1.88E-01	1.89E-01	3.70E+01	1.62E+02
CPP666	0	0	0	3.83E-03	1.20E-02	3.43E-07	1.50E-06
NRFBOI4	4.81E-01	4.81E-01	2.11E+00	1.05E+00	4.45E-02	4.18E+00	1.83E+01
NRFBOI5	4.81E-01	4.81E-01	2.11E+00	1.05E+00	4.45E-02	4.18E+00	1.83E+01
SMCBOI67	3.85E-01	3.85E-01	1.69E+00	8.41E-01	3.57E-02	3.35E+00	1.47E+01
SMCBOI68	3.85E-01	3.85E-01	1.69E+00	8.41E-01	3.57E-02	3.35E+00	1.47E+01
AMWFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
ATRFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
CFAFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
INTFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
MFCFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
NRFFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
SMCFEC[h]	1.89E+01	1.89E+01	8.27E+01	1.91E+01	1.58E+01	5.20E+00	2.28E+01
WMF734	3.84E-01	3.84E-01	1.68E+00	4.69E+00	8.33E-03	0	0
812001	2.64E-01	2.64E-01	1.16E+00	3.22E+00	5.75E-03	0	0
812002	4.31E-01	4.31E-01	1.89E+00	5.26E+00	9.37E-03	0	0
61910	1.13E+00	1.13E+00	4.94E+00	3.46E+00	1.06E+00	0	0
670M42	4.29E-01	4.29E-01	1.88E+00	5.24E+00	9.37E-03	0	0
670M43	4.29E-01	4.29E-01	1.88E+00	5.24E+00	9.37E-03	0	0
674M6	4.29E-01	4.29E-01	1.88E+00	5.24E+00	9.37E-03	0	0
786M1	1.20E+00	1.20E+00	5.25E+00	1.47E+01	2.61E-02	0	0
WCS002	1.17E+00	1.17E+00	5.11E+00	1.42E+01	2.53E-02	0	0
WCS004	1.17E+00	1.17E+00	5.11E+00	1.42E+01	2.53E-02	0	0
WCS006	1.17E+00	1.17E+00	5.11E+00	1.42E+01	2.53E-02	0	0
785017	1.21E+00	1.21E+00	5.32E+00	3.72E+00	1.13E+00	0	0
768003	3.12E-01	3.12E-01	1.37E+00	3.81E+00	6.79E-03	0	0
686016	6.80E-01	6.80E-01	2.98E+00	8.33E+00	1.48E-02	0	0
686017	6.80E-01	6.80E-01	2.98E+00	8.33E+00	1.48E-02	0	0
686018	6.80E-01	6.80E-01	2.98E+00	8.33E+00	1.48E-02	0	0
686019	6.80E-01	6.80E-01	2.98E+00	8.33E+00	1.48E-02	0	0
675010	1.36E+00	1.36E+00	5.94E+00	4.15E+00	1.27E+00	0	0

679012	4.37E-01	4.37E-01	1.92E+00	5.33E+00	9.52E-03	0	0
HP960	6.11E-01	6.11E-01	2.68E+00	7.45E+00	1.33E-02	0	0

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Pounds per hour.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Tons per year.
e. Carbon monoxide.
f. Sulfur dioxide.
g. Nitrogen dioxide.
h. Sources named ***FEC are hypothetical sources for OV&G emissions.

All emission sources considered are stack sources and were modeled as point sources using actual stack locations and dimensions, except for FEC hypothetical sources. Emission rates, stack flow rates (exit velocities), and stack exit temperatures were based on the design operating capacity (maximum fuel consumption rate) of each source. Justification of modeled exhaust parameters is provided later in Section 3.1.4 of this memorandum. Emissions up to FEC limits were modeled assuming the OV&G emissions for each pollutant are released from each facility one at a time. The OV&G emissions were assumed to be released from an existing boiler stack at each facility, or for facilities without a boiler stack, the emissions were assumed to be released from a generic, conservative stack at a location near an existing non-boiler source. All sources were assumed to operate continuously except for the emergency stationary ICE sources, which were operated on a random testing schedule based on their testing frequency and duration (see Table 6 below). This schedule was determined by DEQ modeling staff, and no restrictions were placed on the times or conditions under which they could be tested. External files containing the run schedule and emission rates for each criteria pollutant were generated by DEQ modeling staff and provided to INL in a zip file. These are not the same files used in the original permit modeling because the files had to be regenerated for the more recent meteorological data set (2013–2017). For 1-hour NO_2 modeling, emergency stationary ICE sources were not included according to guidance in the *State of Idaho Guideline for Performing Air Quality Impact Analyses*.[2] This was done by setting the emission rates to zero and making separate computer runs.

Table 6. TESTING FREQUENCY AND DURATION FOR STATIONARY EMERGENCY INTERNAL COMBUSTION ENGINES.

ICE[a] Source ID	Testing Frequency	Test Duration (minutes)	Test Duration (hrs)
WMF734	Monthly	15	1[b]
812001	Monthly	15	1[b]
812002	Monthly	15	1[b]
61910	Weekly	30	1[b,c]
670M42	Monthly	60	1[d]
670M43	Monthly	60	1[d]
674M6	Monthly	60	1[d]
786M1	Quarterly	480	8
WCS002	Monthly	60	1
WCS004	Monthly	60	1
WCS006	Monthly	60	1
785017	Quarterly	150	3[b]
768003	Quarterly	200	4[b]
686016	Monthly	60	1
686017	Monthly	60	1
686018	Monthly	60	1
686019	Monthly	60	1
675010	Monthly	60	1
679012	Monthly	60	1
HP960	Monthly	30	1[b]

a. Internal Combustion Engine.
b. Test duration rounded up to nearest one-hour increment.
c. Also tested annually for 120 minutes. This longer-duration test performed annually replaces the regular weekly tests.
d. Also tested quarterly for 180 minutes. This longer-duration test performed quarterly replaces the regular monthly tests.

Ozone Modeling Applicability

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource-intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting.

Addressing secondary formation of O_3 within the context of permitting a new stationary source has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

> *. . . footnote 1 to sections 51.166(I)(5)(I) of the EPA's regulations says the following: "No de minimis air quality level is provided for ozone. However, any net emission increase of 100 tons per year or more of volatile organic compounds or nitrogen oxides subject to PSD would be required to perform an ambient impact analysis, including the gathering of air quality data."*
>
> *The EPA believes it unlikely a source emitting below these levels would contribute to such a violation of the 8-hour ozone NAAQS, but consultation with an EPA Regional Office should still be conducted in accordance with section 5.2.1.c. of Appendix W when reviewing an application for sources with emissions of these ozone precursors below 100 TPY."*

DEQ determined it was not appropriate or necessary to require a quantitative source-specific O_3 impact analysis because allowable emission estimates of VOCs and NOx are below the 100 tpy threshold.

3.1.2 TAPs Modeling Applicability

TAPs were evaluated in accordance with IDAPA 58.01.01.210.05 and 09. Contribution of treatment and remediation sources were not included in the net emission increase calculations per IDAPA 58.1.01.007.06.c.iii.

In accordance with IDAPA 58.01.01.210.20, compliance demonstrations need not include TAPs that are regulated by an applicable new-source performance standard or national emission standard for hazardous air pollutant. DEQ has determined that all TAPs from ICEs are regulated by 40 CFR 60, Subpart IIII, "*Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*"; 40 CFR 60, Subpart JJJJ, "*Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*"; and 40 CFR 63 Subpart ZZZZ, "*National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*". Additionally, DEQ has determined that mercury, polycyclic organic matter (POM), arsenic, beryllium, cadmium, chromium, manganese, nickel, ethylene dioxide, polychlorinated biphenyls, acetaldehyde, acrolein, dioxins, formaldehyde, and benzene

emissions from boilers are regulated by 40 CFR 63 Subpart JJJJJJ, "*National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources*."

For applicable non-carcinogenic and carcinogenic TAPs, post-project emission rates were calculated and compared to screening ELs to determine whether they should be modeled. Emission rates were calculated assuming all existing boilers at the INL Site operate concurrently at the design-capacity fuel-consumption rates and the appropriate emission factors.

Calculation results contained in Table 8 of the submitted modeling report show that the proposed emissions or emission increases do not exceed non-carcinogenic screening ELs from IDAPA 58.01.01.585 or carcinogenic ELs from IDAPA 58.01.01.586. Therefore, no TAPs were modeled.

3.1.3 Emission Release Parameters

Table 7 lists the emission release parameters, including stack height, exhaust temperature, exhaust velocity, and stack diameter for the INL Site's emissions sources in metric units (English units are in parentheses). Emission point release parameters were based on information provided in the application. Justification for emission release parameters is summarized in the next section.

Table 7. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).

Release Point	Description	UTM[a] Easting-X in m[b]	UTM Northing-Y in m	Stack Height in m (ft)[c]	Stack Exhaust Temp. in K (°F)[d]	Stack Exhaust Velocity in m/sec (fps)[e]	Stack Diameter in m (ft)	Orient. Of Release[f]
Boilers								
AMWBOIA	AMWTP 12.55 MMBtu/hr boiler (propane)	335,280.00	4,817,969.00	15.4 (50.5)	450 (350)	9.4 (30.8)	0.56 (1.84)	D
AMWBOIB	AMWTP 12.55 MMBtu/hr boiler (propane)	335,280.00	4,817,969.00	15.4 (50.5)	450 (350)	9.4 (30.8)	0.56 (1.84)	D
AMWBOIC	AMWTP 12.55 MMBtu/hr boiler (propane)	335,280.00	4,817,969.00	15.4 (50.5)	450 (350)	9.4 (30.8)	0.56 (1.84)	D
CFBOI608	CFA 1.5 MMBtu/hr boiler (diesel)	342,456.00	4,821,112.00	10.5 (34.4)	436 (325)	0.001[g] (0.003)	0.31 (1.00)	R
CFBOI609	CFA 2.1 MMBtu/hr boiler (diesel)	342,471.00	4,821,114.00	7.9 (25.9)	436 (325)	0.001[g] (0.003)	0.25 (0.83)	R
INTBOI1	INTEC 36.4 MMBtu/hr boiler (diesel)	343,727.00	4,826,295.00	15.4 (50.5)	464 (376)	23.1 (75.8)	0.62 (2.03)	D
INTBOI2	INTEC 36.4 MMBtu/hr boiler (diesel)	343,737.00	4,826,295.00	15.4 (50.5)	464 (376)	23.1 (75.8)	0.62 (2.03)	D
INTBOI3	INTEC 36.4 MMBtu/hr boiler (diesel)	343,748.00	4,826,295.00	15.4 (50.5)	464 (376)	23.1 (75.8)	0.62 (2.03)	D
INTBOI4	INTEC 36.4 MMBtu/hr boiler (diesel)	343,756.00	4,826,295.00	15.4 (50.5)	464 (376)	23.1 (75.8)	0.62 (2.03)	D
NRFBOI4	NRF 29.3 MMBtu/hr boiler (diesel)	345,427.00	4,834,681.00	6.8 (22.3)	509 (457)	0.001[g] (0.003)	0.61 (2.00)	R

Table 7. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).								
Release Point	**Description**	**UTM[a] Easting-X in m[b]**	**UTM Northing-Y in m**	**Stack Height in m (ft)[c]**	**Stack Exhaust Temp. in K (°F)[d]**	**Stack Exhaust Velocity in m/sec (fps)[e]**	**Stack Diameter in m (ft)**	**Orient. Of Release[f]**
NRFBOI5	NRF 29.3 MMBtu/hr boiler (diesel)	345,438.00	4,834,667.00	6.8 (22.3)	509 (457)	0.001[g] (0.003)	0.61 (2.00)	R
SMCBOI67	SMC 25 MMBtu/hr boiler (diesel)	360,896.00	4,857,581.00	16.2 (53.1)	422 (300)	0.001[g] (0.003)	0.61 (2.00)	R
SMCBOI68	SMC 25 MMBtu/hr boiler (diesel)	360,894.00	4,857,577.00	16.2 (53.1)	422 (300)	0.001[g] (0.003)	0.61 (2.00)	R
Remediation Sources								
IWTUTMT	INTEC sodium distillation and treatment process emissions	344,111.00	4,826,077.00	36.6 (120.1)	398 (257)	18.0 (59.1)	1.52 (4.99)	D
CPP666	INTEC Integrated Waste Treatment Unit process emissions	343,721.00	4,826,050.00	48.8 (160.1)	297 (75)	10.8 (35.4)	1.65 (5.41)	D
FEC OV&G Component (Only One Modeled at a Time)								
AMWFEC[h]	AMWTP OV&G	335,280.00	4,817,969.00	15.4 (50.5)	450 (350)	9.4 (30.8)	0.56 (1.84)	D
ATRFEC[h]	ATR OV&G	341,579.00	4,828,097.00	5.0 (16.4)	366 (199)	5.0 (16.4)	0.31 (1.00)	D
CFAFEC[h]	CFA OV&G	342,456.00	4,821,112.00	10.5 (34.4)	436 (325)	0.001[g] (0.003)	0.31 (1.00)	R
INTFEC[h]	INTEC OV&G	343,727.00	4,826,295.00	15.4 (50.5)	464 (376)	23.1 (75.8)	0.62 (2.03)	D
MFCFEC[h]	MFC OV&G	366,235.00	4,828,352.00	5.0 (16.4)	366 (199)	5.0 (16.4)	0.31 (1.00)	D
NRFFEC[h]	NRF OV&G	345,438.00	4,834,667.00	6.8 (22.3)	509 (457)	0.001[g] (0.003)	0.61 (2.00)	D
SMCFEC[h]	SMC OV&G	360,894.00	4,857,577.00	16.2 (53.1)	422 (300)	0.001[g] (0.003)	0.61 (2.00)	R
Emergency Stationary ICE > 500 horsepower (hp)								
WMF734	AMWTP Caterpillar Model 3412, 745 hp	335,209.00	4,817,972.00	3.5 (11.5)	877 (1,119)	62.0 (203.4)	0.20 (0.67)	D
812001	AMWTP Cummins/Onan Model QSX15-G9, 755 hp	335,300.00	4,817,993.00	3.7 (12.0)	739 (871)	47.6 (156.2)	0.19 (0.62)	D
812002	AMWTP Cummins/Onan Model VTA-28-05, 900 hp	335,301.00	4,817,964.00	3.6 (11.7)	775 (935)	1.5 (4.9)	2.01 (6.59)	D
61910	ATR Detroit Diesel-Allison Model 71237300, 558 hp	341,600.00	4,828,095.00	6.4 (21.0)	716 (829)	61.7 (202.4)	0.19 (0.62)	D
670M42	ATR Enterprise, DSQ-38, 2118 hp	341,324.00	4,828,032.00	9.1 (30.0)	647 (705)	25.3 (83.0)	0.44 (1.44)	D

Table 7. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).								
Release Point	**Description**	**UTM[a] Easting-X in m[b]**	**UTM Northing-Y in m**	**Stack Height in m (ft)[c]**	**Stack Exhaust Temp. in K (°F)[d]**	**Stack Exhaust Velocity in m/sec (fps)[e]**	**Stack Diameter in m (ft)**	**Orient. Of Release[f]**
670M43	ATR Enterprise, DSQ-38, 2118 hp	341,319.00	4,828,032.00	9.1 (30.0)	647 (705)	25.3 (83.0)	0.44 (1.44)	D
674M6	ATR Caterpillar Model 3516, 2132 hp	341,321.00	4,828,039.00	3.4 (11.0)	763 (914)	0.001[g] (0.003)	0.001[i] (0.003)	H
786M1	ATR Caterpillar Model 3516B TA, 2593 hp	341,683.00	4,828,099.00	4.1 (13.5)	704 (808)	1.2 (4.1)	2.63 (8.63)	D
WCS002	INTEC Caterpillar Model 3516 Quad Turbo, 2304 hp	343,985.00	4,826,058.00	4.9 (16.0)	778 (941)	52.0 (170.6)	0.41 (1.33)	D
WCS004	INTEC Caterpillar Model 3516 Quad Turbo, 2304 hp	343,979.00	4,826,058.00	4.9 (16.0)	778 (941)	52.0 (170.6)	0.41 (1.33)	D
WCS006	INTEC Caterpillar Model 3516 Quad Turbo, 2304 hp	343,973.00	4,826,058.00	4.9 (16.0)	778 (941)	52.0 (170.6)	0.41 (1.33)	D
785017	MFC Waukesha Model EM200, 525 hp	366,301.00	4,828,336.00	9.1 (30.0)	811 (1,000)	27.9 (91.5)	0.25 (0.83)	D
768003	MFC Waukesha Model VLRPD, 741 hp	366,241.00	4,828,182.00	12.2 (40.0)	811 (1,000)	0.001[g] (0.003)	0.31 (1.00)	R
686016	NRF Caterpillar Model 3512, 1,445 hp	345,273.00	4,834,554.00	7.3 (24.0)	749 (889)	0.001[g] (0.003)	0.001[i] (0.003)	H
686017	NRF Caterpillar Model 3512, 1,445 hp	345,257.00	4,834,554.00	7.3 (24.0)	749 (889)	0.001[g] (0.003)	0.001[i] (0.003)	H
686018	NRF Caterpillar Model 3512, 1,445 hp	345,257.00	4,834,552.00	7.6 (25.0)	749 (889)	0.001[g] (0.003)	0.001[i] (0.003)	H
686019	NRF Caterpillar Model 3512, 1,445 hp	345,273.00	4,834,552.00	7.6 (25.0)	749 (889)	0.001[g] (0.003)	0.001[i] (0.003)	H
675010	SMC Caterpillar Model 3408, 598 hp	361,018.00	4,857,558.00	4.9 (16.0)	794 (970)	0.001[g] (0.003)	0.001[i] (0.003)	H
679012	SMC Caterpillar Model 3412, 890 hp	360,901.00	4,857,565.00	4.0 (13.0)	789 (961)	0.001[g] (0.003)	0.001[i] (0.003)	H
HP960[j]	SMC Generac Model MD1000GEM, 1514 hp	360,873.00	4,857,660.00	4.1 (13.3)	751 (892)	56.8 (186.4)	0.29 (0.94)	D

a. Universal Transverse Mercator.
b. m: meters.
c. ft: feet.

Table 7. POINT SOURCE EMISSION RELEASE PARAMETERS IN METRIC UNITS (ENGLISH UNITS IN PARENTHESES).								
Release Point	**Description**	**UTM[a] Easting-X in m[b]**	**UTM Northing-Y in m**	**Stack Height in m (ft)[c]**	**Stack Exhaust Temp. in K (°F)[d]**	**Stack Exhaust Velocity in m/sec (fps)[e]**	**Stack Diameter in m (ft)**	**Orient. Of Release[f]**

d. K: Kelvin; °F: degrees Fahrenheit.
e. m/sec: meters per second; fps: feet per second.
f. Orientation of release: D (default, vertical, uninterrupted release); H (horizontal release); R (rain-capped release).
g. Exit velocity for horizontal stacks or stacks with rain caps set to 0.001 m/sec in AERMOD per DEQ modeling guidelines.
h. Sources named ***FEC are hypothetical sources for OV&G emissions.
i. Diameter for horizontal stacks set to 0.001 meters in AERMOD to prevent stack tip downwash effects per DEQ modeling guidelines.
j. New IC engine added since original permit.

For the OV&G emission sources listed in Table 7 (Release Point ID = ***FEC), emissions were assumed to be released from an existing boiler stack at facilities with a boiler (AMWTP, CFA, INTEC, NRF, and SMC). For facilities without a boiler (ATR and MFC), emissions were assumed to be released from a hypothetical stack at a location near an existing non-boiler source. The hypothetical stack was assigned generic conservative stack parameters based on an evaluation of actual stack parameters. OV&G emissions were assumed to be from a stack because any future emission sources constructed at the INL Site are likely to be a boiler or a process unit and would likely require a stack of some kind.

The CFA facility has two boilers with stack heights of 10.5 meters (CFBOI608) and 7.9 meters (CFBOI609). However, CFAFEC was modeled using the taller (less conservative) stack height (10.5 meters). Modeling results described later in Section 4.1.2 show that the greatest impact of adding the OV&G increase occurred when it was released at CFA. To investigate the effect of a shorter (more conservative) stack height on modeled DVs, DEQ performed a sensitivity analysis where the stack height for CFAFEC was reduced to 7.9 meters. Results demonstrate exceedance of the 1-hour SO_2 NAAQS. More details are provided in Section 4.1.3 of this memorandum.

3.1.4 Emission Release Parameter Justification

Stack parameters used in the submitted modeling analyses were based on the Statement of Basis Modeling Memo dated 01-12-2018. These values were generally based on source tests and engine certifications. Documents and references for these derivations are provided in the appendices to the report submitted with the current application. DEQ determined that all modeled exhaust parameters were adequately documented and justified.

Boilers

Model IDs: AMWBOIA, AMWBOIB, and AMWBOIC

The three propane-fired boilers at the AMWTP facility are rated at 12.55 MMBtu/hr. The listed manufacturer is Seller Eng. All three boilers were modeled to run continuously. Modeled exit temperature (350°F), stack diameter (1.84 feet), and exit velocity (30.8 feet per second [fps]) were based on boiler manufacturer sheets. Modeled stack height (50.5 feet) was based on actual height. All three boilers were modeled with vertical, uninterrupted release.

Model IDs: CFBOI608 and CFBOI609

The two diesel-fired boilers at the CFA facility are rated at 1.5 MMBtu/hr (CFBOI608) and 2.1 MMBtu/hr (CFBOI609). The listed manufacturer is Cleaver Brooks. Both boilers were modeled to run continuously. Modeled exhaust temperature (325°F) was the lowest measured temperature listed on the CFA Winter Operations Daily Surveillance Sheet dated 01-31-2012 and 10-31-2012. Modeled stack diameters (1.0 foot for CFBOI608 and 10 inches for CFBOI609) and stack heights (34.4 feet for CFBOI608 and 25.9 feet for CFBOI609) were based on construction drawings. Both boilers were modeled with horizontal exhaust. Exit velocity was set to 0.001 m/sec per DEQ modeling guidelines for horizontal stacks.

Model IDs: INTBOI1, INTBOI2, INTBOI3, and INTBOI4

The four diesel-fired boilers at the INTEC facility are rated at 36.4 MMBtu/hr. The listed manufacturer is Cleaver Brooks. All four boilers were modeled to run continuously. Modeled exit temperature (376°F), stack diameter (2.03 feet), and exit velocity (75.8 fps) were based on boiler manufacturer sheets. Modeled stack height (50.5 feet) was based on actual height. All four boilers were modeled with vertical, uninterrupted release.

Model IDs: NRFBOI4 and NRFBOI5

The two diesel-fired boilers at the NRF facility are rated at 29.3 MMBtu/hr. The listed manufacturer is Cleaver Brooks. Both boilers were modeled to run continuously. Modeled exhaust temperature (457°F at 100% load) and stack diameter (2.0 feet) were based on boiler manufacturer sheets. Modeled stack height (22.3 feet) was based on actual height. Both boilers were modeled to exhaust with a raincap. Exit velocity was set to 0.001 m/sec.

Model IDs: SMCBOI67 and SMCBOI68

The two diesel-fired boilers at the SMC facility are rated at 25 MMBtu/hr. The listed manufacturer is Cleaver Brooks. Both boilers were modeled to run continuously. Modeled exhaust temperature (300°F) was based on actual measurements recorded on a daily basis. Stack diameter was conservatively modeled at 2.0 feet. Modeled stack height (53.1 feet) was based on actual measurements. Both boilers were modeled to exhaust with a raincap. Exit velocity was set to 0.001 m/sec.

Remediation Sources

Model IDs: IWTUTMT

Remediation source IWTUTMT (for Integrated Waste Treatment Unit process emissions) was modeled to run continuously. Modeled stack diameter (5.0 feet) was based on engineer's drawings. Modeled temperature (257°F) and exit velocity (59.1 fps) were based on measurements obtained during off-gas sampling during IWTU simulant test runs. Stack height was modeled at 120.1 feet based on actual measurements. It was modeled with vertical, uninterrupted release.

Model IDs: CPP666

Remediation source CPP666 (for sodium distillation and treatment process emissions) was modeled to run continuously. Modeled stack diameter (5.4 feet) and stack height (160 feet) were based on the Quality Assurance Project Plan for the Radiological Emissions Sampling System. Modeled exit temperature (75°F) and exit velocity (35.4 fps) were based on actual stack measurements performed in 2014. It was modeled with vertical, uninterrupted release.

Emergency Stationary Internal Combustion Engines

Model IDs: WMF734, 812001, and 812002

There are three emergency stationary ICEs at the AMWTP facility.

The listed manufacturer for WMF734 is Caterpillar. It was modeled with a stack diameter of 8 inches and a stack height of 11.5 feet based on actual measurements (photos of engine WMF734 were submitted as an appendix to the modeling report). Modeled exit temperature (1,119°F) and exhaust gas flow (from which exit velocity was calculated [203.4 fps]) were based on manufacturer's data sheet for 100% load. The modeled temperature and exit velocity for WMF734 are higher than typical values for ICEs; however, modeling results show that engines at the AMWTP facility are not critical for NAAQS compliance, hence the exhaust parameters for WMF734 are reasonably adequate. It was modeled with vertical, uninterrupted release.

The listed manufacturer for engine 812001 is Cummins/Onan. Modeled exit temperature (871°F) and exhaust gas flow (from which exit velocity was calculated [156.2 fps]) was based on manufacturer's data sheets. Modeled stack height (12.0 feet) and stack diameter (7.5 inches) were based on engineer's drawings. Engine 812001 was modeled with vertical, uninterrupted release.

The listed manufacturer for engine 812002 is Cummins/Onan. Modeled exit temperature (935°F) and exhaust gas flow (from which exit velocity was calculated [4.9 fps]) was based on manufacturer's data sheets. Modeled stack height (11.7 feet) and stack diameter (6.6 feet) were based on actual measurements (photos of engine 812002 were submitted as an appendix to the modeling report). Engine 812002 was modeled with vertical, uninterrupted release.

Model IDs: 61910, 670M42, 670M43, 674M6, and 786M1

There are five emergency stationary ICEs at the ATR Complex.

The listed manufacturer for engine 61910 is Detroit Diesel-Allison. Photos of engine 61910 were submitted as an appendix to the modeling report. The photos show that engine 61910 has dual exhaust stacks but it was modeled by the applicant as a single stack. An equivalent stack diameter (0.62 feet) was calculated from the single-stack diameters. Modeled exit temperature (829°F) and exhaust gas flow (from which exit velocity was calculated [202.4 fps]) were based on vendor data. The modeled exit velocity is higher than typical values for ICEs; however, modeling results show that engines at the ATR Complex are not critical for NAAQS compliance, hence the exhaust parameters for engine 61910 are reasonably adequate. Stack height (21.0 feet) was based on actual measurements.

The listed manufacturer for engines 670M42 and 670M43 is Enterprise. Photos of both engine stacks were submitted with the application. Modeled stack height (30.0 feet) and stack diameter (1.44 feet) were based on actual measurements. Modeled exit temperature (705°F) and exhaust gas flow (from which exit velocity was calculated [83.0 fps]) were based on vendor data.

The listed manufacturer for engine 674M6 is Caterpillar. A photo of the engine stack was submitted with the application. Modeled stack height (11.0 feet) was based on actual measurements. Modeled exit temperature (914°F) was based on vendor data. Engine 674M6 was modeled as a horizontal exhaust. Exit velocity was set to 0.001 m/sec and exit diameter was set to 0.001 meters to prevent stack tip downwash effects.

The listed manufacturer for engine 786M1 is Caterpillar. Photos of the engine stack were submitted with the application. Modeled stack height (13.5 feet) was based on actual measurements. An equivalent exit diameter (8.63 feet) was calculated from dimensions of the roof vent. Modeled exit temperature (808°F) and exhaust gas flow (from which exit velocity was calculated [4.1 fps]) were based on vendor data.

Model IDs: WCS002, WCS004, and WCS006

There are three emergency stationary ICEs at the INTEC facility. The listed manufacturer for all three engines is Caterpillar. A photo of one of the engine stacks was submitted with the application. Modeled stack height (16.0 feet) and stack diameter (1.33 feet) were based on actual measurements. Modeled exit temperature (941°F) and exhaust gas flow (from which exit velocity was calculated [170.6 fps]) were based on vendor data. All three engines were modeled with vertical, uninterrupted release.

Model IDs: 785017 and 768003

There are two emergency stationary ICEs at the MFC facility. The listed manufacturer for both engines is Waukesha. No vendor data were submitted with the modeling report. However, an e-mail from John Gill of INL dated 08-24-2015 confirms that modeled stack heights (30.0 feet for engine 785017; 40.0 feet for engine 768003) and stack diameters (0.83 feet for engine 785017; 1.0 foot for engine 768003) were gathered in the field. Modeled exhaust temperature (1,000°F for both engines) and exhaust gas flow (from which exit velocity was calculated [91.5 fps for engine 785017]) were based on information from other diesel engines. Engine 768003 was modeled as a horizontal exhaust, hence the exit velocity was set to 0.001 m/sec to prevent stack tip downwash effects. Engine 785017 was modeled with vertical, uninterrupted release.

Model IDs: 686016, 686017, 686018, and 686019

There are four emergency stationary ICEs at the NRF facility. The listed manufacturer for all four engines is Caterpillar. Modeled stack height (24.0 feet for engines 686016 and 686017; 25.0 feet for engines 686018 and 686019) was based on actual measurements. Modeled exit temperature (889°F) was based on vendor data. All four engines were modeled as horizontal exhaust. Exit velocity was set to 0.001 m/sec and exit diameter was set to 0.001 meters to prevent stack tip downwash effects.

Model IDs: 675010, 679012, and HP960

There are three emergency stationary ICEs at the SMC facility.

The listed manufacturer for engines 675010 and 679012 is Caterpillar. Modeled stack height (16.0 feet for engine 675010; 13.0 feet for engine 679012) was based on actual measurements. Modeled exit temperature (970°F for engine 675010; 961°F for engine 679012) was based on vendor data. Both engines were modeled as horizontal exhaust. Exit velocity was set to 0.001 m/sec and exit diameter was set to 0.001 meters to prevent stack tip downwash effects.

HP960 is a new engine. The listed manufacturer is Generac. It was modeled with a stack height of 13.3 feet. Modeled exit temperature (892°F), stack diameter (0.94 feet), and exhaust gas flow (from which exit velocity was calculated [186.4 fps]) were based on vendor data.

Operational Variability and Growth Components

Model IDs: AMWFEC, ATRFEC, CFAFEC, INTFEC, MFCFEC, NRFFEC, and SMCFEC

For the OV&G emission sources, emissions were assumed to be released from an existing boiler stack at facilities with a boiler (AMWTP, CFA, INTEC, NRF, and SMC). For facilities without a boiler (ATR and MFC), emissions were assumed to be released from a hypothetical stack at a location near an existing non-boiler source. The hypothetical stack was assigned generic conservative stack parameters based on an evaluation of actual stack parameters. OV&G emissions were assumed to be from a stack because any future emission sources constructed at the INL Site are likely to be a boiler or a process unit and would likely require a stack of some kind. All emission sources were modeled with vertical, uninterrupted release.

AMWFEC, CFAFEC, INTFEC, NRFFEC, and SMCFEC were modeled with the same exhaust parameters as boilers AMBOIA, CFBOI608, INTBOI1, NRBOI5, and SMCBOI68, respectively.

To determine the exhaust parameters for ATRFEC and MFCFEC, the applicant calculated the minimum, maximum, and average stack parameters included in the baseline emissions for the 35 modeled stack sources (results are listed in Table 16 of the submitted modeling report). The stack height of 16.4 feet is less than one-half the average stack height of all stacks considered. The exit velocity of 16.4 fps is 5 times less than the average velocity, and the assumed release temperature of 199°F is nearly one-half the average exit temperature and is relatively cool for any type of combustion source. Both sources were modeled with a stack diameter of 1.0 foot.

3.2 Background Concentrations

The background concentrations for all modeled pollutants were obtained from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST; https://arcg.is/1jXmHH) online tool. These background air pollutant levels are based on regional-scale air pollution modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data.

Design values from 143 points on or inside the INL Site boundary (see Figure 3) were used to estimate average background concentrations on the INL Site. Table 8 shows the minimum, maximum, average and standard deviation for the 143 locations. The relatively small standard deviation indicates very little variation across the 143 locations. For the cumulative impact analysis, the average background concentrations in Table 8 were added to maximum modeled concentrations for comparison to NAAQS.

Figure 3. MAP SHOWING GRID LOCATIONS WHERE BACKGROUND CONCENTRATIONS FOR THE IDAHO NATIONAL LABORATORY WERE ESTIMATED USING THE NW AIRQUEST TOOL.

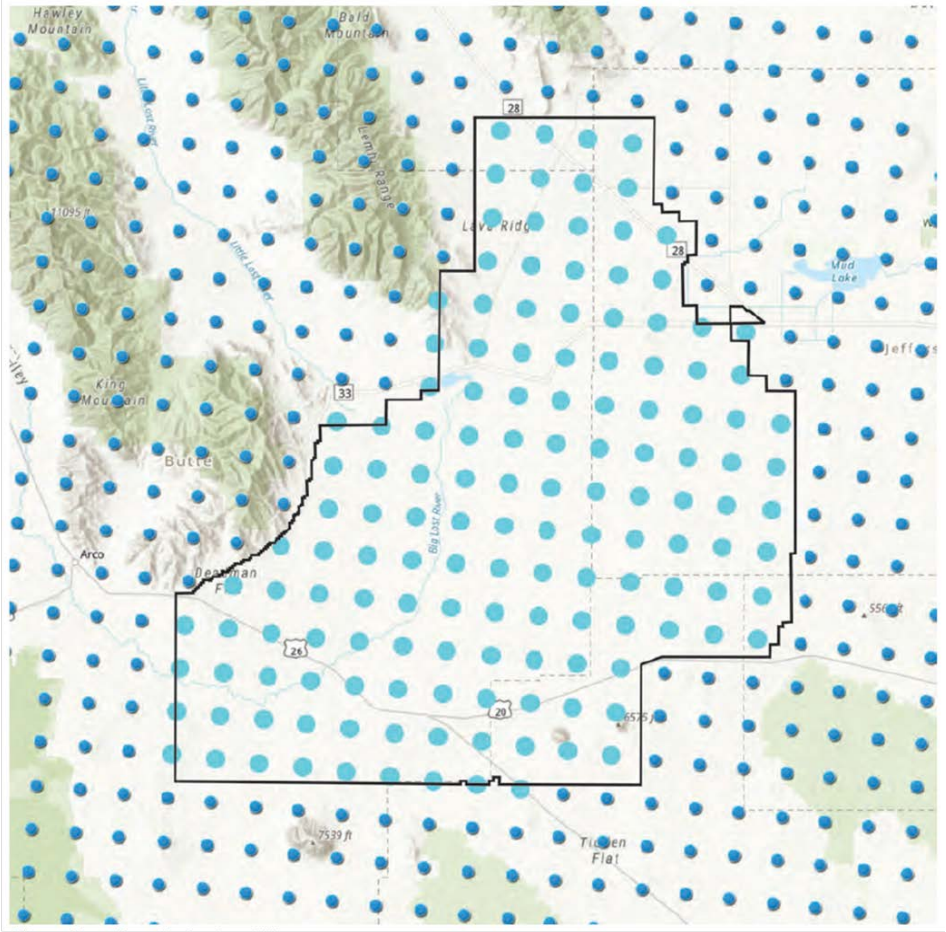


Figure from the submitted modeling report.

Table 8. BACKGROUND CONCENTRATION DATA FOR THE 143 POINTS ON OR INSIDE THE IDAHO NATIONAL LABORATORY BOUNDARY.

Pollutant	Averaging Period	Minimum Concentration ($\mu g/m^3$)	Maximum Concentration ($\mu g/m^3$)	Average Background Concentration ($\mu g/m^3$)	Standard Deviation ($\mu g/m^3$)
PM_{10} [a]	24-hour	71	81	77	2.9
$PM_{2.5}$ [b]	24-hour	10.1	12.9	11.2	0.5
	Annual	2.9	4.1	3.3	0.2
Sulfur Dioxide (SO_2)	1-hour	12.1	12.6	12.3	0.07
	3-hour	16.8	17.0	16.8	0.02
Nitrogen Oxides (NOx)	1-hour	2.6	20.3	6.2	2.1
	Annual	0.6	3.6	1.2	0.4
Carbon Monoxide (CO)	1-hour	2,015	2,084	2,043	16.2
	8-hour	1,122	1,156	1,130	8.4

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

3.3 Impact Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate preconstruction compliance with applicable air quality standards.

3.3.1 General Overview of Impact Analyses

INL performed the project-specific air pollutant emission inventory and air impact analyses that were submitted with the application. The submitted information/analyses, in combination with results from DEQ's air impact analyses, demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 9 provides a brief description of parameters used in the modeling analyses.

Table 9. MODELING PARAMETERS.

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Southeast Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 19191.
Meteorological Data	GRID3 onsite data; Idaho Falls surface data; Boise upper air data	The meteorological model input files for this project were developed by DEQ. The data were processed using the latest version of AERMET (version 19191) and the "ADJ_U*" option. See Section 3.3.5 of this memorandum for additional details of the meteorological data.
Terrain	Considered	1/3 arc second National Elevation Dataset (NED) was acquired from the USGS for the surrounding area. See Section 3.3.6 for more details.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD. See Section 3.3.7 for more details.
NOx Chemistry	Tier 1	NOx chemistry was not considered in the modeling. See Section 3.3.8 for more details.
Receptor Grid	**SIL Analysis** A SIL analysis was not conducted for the project.	
	Cumulative NAAQS Impact Analysis The selection of receptors for use in the cumulative NAAQS impact analysis is as follows (see Section 3.3.11 for more details):	
	Grid 1	500-meter spacing around the INL Site boundary and along highways that transect the INL Site.
	Grid 2	100-meter spacing near facilities where concentrations may be higher (i.e. along Highway 20/26 between AMWTP and CFA, from Highway 20 to the MFC guard gate, and along Highway 33 near the entrance to SMC); a 20-meter grid spacing was required by DEQ to demonstrate compliance with the 1-hour SO_2 NAAQS.
	TAPs Analysis No TAPs were modeled for the project.	

3.3.2 Modeling Protocol

A conference call was held on October 16, 2019 to discuss air dispersion modeling requirements for the revised permit application. During the call, DEQ agreed that a revised modeling protocol would not be required as long as the modeling for the revised permit was performed consistent with the approved modeling protocol for the original permit subject to the following conditions:

- The modeling must be performed with the most recent version of AERMOD.

- The same meteorological data may be used so long as it is processed with the most recent version of AERMET.
- All deviations from the original modeling protocol must be highlighted in the revised modeling report.

All of these conditions were satisfied by INL. Modeling was performed with the most recent version of AERMOD (Version 19191). Updated model-ready meteorological data files provided by DEQ were used. These were not the same meteorological data files used for the original permit, but DEQ asked that they be used after the conference call on October 16, 2019. A list of all deviations from the original protocol and modeling performed for the revised permit request is provided below:

1. Modeling was performed with the most recent version of AERMOD (Version 19191).
2. Modeling was performed with meteorological data for the 5-year period 2013–2017, processed with AERMET Version 19191. Model-ready meteorological data files were provided by DEQ.
3. Criteria pollutant baseline actual emissions (BAEs) for all sources and projected actual emissions (PAEs) for IWTU operations were modified.
4. The PTE for NRF boilers was modified due to older boilers being replaced with newer more efficient boilers since the original permit was issued.
5. Non-road mobile equipment sources at TSA-RE, WMF-1617, and WMF-1621 were no longer included (letter from Dan Pitman of DEQ to Mark Verdoorn of INL, dated 02-24-2020).
6. The 2 MMBtu/hr boiler at the AMWTP facility included in the original permit has been replaced with a 0.5 MMBtu/hr propane boiler. The replacement boiler is not significant according to IDAPA 58.01.01.317(b)i(5) and is not included in the BAEs or the PTE CAP modeling.
7. A 1,514 hp ICE was put into service since the original permit was issued and this ICE is included in the BAE calculation and the PTE criteria pollutant modeling. Several other ICE additions/removals have occurred since the original application, but these are all <500 hp and were not included.
8. A new random run schedule for emergency stationary ICEs was employed. The new schedule was necessary due to the use of more recent meteorological data files provided by DEQ. The run schedule was generated by DEQ modeling staff based on the same testing frequency and duration information employed for the original modeling.
9. Average background concentrations for criteria pollutants were calculated using the updated NW AIRQUEST lookup tool.
10. Modeling was performed with increased FEC limits for SO_2, CO, PM_{10}, and $PM_{2.5}$. The FEC limit for NOx did not change. The requested limits for both the original and the revised permit are summarized in Table 10.

Table 10. CRITERIA POLLUTANT FEC LIMITS (TONS PER YEAR) FOR THE ORIGINAL PERMIT AND THE PERMIT REVISION.

	Sulfur dioxide	Nitrogen oxides	Carbon monoxide	PM_{10}[a] and $PM_{2.5}$[b]
Original Permit FEC Limit	16.9	95	17.6	5.6
Permit Revision Requested FEC Limit	70	95	90	85

a. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

11. Modeled design values for each criteria pollutant and averaging period were added to background concentrations for comparison to NAAQS. The original permit used the most-conservative model value (1st highest maximum) for all comparisons except 1-hour SO_2 and nitrogen dioxide (NO_2)

which used the 4th highest maximum and 8th highest maximum values, respectively. The 4th highest maximum 1-hour SO_2 and the 8th highest maximum 1-hour NO_2 model concentrations used in the original permit were still greater than the modeled design values.

3.3.3 Modeling Methodology

Project-specific modeling and other required impact analyses were generally conducted using data and methods described in the *Idaho Air Quality Modeling Guideline*.[2]

3.3.4 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in Appendix W. The refined, steady-state, multiple-source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight-line trajectory of ISCST3, but it includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

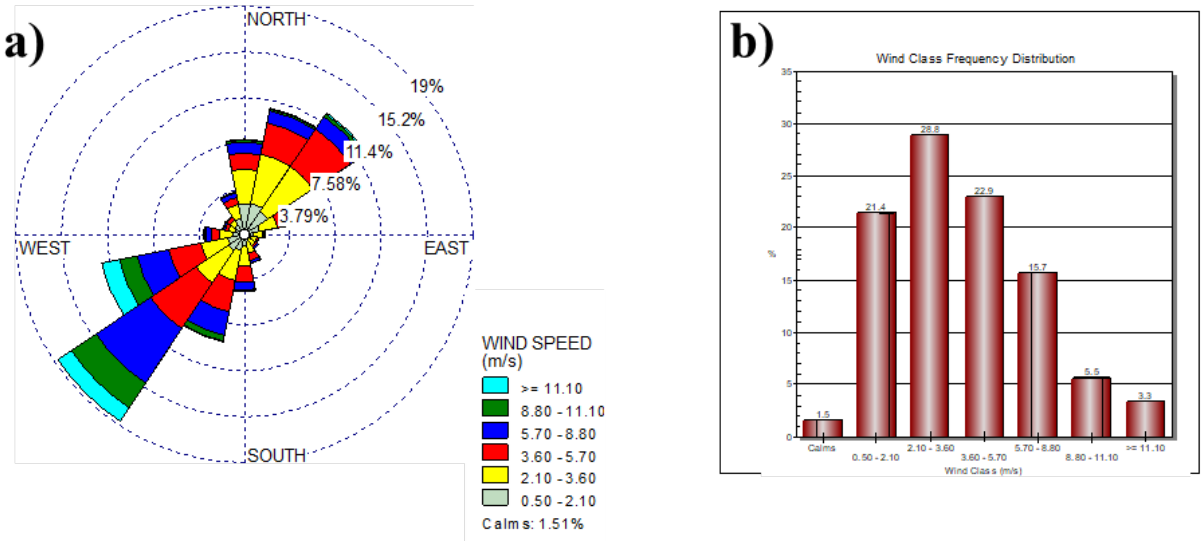
AERMOD version 19191 was used by INL for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.5 Meteorological Data

DEQ processed a meteorological dataset from the GRID3 Mesowest monitor site located within the INL Site west of Idaho Falls, Idaho covering the years 2013-2017. Onsite meteorological data were downloaded from the Mesowest website (https://mesowest.utah.edu). The upper air soundings required by AERMET were obtained from the Boise airport station (site ID 24131). Surface data were obtained from the Idaho Falls station (KIDA, station ID 725785-24145). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on thirty years of Idaho Falls airport precipitation data. Conditions were determined to be “wet” for 2014 and 2015, “dry” for 2016 and 2017, and “average” for 2013. Average moisture content is defined as within a 30 percentile of the 30-year mean of 15.5 inches.

Figure 4 shows a wind rose and wind speed histogram at the Idaho Falls airport. On average, winds are dominated by southwesterlies. The average wind speed of the data for the period from 2013-2017 is 4.3 meter/second, and the percent calm distribution is 1.51%. Missing data accounts for less than 1% of the data period.

Figure 4. (a) WIND ROSE AND (b) WIND SPEED HISTOGRAM AT THE IDAHO FALLS AIRPORT IN IDAHO (2013-2017).

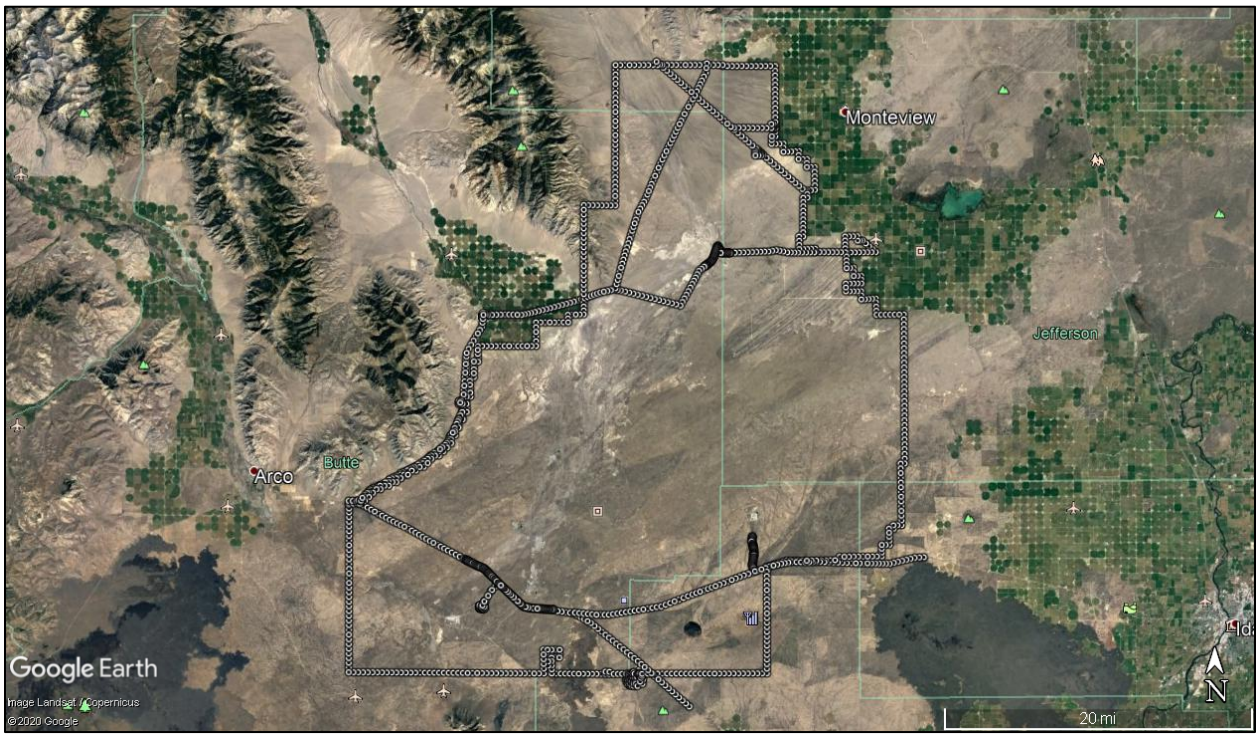


AERMINUTE version 15271 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 19191 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. The modeling analyses used the met data set processed with the U* option.

3.3.6 Effects of Terrain on Modeled Impacts

Terrain data in AERMOD were processed using the AERMAP preprocessor. The processed data consists of terrain elevation and hill heights for each defined receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emission plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain. These data were generated by DEQ modeling staff for the original modeling analysis using AERMAP and provided to INL for the 1,352 receptor locations. Receptor locations are defined in UTM coordinates (Zone 12) based on datum North American Datum (NAD) 83. The terrain data were extracted from 1 arc-second seamless National Elevation Database files covering the area between -112.005 and -113.644 degrees longitude and 42.967 and 44.287 degrees north latitude. All coordinates and elevations are in meters. The provided file was a text file written in AERMOD format and was used in each AERMOD input file. Figure 5 depicts the full receptor grid used in the analyses, overlaid on a terrain image from Google Earth.

Figure 5. THE FULL RECEPTOR GRID USED IN IDAHO NATIONAL LABORATORY'S MODELING ANALYSES.



3.3.7 Facility Layout and Downwash

DEQ verified proper identification of the site location, equipment locations, and the ambient air boundary by comparing a graphical representation of the modeling input file to plot plans submitted in the application. Aerial photographs on Google Earth (available at https://www.google.com/earth) were also used to assure that horizontal coordinates were accurate as described in the application.

Potential downwash effects on emission plumes were accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME version 04274) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD.

3.3.8 NOx Chemistry

The atmospheric chemistry of NO, NO_2, and O_3 complicates accurate prediction of NO_2 impacts resulting from NOx emissions. The conversion of NO to NO_2 can be conservatively addressed through the use of several methods as outlined in a *2014 EPA NO_2 Modeling Clarification Memorandum*.[3] The guidance outlines a three-tiered approach:

- Tier 1 – assume full conversion of NO to NO_2 where total NOx emissions are modeled and modeled impacts are assumed to be 100 percent NO_2.

- Tier 2 – use an ambient ratio to adjust impacts from the Tier 1 analysis.

- Tier 3 – use a detailed screening method to account for $NO/NO_2/O_3$ chemistry such as the Ozone Limiting Method (OLM) or the Plume Volume Molar Ratio Method (PVMRM).

A Tier 1 screening method was used in INL's modeling analysis. This means that NOx chemistry was not considered. The results conservatively assume 100% of the NOx concentrations convert to NO_2.

3.3.9 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." DOE-ID controls all activities within the INL Site boundary. The Site has no permanent residents, and ingress and egress of Site personnel and visiting personnel are strictly controlled. No casual visits are permitted, except for persons driving through the INL Site on one of five public highways (20, 22, 26, 28, and 33) and visitors to Experimental Breeder Reactor-I (EBR-I), a national historic monument, which is open during the summer months. Security forces may interrupt traffic on INL roads or public roads that transect the INL Site during emergencies and other times to support operations of the Laboratory.

For the purposes of this assessment, ambient air on the INL Site is defined by areas occupied by the public highways, short roads up to the entry gates at each facility, and the area around EBR-I. Ambient air off the INL Site is any area outside the INL Site boundary. The same ambient air boundary was used by the applicant and approved by DEQ in the original modeling analyses.

DEQ determined that the INL Site is adequately able to preclude public access to areas excluded from the air impact assessment.

3.3.10 Nearby Co-Contributing Sources

If impacts of neighboring emission sources on receptors showing a significant impact from the sources subject to the permitting action are not adequately accounted for by the background concentration used, then emissions from those sources must be modeled. No nearby co-contributing sources were identified by the applicant. DEQ concurs that there are no nearby sources not accounted for by the background concentrations that must be included as co-contributing sources to INL's cumulative NAAQS impact analysis.

3.3.11 Receptor Network

Receptor locations defined in UTM coordinates based on datum NAD83 were provided by DEQ modeling staff for the original permit. This was a text file written in AERMOD format and was used directly in each AERMOD input file. The 1,352 receptor locations shown in Figure 5 are spaced approximately every 500 meters around the INL Site boundary and along highways that transect the INL Site. Finer spacing (~100 meters) was used near facilities where concentrations may be higher (i.e. along Highway 20/26 between AMWTP and CFA, from Highway 20 to the MFC guard gate, and along Highway 33 near the entrance to SMC. Finer spacing was also used in gridded areas around EBR-I (~40 m) and Atomic City (~200 meters). All receptors were considered for each pollutant and averaging period for determining maximum impacts.

Because the total (modeled + background) impact for 1-hour SO_2 was very close to NAAQS (98.6% of NAAQS), DEQ required that a tighter receptor network (20-meter spacing) be used for the portion of

ambient air near the CFA facility. This was performed to demonstrate that the pollutant-specific receptor grid is adequately able to resolve the maximum modeled concentration and confidently demonstrate compliance with the 1-hour SO_2 NAAQS. A total of eight additional receptors were included in the 1-hour SO_2 modeling. DEQ determined that the receptor grid used in the modeling analyses was adequate to resolve maximum modeled impacts.

The receptor grid used in the submitted modeling analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2], and DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

3.3.12 Good Engineering Practice Stack Height

An allowable good engineering practice (GEP) stack height may be established using the following equation in accordance with Idaho Air Rules Section 512.03.b:

H = S + 1.5L, where:

H = good engineering practice stack height measured from the ground-level elevation at the base of the stack.

S = height of the nearby structure(s) measured from the ground-level elevation at the base of the stack.

L = lesser dimension, height or projected width, of the nearby structure.

Sources from the INL Site are below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

4.1.1 Significant Impact Level Analysis

A SIL analysis was not conducted for the project.

4.1.2 Cumulative NAAQS Impact Analysis

Table 11 presents the maximum modeled concentrations based on design-capacity emissions, and the maximum modeled concentrations based on design-capacity plus OV&G emissions. For each pollutant and averaging period, the maximum modeled concentration based on design-capacity plus OV&G emissions was added to the average background concentration to estimate the total ambient impact which was compared to the NAAQS. Ambient impacts for the facility, when combined with ambient backgrounds, were below the NAAQS at all receptors for all modeled criteria pollutants.

Table 11. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSIS.								
Pollutant	**Averaging Period**	**Modeled Design Value Conc. Based on Design Capacity ($\mu g/m^3$)[a]**	**Modeled Design Value Conc. Based on Design Capacity + OV&G Increase ($\mu g/m^3$)[a]**	**Facility Where Adding OV&G Increase Resulted in Maximum Conc.**	**Average Background Conc. ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**	**Percent of NAAQS**
PM_{10}[b,c]	24-hour	0.29	33	CFA	77	110	150	73.3%
$PM_{2.5}$[c,d]	24-hour	0.17	19	CFA	11.2	30.2	35	86.3%
	Annual	0.03	3.0	CFA	3.3	6.3	12	52.5%
SO_2[e]	1-hour	0.9	181	CFA	12.3	193.3	196	98.6%
	3-hour	0.54	150	CFA	16.8	166.8	1,300	12.8%
NOx[f]	1-hour[g]	18.9	58	CFA	6.2	64.2	188	34.1%
	Annual	0.39	1.2	CFA	1.2	2.4	100	2.4%
CO[h]	1-hour	9.6	287	CFA	2,043	2,330	40,000	5.8%
	8-hour	2.3	107	CFA	1,130	1,237	10,000	12.4%

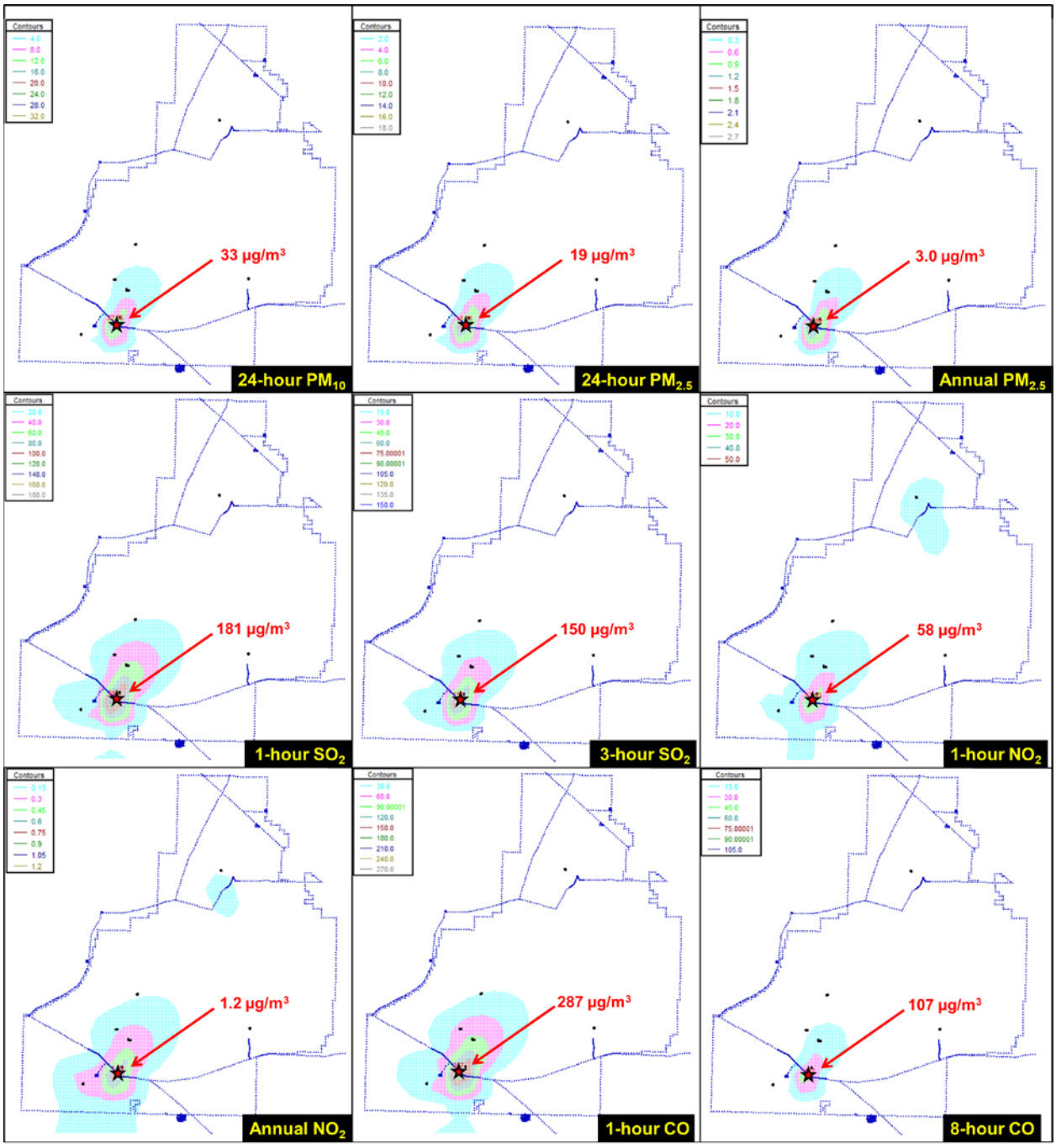
a. Micrograms per cubic meter.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
c. PM_{10} and $PM_{2.5}$ emissions include total PM and condensable PM.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
e. Sulfur dioxide.
f. Nitrogen oxides.
g. 1-hour NO_2 results do not include emergency stationary ICEs.
h. Carbon monoxide.

The modeling results show that all predicted criteria pollutant impacts are less than applicable standards and will not cause a NAAQS violation. The highest pollutant concentration (as a percent of the NAAQS) is the 1-hour SO_2 (98.6% of the standard). The next highest are the 24-hour $PM_{2.5}$ and 24-hour PM_{10} concentrations (86.3% and 73.3%, respectively). However, the $PM_{2.5}$ and PM_{10} concentrations are inflated because the emissions include total PM plus condensable PM.

Because the maximum 1-hour SO_2 concentration was 98.6% of the NAAQS, DEQ required that additional receptors around the location of maximum concentration be modeled to ensure that the maximum concentration was captured by the modeling. This additional receptor network was adequate to resolve maximum modeled impacts listed in Table 11. The driver of SO_2 emissions are the OV&G sources. Therefore, additional modeling may be required after construction because the existing modeling does not represent the actual sources realistically. Modeling analyses must be revised if any future changes result in a substantial change in release characteristics from what was used in the model.

The greatest impact of adding the OV&G increase occurred when it was released at CFA. This is the result of CFA being closer to receptors (< 1.3 kilometers from Highway 20/26) than other facilities. The next highest concentrations occurred when the OV&G emission increase was placed at MFC or SMC depending on the criteria pollutant and averaging period. Modeled design values are illustrated in Figure 6. Locations of maximum impacts are indicated by the red star. The figure shows that all receptors are below NAAQS and that high concentrations are limited to a small area close to the CFA facility.

Figure 6. MODELED DESIGN VALUES IN µg/m^3 FOR CUMULATIVE NAAQS IMPACT ANALYSIS.



4.1.3 DEQ's Sensitivity Analysis for a Shorter CFAFEC Stack Height

In the modeling demonstration, OV&G emissions were assumed to be released from an existing boiler stack at facilities with a boiler (or from a hypothetical stack at a location near an existing non-boiler source for facilities without a boiler). As mentioned in the previous section, the greatest impact of adding the OV&G increase occurred when it was released at the CFA facility. Emission unit CFAFEC was

modeled with a stack height of 10.5 meters. This value was based on one of two boilers at the CFA facility which had stack heights of 10.5 meters and 7.9 meters. The modeling demonstration in the submitted analyses used the taller (less conservative) stack height. To investigate the impact of a shorter (more conservative) stack height on modeled 1-hour SO_2 design values, DEQ performed a sensitivity analysis where stack height for CFAFEC was reduced from 10.5 to 8 meters in 0.5-meter decrements, while keeping all other modeling parameters constant. Total impacts (modeled DV + background) for 1-hour SO_2 modeling are illustrated in Figure 7.

Figure 7. EFFECT OF A SHORTER CFAFEC STACK HEIGHT ON 1-HOUR SO_2 MODELED DESIGN VALUES + BACKGROUND CONCENTRATIONS.

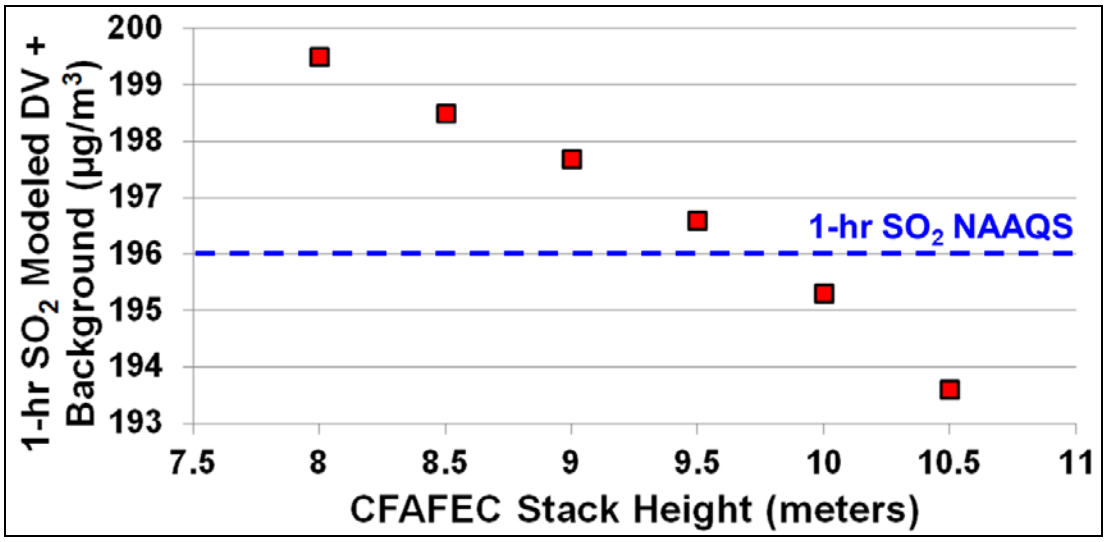


Figure 7 shows that the 1-hour SO_2 NAAQS is exceeded for a CFAFEC stack height of ~9.7 meters. A modeled stack height that is smaller than this value would exceed the 1-hour SO_2 NAAQS. Therefore, should the shorter of the two boiler stacks at the CFA facility (7.9 meters instead of 10.5 meters) be used for modeling CFAFEC, the 1-hour SO_2 NAAQS will be exceeded.

DEQ's modeling team asserts that compliance with applicable air quality standards is not assured if release parameters vary substantially from what was used in the modeling analyses (i.e., stack heights that are shorter than what is indicated in this memo). Modeling analyses must be revised if any future changes result in a substantial change in release characteristics from what was used in the model (such that resulting modeled concentrations could be affected).

4.2 Results for TAPs Impact Analyses

TAPs were not modeled because uncontrolled emissions for regulated TAPs were less than the ELs in IDAPA 58.01.01.585 for non-carcinogens and less than the EL increments in IDAPA 58.01.01.586 for carcinogens. Therefore, no compliance demonstration was performed, and concentrations are expected to be less than applicable standards for all TAPs.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ's air impact analyses,

demonstrated to DEQ's satisfaction that emissions from the INL Site in Southeast Idaho will not cause or significantly contribute to a violation of any applicable ambient air quality standard or TAP increment.

References

1. *Policy on NAAQS Compliance Demonstration Requirements*. Idaho Department of Environmental Quality Policy Memorandum. July 11, 2014.

2. *State of Idaho Guideline for Performing Air Quality Impact Analyses*. Idaho Department of Environmental Quality. September 2013. State of Idaho DEQ Air Doc. ID AQ-011. Available at http://www.deq.idaho.gov/media/1029/modeling-guideline.pdf.

3. *Clarification on the Use of AERMOD Dispersion Modeling for Demonstrating Compliance with the NO_2 National Ambient Air Quality Standard*. Office of Air Quality Planning and Standards. Air Quality Modeling Group. Research Triangle Park, NC. Guidance memorandum from R. Chris Owen and Roger Brode to Regional Dispersion Modeling Contacts. September 30, 2014.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on November 23, 2020:

Facility Comment: In the Statement of Basis, the permits listed as active in the Permitting History section will either be superseded by this permit or have been terminated by Idaho Department of Environmental Quality (DEQ) and will no longer be active after the issuance of this permit are identified in the redlined Statement of Basis.

DEQ Response: DEQ removed the identified permits from the list of active permits and included them in separate lists which better described their status.

Facility Comment: Section 2.1 of the Draft Permit provides language suggesting that exemptions are not applicable for facilities that comply with facility emissions cap (FEC) requirements, when the intention of an FEC is to not require permitting for facilities that comply with FEC requirements. These comments are address in the redlined Draft Permit.

DEQ Response: DEQ clarified this language with the facility in a 12/9/20 email.

Facility Comment: Section 2.6 of the Draft Permit sets the annual report due date 30-days after the reporting period (January 30th). The existing permit, as well as historic Title V permits have had due dates set to March 31st. Due to the complexity of gathering data, compiling data, and certifying the data from the various facilities and entities that hold stake in this permit, INL is requesting that this due date be maintained as March 31st.

DEQ Response: DEQ extended the due date as requested.

Facility Comment: The facility requested to remove the parenthetical "…as identified in Section 6.5…" from Table 3.1, as the CEMS identified in this table entry was not described in section 6.5.

DEQ Response: DEQ removed the phrase as requested.

Facility Comment: In Table 3.2, the facility corrected the serial number for the 2008 and 2015 John Deere Engines located at the MFC and the horsepower of the 2016 Caterpillar Engine also located at the MFC.

DEQ Response: DEQ included the corrected information in Table 3.2.

Facility Comment: The facility requested the inclusion of several IC engines in Table 3.3 which were missed in the draft permit and corrected the model number of the 2011 Caterpillar engine located at the RWMC.

DEQ Response: DEQ included the missed engines and updated the model number for the 2011 Caterpillar.

Facility Comment: Section 6.4 of the Draft Permit included language that was submitted with the permit application. However, after additional review, the requirements stated for the mercury absorbers of the Integrated Waste Treatment Unit (IWTU) are specified in the existing Resource Conservation and Recovery Act (RCRA) permit. To prevent duplicating them in this permit, we recommend referencing the section of the RCRA Permit for the IWTU.

DEQ Response: DEQ incorporated this comment as requested.

Facility Comment: Section 6.5 of the Draft Permit describes the nitrogen oxides (NOx) continuous emission monitoring systems (CEMS) for the IWTU and is referenced as the method for calculating the emission rates that should be used for determining compliance with the NOx emission limits for the IWTU. Because the NOx CEMS at IWTU is not required by a rule, rather, it is installed electively for the purpose of providing a more accurate measurement and was not intended to be the sole method of determining emissions from the IWTU. Language is suggested in the redlined Draft Permit attached that would allow the use of the required performance test in the

event the CEMS was not operable. This is implied in other sections of the permit, but it would be beneficial to clarify that in this section as well.

DEQ Response: DEQ included a provision in Permit Condition 6.5 allowing the use of NO_X performance test results as a basis for emissions calculations when NO_X CEMS data is unavailable.

APPENDIX D – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company:	**Idaho National Laboratory**
Address:	**Scoville, Idaho Hwy. 20/60 between Arco and Idaho Falls, and Hwy. 33 between Mud Lake and Arco.**
City:	**Scoville**
State:	**Idaho**
Zip Code:	
Facility Contact:	**Nicole Hernandez**
Title:	**Facility Permitting Contact**
AIRS No.:	**924110, 54170**

N	Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N
Y	Did this permit require engineering analysis? Y/N
N	Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory

Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	0	0.0
SO_2	53.1	0	53.1
CO	72.3	0	72.3
PM10	79.4	0	79.4
VOC	86.3	0	86.3
Total:	291.1	0	**291.1**
Fee Due	**$ 7,500.00**		

Comments:

APPENDIX E – REVIEW OF FEDERAL REGULATIONS

Data is current as of July 8, 2019
40 CFR Part 60 Subpart Dc Regulatory Analysis

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units

Table of Contents:

60.40c. Applicability and delegation of authority
60.41c. Definitions
60.42c. Standard for sulfur dioxide (SO)
60.43c. Standard for particulate matter (PM)
60.44c. Compliance and performance test methods and procedures for sulfur dioxide
60.45c. Compliance and performance test methods and procedures for particulate matter
60.46c. Emission monitoring for sulfur dioxide
60.47c. Emission monitoring for particulate matter
60.48c. Reporting and recordkeeping requirements

SOURCE: 72 FR 32759, June 13, 2007, unless otherwise noted.

§40c. Applicability and delegation of authority

(a) Except as provided in paragraphs (d), (e), (f), and (g) of this section, the affected facility to which this subpart applies is each steam generating unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 29 megawatts (MW) (100 million British thermal units per hour (MMBtu/h)) or less, but greater than or equal to 2.9 MW (10 MMBtu/h).

(b) In delegating implementation and enforcement authority to a State under section 111(c) of the Clean Air Act, §60.48c(a)(4) shall be retained by the Administrator and not transferred to a State.

(c) Steam generating units that meet the applicability requirements in paragraph (a) of this section are not subject to the sulfur dioxide (SO_2) or particulate matter (PM) emission limits, performance testing requirements, or monitoring requirements under this subpart (§§60.42c, 60.43c, 60.44c, 60.45c, 60.46c, or 60.47c) during periods of combustion research, as defined in §60.41c.

(d) Any temporary change to an existing steam generating unit for the purpose of conducting combustion research is not considered a modification under §60.14.

(e) Affected facilities (*i.e.* heat recovery steam generators and fuel heaters) that are associated with stationary combustion turbines and meet the applicability requirements of subpart KKKK of this part are not subject to this subpart. This subpart will continue to apply to all other heat recovery steam generators, fuel heaters, and other affected facilities that are capable of combusting more than or equal to 2.9 MW (10 MMBtu/h) heat input of fossil fuel but less than or equal to 29 MW (100 MMBtu/h) heat input of fossil fuel. If the heat recovery steam generator, fuel heater, or other affected facility is subject to this subpart, only emissions resulting from combustion of fuels in the steam generating unit are subject to this subpart. (The stationary combustion turbine emissions are subject to subpart GG or KKKK, as applicable, of this part.)

(f) Any affected facility that meets the applicability requirements of and is subject to subpart AAAA or subpart CCCC of this part is not subject to this subpart.

(g) Any facility that meets the applicability requirements and is subject to an EPA approved State or Federal section 111(d)/129 plan implementing subpart BBBB of this part is not subject to this subpart.

(h) Affected facilities that also meet the applicability requirements under subpart J or subpart Ja of this part are subject to the PM and NO_X standards under this subpart and the SO_2 standards under subpart J or subpart Ja of this part, as applicable.

(i) Temporary boilers are not subject to this subpart.

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) for which construction, modification, or reconstruction commenced after June 9, 1989 individually have a maximum design heat input capacity of 36.4 MMBtu/hr. These units are not intended for the purpose of conducting combustion research as defined in §60.41c.

The three boilers at the AMWTF (WMF-676-004A, WMF-676-005B, and WMF-676-006C) are steam generating units for which construction, modification, or reconstruction commenced after June 9, 1989 each boiler individually has a maximum design heat capacity of 12.55 MMBtu/hr.

NRF Boilers #4 and #5 were constructed in 2015 and 2017, respectively and have a maximum heat input capacity of 29.3 MMBtu/hr. These units are not intended for the purpose of conducting combustion research as defined in §60.41c.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

§41c. Definitions

As used in this subpart, all terms not defined herein shall have the meaning given them in the Clean Air Act and in subpart A of this part.

Annual capacity factor means the ratio between the actual heat input to a steam generating unit from an individual fuel or combination of fuels during a period of 12 consecutive calendar months and the potential heat input to the steam generating unit from all fuels had the steam generating unit been operated for 8,760 hours during that 12-month period at the maximum design heat input capacity. In the case of steam generating units that are rented or leased, the actual heat input shall be determined based on the combined heat input from all operations of the affected facility during a period of 12 consecutive calendar months.

Coal means all solid fuels classified as anthracite, bituminous, subbituminous, or lignite by the American Society of Testing and Materials in ASTM D388 (incorporated by reference, see §60.17), coal refuse, and petroleum coke. Coal-derived synthetic fuels derived from coal for the purposes of creating useful heat, including but not limited to solvent refined coal, gasified coal not meeting the definition of natural gas, coal-oil mixtures, and coal-water mixtures, are also included in this definition for the purposes of this subpart.

Coal refuse means any by-product of coal mining or coal cleaning operations with an ash content greater than 50 percent (by weight) and a heating value less than 13,900 kilojoules per kilogram (kJ/kg) (6,000 Btu per pound (Btu/lb) on a dry basis.

Combined cycle system means a system in which a separate source (such as a stationary gas turbine, internal combustion engine, or kiln) provides exhaust gas to a steam generating unit.

Combustion research means the experimental firing of any fuel or combination of fuels in a steam generating unit for the purpose of conducting research and development of more efficient combustion or more effective prevention or control of air pollutant emissions from combustion, provided that, during these periods of research and development, the heat generated is not used for any purpose other than preheating combustion air for use by that steam generating unit (*i.e.*, the heat generated is released to the atmosphere without being used for space heating, process heating, driving pumps, preheating combustion air for other units, generating electricity, or any other purpose).

Conventional technology means wet flue gas desulfurization technology, dry flue gas desulfurization technology, atmospheric fluidized bed combustion technology, and oil hydrodesulfurization technology.

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17), diesel fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see §60.17), kerosine, as defined by the American Society of Testing and Materials in ASTM D3699 (incorporated by reference, see §60.17), biodiesel as defined by the American Society of Testing and Materials in ASTM D6751 (incorporated by reference, see §60.17), or biodiesel blends as defined by the American Society of Testing and Materials in ASTM D7467 (incorporated by reference, see §60.17).

Dry flue gas desulfurization technology means a SO_2 control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline reagent and water, whether introduced separately or as a premixed slurry or solution and forming a dry powder material. This definition includes devices where the dry powder material is subsequently converted to another form. Alkaline reagents used in dry flue gas desulfurization systems include, but are not limited to, lime and sodium compounds.

Duct burner means a device that combusts fuel and that is placed in the exhaust duct from another source (such as a stationary gas turbine, internal combustion engine, kiln, etc.) to allow the firing of additional fuel to heat the exhaust gases before the exhaust gases enter a steam generating unit.

Emerging technology means any SO_2 control system that is not defined as a conventional technology under this section, and for which the owner or operator of the affected facility has received approval from the Administrator to operate as an emerging technology under §60.48c(a)(4).

Federally enforceable means all limitations and conditions that are enforceable by the Administrator, including the requirements of 40 CFR parts 60 and 61, requirements within any applicable State implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 51.24.

Fluidized bed combustion technology means a device wherein fuel is distributed onto a bed (or series of beds) of limestone aggregate (or other sorbent materials) for combustion; and these materials are forced upward in the device by the flow of combustion air and the gaseous products of combustion. Fluidized bed combustion technology includes, but is not limited to, bubbling bed units and circulating bed units.

Fuel pretreatment means a process that removes a portion of the sulfur in a fuel before combustion of the fuel in a steam generating unit.

Heat input means heat derived from combustion of fuel in a steam generating unit and does not include the heat derived from preheated combustion air, recirculated flue gases, or exhaust gases from other sources (such as stationary gas turbines, internal combustion engines, and kilns).

Heat transfer medium means any material that is used to transfer heat from one point to another point.

Maximum design heat input capacity means the ability of a steam generating unit to combust a stated maximum amount of fuel (or combination of fuels) on a steady state basis as determined by the physical design and characteristics of the steam generating unit.

Natural gas means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

(2) Liquefied petroleum (LP) gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §60.17); or

(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions. Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 34 and 43 megajoules (MJ) per dry standard cubic meter (910 and 1,150 Btu per dry standard cubic foot).

Noncontinental area means the State of Hawaii, the Virgin Islands, Guam, American Samoa, the Commonwealth of Puerto Rico, or the Northern Mariana Islands.

Oil means crude oil or petroleum, or a liquid fuel derived from crude oil or petroleum, including distillate oil and residual oil.

Potential sulfur dioxide emission rate means the theoretical SO_2 emissions (nanograms per joule (ng/J) or lb/MMBtu heat input) that would result from combusting fuel in an uncleaned state and without using emission control systems.

Process heater means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst.

Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society for Testing and Materials in ASTM D396 (incorporated by reference, see §60.17).

Steam generating unit means a device that combusts any fuel and produces steam or heats water or heats any heat transfer medium. This term includes any duct burner that combusts fuel and is part of a combined cycle system. This term does not include process heaters as defined in this subpart.

Steam generating unit operating day means a 24-hour period between 12:00 midnight and the following midnight during which any fuel is combusted at any time in the steam generating unit. It is not necessary for fuel to be combusted continuously for the entire 24-hour period.

Temporary boiler means a steam generating unit that combusts natural gas or distillate oil with a potential SO_2 emissions rate no greater than 26 ng/J (0.060 lb/MMBtu), and the unit is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A steam generating unit is not a temporary boiler if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The steam generating unit or a replacement remains at a location for more than 180 consecutive days. Any temporary boiler that replaces a temporary boiler at a location and performs the same or similar function will be included in calculating the consecutive time period.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another in an attempt to circumvent the residence time requirements of this definition.

Wet flue gas desulfurization technology means an SO_2 control system that is located between the steam generating unit and the exhaust vent or stack, and that removes sulfur oxides from the combustion gases of the steam generating unit by contacting the combustion gases with an alkaline slurry or solution and forming a liquid material. This definition includes devices where the liquid material is subsequently converted to another form. Alkaline reagents used in wet flue gas desulfurization systems include, but are not limited to, lime, limestone, and sodium compounds.

Wet scrubber system means any emission control device that mixes an aqueous stream or slurry with the exhaust gases from a steam generating unit to control emissions of PM or SO_2.

Wood means wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

The definitions in this section are applicable as applied in identified applicable requirements.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9461, Feb. 16, 2012]

§42c. Standard for sulfur dioxide (SO_2)

(a) Except as provided in paragraphs (b), (c), and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that combusts only coal shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO_2 emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility shall neither: cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 10 percent (0.10) of the potential SO_2 emission rate (90 percent reduction), nor cause to be discharged into the atmosphere from the affected facility any gases that contain SO_2 in excess of the emission limit is determined pursuant to paragraph (e)(2) of this section.

(b) Except as provided in paragraphs (c) and (e) of this section, on and after the date on which the performance test is completed or required to be completed under §60.8, whichever date comes first, the owner or operator of an affected facility that:

(1) Combusts only coal refuse alone in a fluidized bed combustion steam generating unit shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 87 ng/J (0.20 lb/MMBtu) heat input or 20 percent (0.20) of the potential SO_2 emission rate (80 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of SO_2 in excess of 520 ng/J (1.2 lb/MMBtu) heat input. If coal is fired with coal refuse, the affected facility subject to paragraph (a) of this section. If oil or any other fuel (except coal) is fired with coal refuse, the affected facility is subject to the 87 ng/J (0.20 lb/MMBtu) heat input SO_2 emissions limit or the 90 percent SO_2 reduction requirement specified in paragraph (a) of this section and the emission limit is determined pursuant to paragraph (e)(2) of this section.

(2) Combusts only coal and that uses an emerging technology for the control of SO_2 emissions shall neither:

(i) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 50 percent (0.50) of the potential SO_2 emission rate (50 percent reduction); nor

(ii) Cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 260 ng/J (0.60 lb/MMBtu) heat input. If coal is combusted with other fuels, the affected facility is subject to the 50 percent SO_2 reduction requirement specified in this paragraph and the emission limit determined pursuant to paragraph (e)(2) of this section.

(c) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, alone or in combination with any other fuel, and is listed in paragraphs (c)(1), (2), (3), or (4) of this section shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of the emission limit determined pursuant to paragraph (e)(2) of this section. Percent reduction requirements are not applicable to affected facilities under paragraphs (c)(1), (2), (3), or (4).

(1) Affected facilities that have a heat input capacity of 22 MW (75 MMBtu/h) or less;

(2) Affected facilities that have an annual capacity for coal of 55 percent (0.55) or less and are subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for coal of 55 percent (0.55) or less.

(3) Affected facilities located in a noncontinental area; or

(4) Affected facilities that combust coal in a duct burner as part of a combined cycle system where 30 percent (0.30) or less of the heat entering the steam generating unit is from combustion of coal in the duct burner and 70 percent (0.70) or more of the heat entering the steam generating unit is from exhaust gases entering the duct burner.

(d) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts oil shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of 215 ng/J (0.50 lb/MMBtu) heat input from oil; or, as an alternative, no owner or operator of an affected facility that combusts oil shall combust oil in the affected facility that contains greater than 0.5 weight percent sulfur. The percent reduction requirements are not applicable to affected facilities under this paragraph.

(e) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, oil, or coal and oil with any other fuel shall cause to be discharged into the atmosphere from that affected facility any gases that contain SO_2 in excess of the following:

(1) The percent of potential SO_2 emission rate or numerical SO_2 emission rate required under paragraph (a) or (b)(2) of this section, as applicable, for any affected facility that

(i) Combusts coal in combination with any other fuel;

(ii) Has a heat input capacity greater than 22 MW (75 MMBtu/h); and

(iii) Has an annual capacity factor for coal greater than 55 percent (0.55); and

(2) The emission limit determined according to the following formula for any affected facility that combusts coal, oil, or coal and oil with any other fuel:

$$E_s = \frac{(K_a H_a + K_b H_b + K_c H_c)}{(H_a + H_b + H_c)}$$

Where:

E_s = SO_2 emission limit, expressed in ng/J or lb/MMBtu heat input;
K_a = 520 ng/J (1.2 lb/MMBtu);
K_b = 260 ng/J (0.60 lb/MMBtu);
K_c = 215 ng/J (0.50 lb/MMBtu);
H_a = Heat input from the combustion of coal, except coal combusted in an affected facility subject to paragraph (b)(2) of this section, in Joules (J) [MMBtu];
H_b = Heat input from the combustion of coal in an affected facility subject to paragraph (b)(2) of this section, in J (MMBtu); and
H_c = Heat input from the combustion of oil, in J (MMBtu).

(f) Reduction in the potential SO_2 emission rate through fuel pretreatment is not credited toward the percent reduction requirement under paragraph (b)(2) of this section unless:

(1) Fuel pretreatment results in a 50 percent (0.50) or greater reduction in the potential SO_2 emission rate; and

(2) Emissions from the pretreated fuel (without either combustion or post-combustion SO_2 control) are equal to or less than the emission limits specified under paragraph (b)(2) of this section.

(g) Except as provided in paragraph (h) of this section, compliance with the percent reduction requirements, fuel oil sulfur limits, and emission limits of this section shall be determined on a 30-day rolling average basis.

(h) For affected facilities listed under paragraphs (h)(1), (2), (3), or (4) of this section, compliance with the emission limits or fuel oil sulfur limits under this section may be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

(1) Distillate oil-fired affected facilities with heat input capacities between 2.9 and 29 MW (10 and 100 MMBtu/hr).

(2) Residual oil-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/hr).

(3) Coal-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).

(4) Other fuels-fired affected facilities with heat input capacities between 2.9 and 8.7 MW (10 and 30 MMBtu/h).

(i) The SO_2 emission limits, fuel oil sulfur limits, and percent reduction requirements under this section apply at all times, including periods of startup, shutdown, and malfunction.

(j) For affected facilities located in noncontinental areas and affected facilities complying with the percent reduction standard, only the heat input supplied to the affected facility from the combustion of coal and oil is counted under this section. No credit is provided for the heat input to the affected facility from wood or other fuels or for heat derived from exhaust gases from other sources, such as stationary gas turbines, internal combustion engines, and kilns.

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) individually have a maximum design heat input capacity of 36.4 MMBtu/h). The steam generating

units are distillate oil-fired. Compliance with the emission limits or fuel oil sulfur limits under this section are determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

NRF Boilers #4 and #5 are distillate oil-fired boilers with a heat input capacity of 29.3 MMBtu/hr. Compliance with the emission limits or fuel oil sulfur limits under this section will be determined based on a certification from the fuel supplier, as described under §60.48c(f), as applicable.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5090, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

§43c. Standard for particulate matter (PM)

(a) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts coal or combusts mixtures of coal with other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emission limits:

(1) 22 ng/J (0.051 lb/MMBtu) heat input if the affected facility combusts only coal, or combusts coal with other fuels and has an annual capacity factor for the other fuels of 10 percent (0.10) or less.

(2) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility combusts coal with other fuels, has an annual capacity factor for the other fuels greater than 10 percent (0.10), and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor greater than 10 percent (0.10) for fuels other than coal.

(b) On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commenced construction, reconstruction, or modification on or before February 28, 2005, that combusts wood or combusts mixtures of wood with other fuels (except coal) and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater, shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of the following emissions limits:

(1) 43 ng/J (0.10 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood greater than 30 percent (0.30); or

(2) 130 ng/J (0.30 lb/MMBtu) heat input if the affected facility has an annual capacity factor for wood of 30 percent (0.30) or less and is subject to a federally enforceable requirement limiting operation of the affected facility to an annual capacity factor for wood of 30 percent (0.30) or less.

(c) *On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that combusts coal, wood, or oil and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity.* Owners and operators of an affected facility that elect to install, calibrate, maintain, and operate a continuous emissions monitoring system (CEMS) for measuring PM emissions according to the requirements of this subpart and are subject to a federally enforceable PM limit of 0.030 lb/MMBtu or less are exempt from the opacity standard specified in this paragraph (c).

(d) The PM and *opacity standards under this section apply at all times, except during periods of startup, shutdown, or malfunction.*

(e)(1) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that

commences construction, reconstruction, or modification after February 28, 2005, and that combusts coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 13 ng/J (0.030 lb/MMBtu) heat input, except as provided in paragraphs (e)(2), (e)(3), and (e)(4) of this section.

(2) As an alternative to meeting the requirements of paragraph (e)(1) of this section, the owner or operator of an affected facility for which modification commenced after February 28, 2005, may elect to meet the requirements of this paragraph. On and after the date on which the initial performance test is completed or required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005 shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of both:

(i) 22 ng/J (0.051 lb/MMBtu) heat input derived from the combustion of coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels; and
(ii) 0.2 percent of the combustion concentration (99.8 percent reduction) when combusting coal, oil, wood, a mixture of these fuels, or a mixture of these fuels with any other fuels.

(3) On and after the date on which the initial performance test is completed or is required to be completed under §60.8, whichever date comes first, no owner or operator of an affected facility that commences modification after February 28, 2005, and that combusts over 30 percent wood (by heat input) on an annual basis and has a heat input capacity of 8.7 MW (30 MMBtu/h) or greater shall cause to be discharged into the atmosphere from that affected facility any gases that contain PM in excess of 43 ng/J (0.10 lb/MMBtu) heat input.

(4) An owner or operator of an affected facility that commences construction, reconstruction, or modification after February 28, 2005, and that combusts only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a PM standard under §60.43c and not using a post-combustion technology (except a wet scrubber) to reduce PM or SO_2 emissions is not subject to the PM limit in this section.

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) were installed prior to February 28, 2005 and individually have a maximum design heat input capacity of 36.4 MMBtu/h). The steam generating units are distillate oil-fired. The distillate oil contains no more than 0.50 weight percent sulfur and the units do not use a post-combustion technology to reduce PM or SO2 emissions. The distillate oil combusted typically is ultra-low sulfur diesel fuel.

NRF Boilers #4 and #5 were installed after February 28, 2005, combust oil that contains no more than 0.50 weight percent sulfur, and do not use post-combustion technology to reduce PM or SO2 emissions. Therefore, they are not subject to the PM limit in this section per 60.43c(e)(4). Since their heat input capacity is less than 30 MMBtu/hr, they are not subject to the opacity limits per 60.43c(c).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 77 FR 9462, Feb. 16, 2012]

§44c. Compliance and performance test methods and procedures for sulfur dioxide

(a) Except as provided in paragraphs (g) and (h) of this section and §60.8(b), performance tests required under §60.8 shall be conducted following the procedures specified in paragraphs (b), (c), (d), (e), and (f) of this section, as applicable. Section 60.8(f) does not apply to this section. The 30-day notice required in §60.8(d) applies only to the initial performance test unless otherwise specified by the Administrator.

(b) The initial performance test required under §60.8 shall be conducted over 30 consecutive operating days of the steam generating unit. Compliance with the percent reduction requirements and SO_2 emission limits under §60.42c shall be determined using a 30-day average. The first operating day included in the initial performance test shall be scheduled within 30 days after achieving the maximum production rate at which the affect facility will be operated, but not later than 180 days after the initial startup of the facility.

The steam generating unit load during the 30-day period does not have to be the maximum design heat input capacity, but must be representative of future operating conditions.

(c) After the initial performance test required under paragraph (b) of this section and §60.8, compliance with the percent reduction requirements and SO_2 emission limits under §60.42c is based on the average percent reduction and the average SO_2 emission rates for 30 consecutive steam generating unit operating days. A separate performance test is completed at the end of each steam generating unit operating day, and a new 30-day average percent reduction and SO_2 emission rate are calculated to show compliance with the standard.

(d) If only coal, only oil, or a mixture of coal and oil is combusted in an affected facility, the procedures in Method 19 of appendix A of this part are used to determine the hourly SO_2 emission rate (E_{ho}) and the 30-day average SO_2 emission rate (E_{ao}). The hourly averages used to compute the 30-day averages are obtained from the CEMS. Method 19 of appendix A of this part shall be used to calculate E_{ao} when using daily fuel sampling or Method 6B of appendix A of this part.

(e) If coal, oil, or coal and oil are combusted with other fuels:

(1) An adjusted E_{ho} ($E_{ho}o$) is used in Equation 19-19 of Method 19 of appendix A of this part to compute the adjusted E_{ao} ($E_{ao}o$). The $E_{ho}o$ is computed using the following formula:

$$E_{ho}o = \frac{E_{ho} - E_w(1 - X_k)}{X_k}$$

Where:

$E_{ho}o$ = Adjusted E_{ho}, ng/J (lb/MMBtu);

E_{ho} = Hourly SO_2 emission rate, ng/J (lb/MMBtu);

E_w = SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 9 of appendix A of this part, ng/J (lb/MMBtu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_w if the owner or operator elects to assume $E_w = 0$.

X_k = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(2) The owner or operator of an affected facility that qualifies under the provisions of §60.42c(c) or (d) (where percent reduction is not required) does not have to measure the parameters E_w or X_k if the owner or operator of the affected facility elects to measure emission rates of the coal or oil using the fuel sampling and analysis procedures under Method 19 of appendix A of this part.

(f) Affected facilities subject to the percent reduction requirements under §60.42c(a) or (b) shall determine compliance with the SO_2 emission limits under §60.42c pursuant to paragraphs (d) or (e) of this section, and shall determine compliance with the percent reduction requirements using the following procedures:

(1) If only coal is combusted, the percent of potential SO_2 emission rate is computed using the following formula:

$$\%P_c = 100\left(1 - \frac{\%R_g}{100}\right)\left(1 - \frac{\%R_f}{100}\right)$$

Where:

$\%P_s$ = Potential SO_2 emission rate, in percent;

$\%R_g$ = SO_2 removal efficiency of the control device as determined by Method 19 of appendix A of this part, in percent; and

$\%R_f$ = SO_2 removal efficiency of fuel pretreatment as determined by Method 19 of appendix A of this part, in percent.

(2) If coal, oil, or coal and oil are combusted with other fuels, the same procedures required in paragraph (f)(1) of this section are used, except as provided for in the following:

(i) To compute the $\%P_s$, an adjusted $\%R_g$ ($\%R_go$) is computed from $E_{ao}o$ from paragraph (e)(1) of this section and an adjusted average SO_2 inlet rate ($E_{ai}o$) using the following formula:

$$\%R_go = 100\left(1 - \frac{E^o_{ao}}{E^o_{ai}}\right)$$

Where:

$\%R_go$ = Adjusted $\%R_g$, in percent;

$E_{ao}o$ = Adjusted E_{ao}, ng/J (lb/MMBtu); and

$E_{ai}o$ = Adjusted average SO_2 inlet rate, ng/J (lb/MMBtu).

(ii) To compute $E_{ai}o$, an adjusted hourly SO_2 inlet rate ($E_{hi}o$) is used. The $E_{hi}o$ is computed using the following formula:

$$E_{hi}o = \frac{E_{hi} - E_w(1 - X_k)}{X_k}$$

Where:

$E_{hi}o$ = Adjusted E_{hi}, ng/J (lb/MMBtu);

E_{hi} = Hourly SO_2 inlet rate, ng/J (lb/MMBtu);

E_w = SO_2 concentration in fuels other than coal and oil combusted in the affected facility, as determined by fuel sampling and analysis procedures in Method 19 of appendix A of this part, ng/J (lb/MMBtu). The value E_w for each fuel lot is used for each hourly average during the time that the lot is being combusted. The owner or operator does not have to measure E_w if the owner or operator elects to assume E_w = 0; and

X_k = Fraction of the total heat input from fuel combustion derived from coal and oil, as determined by applicable procedures in Method 19 of appendix A of this part.

(g) For oil-fired affected facilities where the owner or operator seeks to demonstrate compliance with the fuel oil sulfur limits under §60.42c based on shipment fuel sampling, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in the steam generating unit to demonstrate that the oil contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator of the affected facility shall sample the oil in the fuel tank after each new shipment of oil is received, as described under §60.46c(d)(2).

(h) For affected facilities subject to §60.42c(h)(1), (2), or (3) where the owner or operator seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, the performance test shall consist of the certification from the fuel supplier, as described in §60.48c(f), as applicable.

(i) The owner or operator of an affected facility seeking to demonstrate compliance with the SO_2 standards under §60.42c(c)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(j) The owner or operator of an affected facility shall use all valid SO_2 emissions data in calculating $\%P_s$ and E_{ho} under paragraphs (d), (e), or (f) of this section, as applicable, whether or not the minimum emissions data requirements under §60.46c(f) are achieved. All valid emissions data, including valid data collected during periods of startup, shutdown, and malfunction, shall be used in calculating $\%P_s$ or E_{ho} pursuant to paragraphs (d), (e), or (f) of this section, as applicable.

Demonstration of compliance with the SO_2 standards is to be based on fuel supplier certification. The performance test shall consist of the certification from the fuel supplier, as described in §60.48c(f), as applicable.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

§45c. Compliance and performance test methods and procedures for particulate matter.

(a) The owner or operator of an affected facility subject to the PM and/or *opacity standards under §60.43c shall conduct an initial performance test as required under §60.8, and shall conduct subsequent performance tests as requested by the Administrator, to determine compliance with the standards using the following procedures and reference methods, except as specified in paragraph (c) of this section.*

(1) Method 1 of appendix A of this part shall be used to select the sampling site and the number of traverse sampling points.

(2) Method 3A or 3B of appendix A-2 of this part shall be used for gas analysis when applying Method 5 or 5B of appendix A-3 of this part or 17 of appendix A-6 of this part.

(3) Method 5, 5B, or 17 of appendix A of this part shall be used to measure the concentration of PM as follows:

(i) Method 5 of appendix A of this part may be used only at affected facilities without wet scrubber systems.

(ii) Method 17 of appendix A of this part may be used at affected facilities with or without wet scrubber systems provided the stack gas temperature does not exceed a temperature of 160 °C (320 °F). The procedures of Sections 8.1 and 11.1 of Method 5B of appendix A of this part may be used in Method 17 of appendix A of this part only if Method 17 of appendix A of this part is used in conjunction with a wet scrubber system. Method 17 of appendix A of this part shall not be used in conjunction with a wet scrubber system if the effluent is saturated or laden with water droplets.

(iii) Method 5B of appendix A of this part may be used in conjunction with a wet scrubber system.

(4) The sampling time for each run shall be at least 120 minutes and the minimum sampling volume shall be 1.7 dry standard cubic meters (dscm) [60 dry standard cubic feet (dscf)] except that smaller sampling times or volumes may be approved by the Administrator when necessitated by process

variables or other factors.

(5) For Method 5 or 5B of appendix A of this part, the temperature of the sample gas in the probe and filter holder shall be monitored and maintained at 160 ±14 °C (320±25 °F).

(6) For determination of PM emissions, an oxygen (O_2) or carbon dioxide (CO_2) measurement shall be obtained simultaneously with each run of Method 5, 5B, or 17 of appendix A of this part by traversing the duct at the same sampling location.

(7) For each run using Method 5, 5B, or 17 of appendix A of this part, the emission rates expressed in ng/J (lb/MMBtu) heat input shall be determined using:

(i) The O_2 or CO_2 measurements and PM measurements obtained under this section, (ii) The dry basis F factor, and

(iii) The dry basis emission rate calculation procedure contained in Method 19 of appendix A of this part.

(8) Method 9 of appendix A-4 of this part shall be used for determining the opacity of stack emissions.

(b) The owner or operator of an affected facility seeking to demonstrate compliance with the PM standards under §60.43c(b)(2) shall demonstrate the maximum design heat input capacity of the steam generating unit by operating the steam generating unit at this capacity for 24 hours. This demonstration shall be made during the initial performance test, and a subsequent demonstration may be requested at any other time. If the demonstrated 24-hour average firing rate for the affected facility is less than the maximum design heat input capacity stated by the manufacturer of the affected facility, the demonstrated 24-hour average firing rate shall be used to determine the annual capacity factor for the affected facility; otherwise, the maximum design heat input capacity provided by the manufacturer shall be used.

(c) In place of PM testing with Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part, an owner or operator may elect to install, calibrate, maintain, and operate a CEMS for monitoring PM emissions discharged to the atmosphere and record the output of the system. The owner or operator of an affected facility who elects to continuously monitor PM emissions instead of conducting performance testing using Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall install, calibrate, maintain, and operate a CEMS and shall comply with the requirements specified in paragraphs (c)(1) through (c)(14) of this section.

(1) Notify the Administrator 1 month before starting use of the system.

(2) Notify the Administrator 1 month before stopping use of the system.

(3) The monitor shall be installed, evaluated, and operated in accordance with §60.13 of subpart A of this part.

(4) The initial performance evaluation shall be completed no later than 180 days after the date of initial startup of the affected facility, as specified under §60.8 of subpart A of this part or within 180 days of notification to the Administrator of use of CEMS if the owner or operator was previously determining compliance by Method 5, 5B, or 17 of appendix A of this part performance tests, whichever is later.

(5) The owner or operator of an affected facility shall conduct an initial performance test for PM emissions as required under §60.8 of subpart A of this part. Compliance with the PM emission limit shall be determined by using the CEMS specified in paragraph (d) of this section to measure PM and calculating a 24-hour block arithmetic average emission concentration using EPA Reference Method 19 of appendix A of this part, section 4.1.

(6) Compliance with the PM emission limit shall be determined based on the 24-hour daily (block) average of the hourly arithmetic average emission concentrations using CEMS outlet data.

(7) At a minimum, valid CEMS hourly averages shall be obtained as specified in paragraph (c)(7)(i) of this section for 75 percent of the total operating hours per 30-day rolling average.

(i) At least two data points per hour shall be used to calculate each 1-hour arithmetic average.

(ii) [Reserved]

(8) The 1-hour arithmetic averages required under paragraph (c)(7) of this section shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the boiler operating day daily arithmetic average emission concentrations. The 1-hour arithmetic averages shall be calculated using the data points required under §60.13(e)(2) of subpart A of this part.

(9) All valid CEMS data shall be used in calculating average emission concentrations even if the minimum CEMS data requirements of paragraph (c)(7) of this section are not met.

(10) The CEMS shall be operated according to Performance Specification 11 in appendix B of this part.

(11) During the correlation testing runs of the CEMS required by Performance Specification 11 in appendix B of this part, PM and O_2 (or CO_2) data shall be collected concurrently (or within a 30- to 60-minute period) by both the continuous emission monitors and performance tests conducted using the following test methods.

(i) For PM, Method 5 or 5B of appendix A-3 of this part or Method 17 of appendix A-6 of this part shall be used; and

(ii) For O2 (or CO_2), Method 3A or 3B of appendix A-2 of this part, as applicable shall be used.

(12) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with procedure 2 in appendix F of this part. Relative Response Audit's must be performed annually and Response Correlation Audits must be performed every 3 years.

(13) When PM emissions data are not obtained because of CEMS breakdowns, repairs, calibration checks, and zero and span adjustments, emissions data shall be obtained by using other monitoring systems as approved by the Administrator or EPA Reference Method 19 of appendix A of this part to provide, as necessary, valid emissions data for a minimum of 75 percent of total operating hours on a 30-day rolling average.

(14) As of January 1, 2012, and within 90 days after the date of completing each performance test, as defined in §60.8, conducted to demonstrate compliance with this subpart, you must submit relative accuracy test audit (*i.e.,* reference method) data and performance test (*i.e.,* compliance test) data, except opacity data, electronically to EPA's Central Data Exchange (CDX) by using the Electronic Reporting Tool (ERT) (see *http://www.epa.gov/ttn/chief/ert/ert tool.html/*) or other compatible electronic spreadsheet. Only data collected using test methods compatible with ERT are subject to this requirement to be submitted electronically into EPA's WebFIRE database.

(d) The owner or operator of an affected facility seeking to demonstrate compliance under §60.43c(e)(4) shall follow the applicable procedures under §60.48c(f). For residual oil-fired affected facilities, fuel supplier certifications are only allowed for facilities with heat input capacities between 2.9 and 8.7 MW (10 to 30 MMBtu/h).

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) will demonstrate compliance with the opacity standard under §60.45c(a)(8) of this section in accordance Method 9 of appendix A-4.

NRF Boilers #4 and #5 demonstrate compliance under 60.43c(e)(4), as per 60.45c(d).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]

§46c. Emission monitoring for sulfur dioxide

(a) Except as provided in paragraphs (d) and (e) of this section, the owner or operator of an affected facility subject to the SO_2 emission limits under §60.42c shall install, calibrate, maintain, and operate a CEMS for measuring SO_2 concentrations and either O_2 or CO_2 concentrations at the outlet of the SO_2 control device (or the outlet of the steam generating unit if no SO_2 control device is used), and shall record the output of the system. The owner or operator of an affected facility subject to the percent reduction requirements under §60.42c shall measure SO_2 concentrations and either O_2 or CO_2 concentrations at both the inlet and outlet of the SO_2 control device.

(b) The 1-hour average SO_2 emission rates measured by a CEMS shall be expressed in ng/J or lb/MMBtu heat input and shall be used to calculate the average emission rates under §60.42c. Each 1-hour average SO_2 emission rate must be based on at least 30 minutes of operation, and shall be calculated using the data points required under §60.13(h)(2). Hourly SO_2 emission rates are not calculated if the affected facility is operated less than 30 minutes in a 1-hour period and are not counted toward determination of a steam generating unit operating day.

(c) The procedures under §60.13 shall be followed for installation, evaluation, and operation of the CEMS.

(1) All CEMS shall be operated in accordance with the applicable procedures under Performance Specifications 1, 2, and 3 of appendix B of this part.

(2) Quarterly accuracy determinations and daily calibration drift tests shall be performed in accordance with Procedure 1 of appendix F of this part.

(3) For affected facilities subject to the percent reduction requirements under §60.42c, the span value of the SO_2 CEMS at the inlet to the SO_2 control device shall be 125 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted, and the span value of the SO_2 CEMS at the outlet from the SO_2 control device shall be 50 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted.

(4) For affected facilities that are not subject to the percent reduction requirements of §60.42c, the span value of the SO_2 CEMS at the outlet from the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) shall be 125 percent of the maximum estimated hourly potential SO_2 emission rate of the fuel combusted.

(d) As an alternative to operating a CEMS at the inlet to the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO_2 emission rate by sampling the fuel prior to combustion. As an alternative to operating a CEMS at the outlet from the SO_2 control device (or outlet of the steam generating unit if no SO_2 control device is used) as required under paragraph (a) of this section, an owner or operator may elect to determine the average SO_2 emission rate by using Method 6B of appendix A of this part. Fuel sampling shall be conducted pursuant to either paragraph (d)(1) or (d)(2) of this section. Method 6B of appendix A of this part shall be conducted pursuant to paragraph (d)(3) of this section.

(1) For affected facilities combusting coal or oil, coal or oil samples shall be collected daily in an as-fired condition at the inlet to the steam generating unit and analyzed for sulfur content and heat content according the Method 19 of appendix A of this part. Method 19 of appendix A of this part provides procedures for converting these measurements into the format to be used in calculating the average SO_2 input rate.

(2) As an alternative fuel sampling procedure for affected facilities combusting oil, oil samples may be collected from the fuel tank for each steam generating unit immediately after the fuel tank is filled and before any oil is combusted. The owner or operator of the affected facility shall analyze the oil sample to determine the sulfur content of the oil. If a partially empty fuel tank is refilled, a new sample and analysis of the fuel in the tank would be required upon filling. Results of the fuel analysis taken after each new shipment of oil is received shall be used as the daily value when calculating the 30-day rolling average until the next shipment is received. If the fuel analysis shows that the sulfur content in the fuel tank is greater than 0.5 weight percent sulfur, the owner or operator shall ensure that the sulfur content of subsequent oil shipments is low enough to cause the 30-day rolling average sulfur content to be 0.5 weight percent sulfur or less.

(3) Method 6B of appendix A of this part may be used in lieu of CEMS to measure SO_2 at the inlet or outlet of the SO_2 control system. An initial stratification test is required to verify the adequacy of the Method 6B of appendix A of this part sampling location. The stratification test shall consist of three paired runs of a suitable SO_2 and CO_2 measurement train operated at the candidate location and a second similar train operated according to the procedures in §3.2 and the applicable procedures in section 7 of Performance Specification 2 of appendix B of this part. Method 6B of appendix A of this part, Method 6A of appendix A of this part, or a combination of Methods 6 and 3 of appendix A of this part or Methods 6C and 3A of appendix A of this part are suitable measurement techniques. If Method 6B of appendix A of this part is used for the second train, sampling time and timer operation may be adjusted for the stratification test as long as an adequate sample volume is collected; however, both sampling trains are to be operated similarly. For the location to be adequate for Method 6B of appendix A of this part 24-hour tests, the mean of the absolute difference between the three paired runs must be less than 10 percent (0.10).

(e) The monitoring requirements of paragraphs (a) and (d) of this section shall not apply to affected facilities subject to §60.42c(h) (1), (2), or (3) where the owner or operator of the affected facility seeks to demonstrate compliance with the SO_2 standards based on fuel supplier certification, as described under §60.48c(f), as applicable.

(f) The owner or operator of an affected facility operating a CEMS pursuant to paragraph (a) of this section, or conducting as-fired fuel sampling pursuant to paragraph (d)(1) of this section, shall obtain emission data for at least 75 percent of the operating hours in at least 22 out of 30 successive steam generating unit operating days. If this minimum data requirement is not met with a single monitoring system, the owner or operator of the affected facility shall supplement the emission data with data collected with other monitoring systems as approved by the Administrator.

NRF Boilers #4 and #5 and the CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) are subject to 46c(e) and will demonstrate compliance with the SO2 standards based on fuel supplier certification, as described under §60.48c(f), as applicable.

§47c. Emission monitoring for particulate matter

(a) Except as provided in paragraphs (c), (d), (e), and (f) of this section, the owner or operator of an affected facility combusting coal, oil, or wood that is subject to the opacity standards under §60.43c shall install, calibrate, maintain, and operate a continuous opacity monitoring system (COMS) for measuring the opacity of the emissions discharged to the atmosphere and record the output of the system. *The owner or operator of an affected facility subject to an opacity standard in §60.43c(c) that is not required to use a COMS due to paragraphs (c), (d), (e), or (f) of this section that elects not to use a COMS shall conduct a performance test using Method 9 of appendix A-4 of this part and the procedures in §60.11 to demonstrate compliance with the applicable limit in §60.43c by April 29, 2011,* within 45 days of stopping use of an existing COMS, or within 180 days after initial startup of the facility, whichever is later, *and shall comply with either paragraphs (a)(1), (a)(2), or (a)(3) of this section. The observation period for Method 9 of appendix A-4 of this part performance tests may be reduced from 3 hours to 60 minutes if all 6-minute averages are less than 10 percent and all individual 15-second observations are less than or equal to 20*

percent during the initial 60 minutes of observation.

(1) Except as provided in paragraph (a)(2) and (a)(3) of this section, the owner or operator shall conduct subsequent Method 9 of appendix A-4 of this part performance tests using the procedures in paragraph (a) of this section according to the applicable schedule in paragraphs (a)(1)(i) through (a)(1)(iv) of this section, as determined by the most recent Method 9 of appendix A-4 of this part performance test results.

(i) If no visible emissions are observed, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 12 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(ii) If visible emissions are observed but the maximum 6-minute average opacity is less than or equal to 5 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 6 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later;

(iii) If the maximum 6-minute average opacity is greater than 5 percent but less than or equal to 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 3 calendar months from the date that the most recent performance test was conducted or within 45 days of the next day that fuel with an opacity standard is combusted, whichever is later; or

(iv) If the maximum 6-minute average opacity is greater than 10 percent, a subsequent Method 9 of appendix A-4 of this part performance test must be completed within 45 calendar days from the date that the most recent performance test was conducted.

(2) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 of this part performance tests, elect to perform subsequent monitoring using Method 22 of appendix A-7 of this part according to the procedures specified in paragraphs (a)(2)(i) and (ii) of this section.

(i) The owner or operator shall conduct 10 minute observations (during normal operation) each operating day the affected facility fires fuel for which an opacity standard is applicable using Method 22 of appendix A-7 of this part and demonstrate that the sum of the occurrences of any visible emissions is not in excess of 5 percent of the observation period (i.e. , 30 seconds per 10 minute period). If the sum of the occurrence of any visible emissions is greater than 30 seconds during the initial 10 minute observation, immediately conduct a 30 minute observation. If the sum of the occurrence of visible emissions is greater than 5 percent of the observation period (i.e., 90 seconds per 30 minute period), the owner or operator shall either document and adjust the operation of the facility and demonstrate within 24 hours that the sum of the occurrence of visible emissions is equal to or less than 5 percent during a 30 minute observation (i.e., 90 seconds) or conduct a new Method 9 of appendix A-4 of this part performance test using the procedures in paragraph (a) of this section within 45 calendar days according to the requirements in §60.45c(a)(8).

(ii) If no visible emissions are observed for 10 operating days during which an opacity standard is applicable, observations can be reduced to once every 7 operating days during which an opacity standard is applicable. If any visible emissions are observed, daily observations shall be resumed.

(3) If the maximum 6-minute opacity is less than 10 percent during the most recent Method 9 of appendix A-4 of this part performance test, the owner or operator may, as an alternative to performing subsequent Method 9 of appendix A-4 performance tests, elect to perform subsequent monitoring using a digital opacity compliance system according to a site-specific monitoring plan approved by the Administrator. The observations shall be similar, but not necessarily identical, to the requirements in paragraph (a)(2) of this section. For reference purposes in preparing the monitoring plan, see OAQPS "Determination of Visible Emission Opacity from Stationary Sources Using Computer-Based Photographic

Analysis Systems." This document is available from the U.S. Environmental Protection Agency (U.S. EPA); Office of Air Quality and Planning Standards; Sector Policies and Programs Division; Measurement Policy Group (D243-02), Research Triangle Park, NC 27711. This document is also available on the Technology Transfer Network (TTN) under Emission Measurement Center Preliminary Methods.

(b) All COMS shall be operated in accordance with the applicable procedures under Performance Specification 1 of appendix B of this part. The span value of the opacity COMS shall be between 60 and 80 percent.

(c) Owners and operators of an affected facilities that burn only distillate oil that contains no more than 0.5 weight percent sulfur and/or liquid or gaseous fuels with potential sulfur dioxide emission rates of 26 ng/J (0.060 lb/MMBtu) heat input or less and that do not use a post-combustion technology to reduce SO2 or PM emissions and that are subject to an opacity standard in §60.43c(c) are not required to operate a COMS if they follow the applicable procedures in §60.48c(f).

(d) Owners or operators complying with the PM emission limit by using a PM CEMS must calibrate, maintain, operate, and record the output of the system for PM emissions discharged to the atmosphere as specified in §60.45c(c). The CEMS specified in paragraph §60.45c(c) shall be operated and data recorded during all periods of operation of the affected facility except for CEMS breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.

(e) Owners and operators of an affected facility that is subject to an opacity standard in §60.43c(c) and that does not use post-combustion technology (except a wet scrubber) for reducing PM, SO_2, or carbon monoxide (CO) emissions, burns only gaseous fuels or fuel oils that contain less than or equal to 0.5 weight percent sulfur, and is operated such that emissions of CO discharged to the atmosphere from the affected facility are maintained at levels less than or equal to 0.15 lb/MMBtu on a boiler operating day average basis is not required to operate a COMS. Owners and operators of affected facilities electing to comply with this paragraph must demonstrate compliance according to the procedures specified in paragraphs (e)(1) through (4) of this section; or

(1) You must monitor CO emissions using a CEMS according to the procedures specified in paragraphs (e)(1)(i) through (iv) of this section.

(i) The CO CEMS must be installed, certified, maintained, and operated according to the provisions in §60.58b(i)(3) of subpart Eb of this part.

(ii) Each 1-hour CO emissions average is calculated using the data points generated by the CO CEMS expressed in parts per million by volume corrected to 3 percent oxygen (dry basis).

(iii) At a minimum, valid 1-hour CO emissions averages must be obtained for at least 90 percent of the operating hours on a 30-day rolling average basis. The 1-hour averages are calculated using the data points required in §60.13(h)(2).

(iv) Quarterly accuracy determinations and daily calibration drift tests for the CO CEMS must be performed in accordance with procedure 1 in appendix F of this part.

(2) You must calculate the 1-hour average CO emissions levels for each steam generating unit operating day by multiplying the average hourly CO output concentration measured by the CO CEMS times the corresponding average hourly flue gas flow rate and divided by the corresponding average hourly heat input to the affected source. The 24-hour average CO emission level is determined by calculating the arithmetic average of the hourly CO emission levels computed for each steam generating unit operating day.

(3) You must evaluate the preceding 24-hour average CO emission level each steam generating unit operating day excluding periods of affected source startup, shutdown, or malfunction. If the 24-hour average CO emission level is greater than 0.15 lb/MMBtu, you must initiate investigation of the relevant

equipment and control systems within 24 hours of the first discovery of the high emission incident and, take the appropriate corrective action as soon as practicable to adjust control settings or repair equipment to reduce the 24-hour average CO emission level to 0.15 lb/MMBtu or less.

(4) You must record the CO measurements and calculations performed according to paragraph (e) of this section and any corrective actions taken. The record of corrective action taken must include the date and time during which the 24-hour average CO emission level was greater than 0.15 lb/MMBtu, and the date, time, and description of the corrective action.

(f) An owner or operator of an affected facility that is subject to an opacity standard in §60.43c(c) is not required to operate a COMS provided that the affected facility meets the conditions in either paragraphs (f)(1), (2), or (3) of this section.

(1) The affected facility uses a fabric filter (baghouse) as the primary PM control device and, the owner or operator operates a bag leak detection system to monitor the performance of the fabric filter according to the requirements in section §60.48Da of this part.

(2) The affected facility uses an ESP as the primary PM control device, and the owner or operator uses an ESP predictive model to monitor the performance of the ESP developed in accordance and operated according to the requirements in section §60.48Da of this part.

(3) The affected facility burns only gaseous fuels and/or fuel oils that contain no greater than 0.5 weight percent sulfur, and the owner or operator operates the unit according to a written site-specific monitoring plan approved by the permitting authority. This monitoring plan must include procedures and criteria for establishing and monitoring specific parameters for the affected facility indicative of compliance with the opacity standard. For testing performed as part of this site-specific monitoring plan, the permitting authority may require as an alternative to the notification and reporting requirements specified in §§60.8 and 60.11 that the owner or operator submit any deviations with the excess emissions report required under §60.48c(c).

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) are subject to 47c(a) and the opacity performance tests per applicable methods in 47(a)(1)-(3). The monitoring plan per 47c(f) will include procedures and criteria for establishing and monitoring specific parameters for the affected facility indicative of compliance with the opacity standard. The opacity performance tests will be performed as per the prescribed interval to be established by the regulatory agency.

NRF Boilers #4 and #5 are not subject to this section since they are not subject to a PM or opacity limit.

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009; 76 FR 3523, Jan. 20, 2011; 77 FR 9463, Feb. 16, 2012]

§48c. Reporting and recordkeeping requirements

(a) The owner or operator of each affected facility shall submit notification of the date of construction or reconstruction and actual startup, as provided by §60.7 of this part. This notification shall include:

(1) The design heat input capacity of the affected facility and identification of fuels to be combusted in the affected facility.

(2) If applicable, a copy of any federally enforceable requirement that limits the annual capacity factor for any fuel or mixture of fuels under §60.42c, or §60.43c.

(3) The annual capacity factor at which the owner or operator anticipates operating the affected facility based on all fuels fired and based on each individual fuel fired.

(4) Notification if an emerging technology will be used for controlling SO_2 emissions. The Administrator will examine the description of the control device and will determine whether the technology qualifies as an emerging technology. In making this determination, the Administrator may require the owner or operator of the affected facility to submit additional information concerning the control device. The affected facility is subject to the provisions of §60.42c(a) or (b)(1), unless and until this determination is made by the Administrator.

(b) The owner or operator of each affected facility subject to the SO_2 emission limits of §60.42c, or the PM or opacity limits of §60.43c, shall submit to the Administrator the performance test data from the initial and any subsequent performance tests and, if applicable, the performance evaluation of the CEMS and/or COMS using the applicable performance specifications in appendix B of this part.

(c) In addition to the applicable requirements in §60.7, the owner or operator of an affected facility subject to the opacity limits in §60.43c(c) shall submit excess emission reports for any excess emissions from the affected facility that occur during the reporting period and maintain records according to the requirements specified in paragraphs (c)(1) through (3) of this section, as applicable to the visible emissions monitoring method used.

(1) For each performance test conducted using Method 9 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(1)(i) through (iii) of this section.

(i) Dates and time intervals of all opacity observation periods;

(ii) Name, affiliation, and copy of current visible emission reading certification for each visible emission observer participating in the performance test; and

(iii) Copies of all visible emission observer opacity field data sheets;

(2) For each performance test conducted using Method 22 of appendix A-4 of this part, the owner or operator shall keep the records including the information specified in paragraphs (c)(2)(i) through (iv) of this section.

(i) Dates and time intervals of all visible emissions observation periods;

(ii) Name and affiliation for each visible emission observer participating in the performance test;

(iii) Copies of all visible emission observer opacity field data sheets; and

(iv) Documentation of any adjustments made and the time the adjustments were completed to the affected facility operation by the owner or operator to demonstrate compliance with the applicable monitoring requirements.

(3) For each digital opacity compliance system, the owner or operator shall maintain records and submit reports according to the requirements specified in the site-specific monitoring plan approved by the Administrator

(d) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall submit reports to the Administrator.

(e) The owner or operator of each affected facility subject to the SO_2 emission limits, fuel oil sulfur limits, or percent reduction requirements under §60.42c shall keep records and submit reports as required under paragraph (d) of this section, including the following information, as applicable.

(1) Calendar dates covered in the reporting period.

(2) Each 30-day average SO_2 emission rate (ng/J or lb/MMBtu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.

(3) Each 30-day average percent of potential SO_2 emission rate calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of the corrective actions taken.

(4) Identification of any steam generating unit operating days for which SO_2 or diluent (O_2 or CO_2) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.

(5) Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.

(6) Identification of the F factor used in calculations, method of determination, and type of fuel combusted.

(7) Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.

(8) If a CEMS is used, identification of any times when the pollutant concentration exceeded the full span of the CEMS.

(9) If a CEMS is used, description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specifications 2 or 3 of appendix B of this part.

(10) If a CEMS is used, results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.

(11) If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

(f) Fuel supplier certification shall include the following information:

(1) For distillate oil:

(i) The name of the oil supplier;

(ii) A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil in §60.41c; and

(iii) The sulfur content or maximum sulfur content of the oil.

(2) For residual oil:

(i) The name of the oil supplier;

(ii) The location of the oil when the sample was drawn for analysis to determine the sulfur content of the oil, specifically including whether the oil was sampled as delivered to the affected facility, or whether the

sample was drawn from oil in storage at the oil supplier's or oil refiner's facility, or other location;

(iii) The sulfur content of the oil from which the shipment came (or of the shipment itself); and

(iv) The method used to determine the sulfur content of the oil.

(3) For coal:

(i) The name of the coal supplier;

(ii) The location of the coal when the sample was collected for analysis to determine the properties of the coal, specifically including whether the coal was sampled as delivered to the affected facility or whether the sample was collected from coal in storage at the mine, at a coal preparation plant, at a coal supplier's facility, or at another location. The certification shall include the name of the coal mine (and coal seam), coal storage facility, or coal preparation plant (where the sample was collected);

(iii) The results of the analysis of the coal from which the shipment came (or of the shipment itself) including the sulfur content, moisture content, ash content, and heat content; and

(iv) The methods used to determine the properties of the coal.

(4) For other fuels:

(i) The name of the supplier of the fuel;

(ii) The potential sulfur emissions rate or maximum potential sulfur emissions rate of the fuel in ng/J heat input; and

(iii) The method used to determine the potential sulfur emissions rate of the fuel.

(g)(1) Except as provided under paragraphs (g)(2) and (g)(3) of this section, the owner or operator of each affected facility shall record and maintain records of the amount of each fuel combusted during each operating day.

(2) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility that combusts only natural gas, wood, fuels using fuel certification in §60.48c(f) to demonstrate compliance with the SO_2 standard, fuels not subject to an emissions standard (excluding opacity), or a mixture of these fuels may elect to record and maintain records of the amount of each fuel combusted during each calendar month.

(3) As an alternative to meeting the requirements of paragraph (g)(1) of this section, the owner or operator of an affected facility or multiple affected facilities located on a contiguous property unit where the only fuels combusted in any steam generating unit (including steam generating units not subject to this subpart) at that property are natural gas, wood, distillate oil meeting the most current requirements in §60.42C to use fuel certification to demonstrate compliance with the SO_2 standard, and/or fuels, excluding coal and residual oil, not subject to an emissions standard (excluding opacity) may elect to record and maintain records of the total amount of each steam generating unit fuel delivered to that property during each calendar month.

(h) The owner or operator of each affected facility subject to a federally enforceable requirement limiting the annual capacity factor for any fuel or mixture of fuels under §60.42c or §60.43c shall calculate the annual capacity factor individually for each fuel combusted. The annual capacity factor is determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of the calendar month.

(i) All records required under this section shall be maintained by the owner or operator of the affected

facility for a period of two years following the date of such record.

(j) The reporting period for the reports required under this subpart is each six-month period. All reports shall be submitted to the Administrator and shall be postmarked by the 30th day following the end of the reporting period.

The CPP-606 steam generating units (CPP-606-061, CPP-606-062, CPP-606-063, CPP-606-064) are subject to the reporting and recordkeeping requirements of 48c(a)-48c(d); 48c(e)(1), e(2), and e(11); 48c(f); 48c(g)(1) or 48c(g)(3); 48c(i); and 48c(j).

The three boilers at the AMWTF (WMF-676-004A, WMF-676-005B, and WMF-676-006C) are subject to the recordkeeping requirements of 48c(a); 48c(g)(1); and 48c(i).

NRF Boilers #4 and #5 are subject to the reporting and recordkeeping requirements of 48c(a), 48c(a)(1), 48c(a)(3), 48c(d), 48c(e), 48c(e)(1), 48c(e)(2), 48c(e)(11); 48c(f), 48c(f)(1), 48c(f)(1)(i, ii, and iii), 48c(g)(1) or 48c(g)(2), 48c(i); and 48c(j).

[72 FR 32759, June 13, 2007, as amended at 74 FR 5091, Jan. 28, 2009]

ATTACHMENT FRA-2

40 CFR Part 60 Subpart IIII Regulatory Review

E-CFR DATA IS CURRENT AS OF JULY 8, 2019

40 CFR PART 60 SUBPART IIII REGULATORY ANALYSIS

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart IIII—Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

SOURCE: 71 FR 39172, July 11, 2006, unless otherwise noted.

What This Subpart Covers

§60.4200 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, *owners, and operators of stationary compression ignition (CI) internal combustion engines (ICE)* and other persons as specified in paragraphs (a)(1) through (4) of this section. *For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.*

(1) Manufacturers of stationary CI ICE with a displacement of less than 30 liters per cylinder where the model year is:

(i) 2007 or later, for engines that are not fire pump engines;

(ii) The model year listed in Table 3 to this subpart or later model year, for fire pump engines.

(2) Owners and operators of stationary CI ICE that commence construction after July 11, 2005, where the stationary CI ICE are:

(i) Manufactured after April 1, 2006, and are not fire pump engines, or

(ii) Manufactured as a certified National Fire Protection Association (NFPA) fire pump engine after July 1, 2006.

(3) Owners and operators of any stationary CI ICE that are modified or reconstructed after July 11, 2005 and any person that modifies or reconstructs any stationary CI ICE after July 11, 2005.

(4) The provisions of §60.4208 of this subpart are applicable to all owners and operators of stationary CI ICE that commence construction after July 11, 2005.

(b) The provisions of this subpart are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart applicable to area sources.

(d) Stationary CI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR part 89, subpart J and 40 CFR part 94, subpart J, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(e) Owners and operators of facilities with CI ICE that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

The Idaho National Laboratory (INL) is subject to this subpart because the INL owns and operates emergency stationary CI ICE that meets the applicable criteria under §60.4200(a)(2)(i,ii)&(4) and is an area source.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

EMISSION STANDARDS FOR MANUFACTURERS

§60.4201 What emission standards must I meet for non-emergency engines if I am a stationary CI internal combustion engine manufacturer?

The INL is not subject to §60.4201 because the INL is not a stationary CI ICE manufacturer.

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later non-emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 kilowatt (KW) (3,000 horsepower (HP)) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 89.112, 40 CFR 89.113, 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same model year and maximum engine power.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 through 2010 model year non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(c) Stationary CI internal combustion engine manufacturers must certify their 2011 model year and later non-emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder to the certification emission standards for new nonroad CI engines in 40 CFR 1039.101, 40 CFR 1039.102, 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, and 40 CFR 1039.115, as applicable, for all pollutants, for the same maximum engine power.

(d) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2007 model year through 2012 non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(3) Their 2013 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(e) Stationary CI internal combustion engine manufacturers must certify the following non-emergency stationary CI ICE to the certification emission standards and other requirements for new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.110, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year non-emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(f) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary non-emergency CI ICE identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 1 to 40 CFR 1042.1 identifies 40 CFR part 1042 as being applicable, 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:

(1) Remote areas of Alaska; and

(2) Marine offshore installations.

(g) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power, and displacement of the reconstructed stationary CI ICE.

(h) Stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with auxiliary emission control devices (AECDs) as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR 89.112 while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011; 81 FR 44219, July 7, 2016]

§60.4202 What emission standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacturer?

The INL is not subject to §60.4202 because the INL is not a stationary CI ICE manufacturer.

(a) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power less than or equal to 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (a)(1) through (2) of this section.

(1) For engines with a maximum engine power less than 37 KW (50 HP):

(i) The certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants for model year 2007 engines, and

(ii) The certification emission standards for new nonroad CI engines in 40 CFR 1039.104, 40 CFR 1039.105, 40 CFR 1039.107, 40 CFR 1039.115, and table 2 to this subpart, for 2008 model year and later engines.

(2) For engines with a maximum engine power greater than or equal to 37 KW (50 HP), the certification emission standards for new nonroad CI engines for the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants beginning in model year 2007.

(b) Stationary CI internal combustion engine manufacturers must certify their 2007 model year and later emergency stationary CI ICE with a maximum engine power greater than 2,237 KW (3,000 HP) and a displacement of less than 10 liters per cylinder that are not fire pump engines to the emission standards specified in paragraphs (b)(1) through (2) of this section.

(1) For 2007 through 2010 model years, the emission standards in table 1 to this subpart, for all pollutants, for the same maximum engine power.

(2) For 2011 model year and later, the certification emission standards for new nonroad CI engines for engines of the same model year and maximum engine power in 40 CFR 89.112 and 40 CFR 89.113 for all pollutants.

(c) [Reserved]

(d) Beginning with the model years in table 3 to this subpart, stationary CI internal combustion engine manufacturers must certify their fire pump stationary CI ICE to the emission standards in table 4 to this subpart, for all pollutants, for the same model year and NFPA nameplate power.

(e) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE that are not fire pump engines to the certification emission standards for new marine CI engines in 40 CFR 94.8, as applicable, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2007 model year through 2012 emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder;

(2) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder;

(3) Their 2013 model year emergency stationary CI ICE with a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder; and

(4) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power greater than or equal to 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(f) Stationary CI internal combustion engine manufacturers must certify the following emergency stationary CI ICE to the certification emission standards and other requirements applicable to Tier 3 new marine CI engines in 40 CFR 1042.101, 40 CFR 1042.107, 40 CFR 1042.115, 40 CFR 1042.120, and 40 CFR 1042.145, for all pollutants, for the same displacement and maximum engine power:

(1) Their 2013 model year and later emergency stationary CI ICE with a maximum engine power less than 3,700 KW (4,958 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 15 liters per cylinder; and

(2) Their 2014 model year and later emergency stationary CI ICE with a maximum engine power less than 2,000 KW (2,682 HP) and a displacement of greater than or equal to 15 liters per cylinder and less than 30 liters per cylinder.

(g) Notwithstanding the requirements in paragraphs (a) through (d) of this section, stationary emergency CI internal combustion engines identified in paragraphs (a) and (c) may be certified to the provisions of 40 CFR part 94 or, if Table 2 to 40 CFR 1042.101 identifies Tier 3 standards as being applicable, the requirements applicable to Tier 3 engines in 40 CFR part 1042, if the engines will be used solely in either or both of the following locations:

(1) Remote areas of Alaska; and

(2) Marine offshore installations.

(h) Notwithstanding the requirements in paragraphs (a) through (f) of this section, stationary CI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (f) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed emergency stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016]

§60.4203 How long must my engines meet the emission standards if I am a manufacturer of stationary CI internal combustion engines?

The INL is not subject to §60.4203 because the INL is not a stationary CI ICE manufacturer.

Engines manufactured by stationary CI internal combustion engine manufacturers must meet the emission standards as required in §§60.4201 and 60.4202 during the certified emissions life of the engines.

[76 FR 37968, June 28, 2011]

EMISSION STANDARDS FOR OWNERS AND OPERATORS

§60.4204 What emission standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of less than 10 liters per cylinder must comply with the emission standards in table 1 to this subpart. Owners and operators of pre-2007 model year non-emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder must comply with the emission standards for new CI engines in §60.4201 for their 2007 model year and later stationary CI ICE, as applicable.

(c) Owners and operators of non-emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the following requirements:

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 grams per kilowatt-hour (g/KW-hr) (12.7 grams per horsepower-hr (g/HP-hr)) when maximum engine speed is less than 130 revolutions per minute (rpm);

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012 and before January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) For engines installed on or after January 1, 2016, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 3.4 g/KW-hr (2.5 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $9.0 \cdot n^{-0.20}$ g/KW-hr ($6.7 \cdot n^{-0.20}$ g/HP-hr) where n (maximum engine speed) is 130 or more but less than 2,000 rpm; and

(iii) 2.0 g/KW-hr (1.5 g/HP-hr) where maximum engine speed is greater than or equal to 2,000 rpm.

(4) Reduce particulate matter (PM) emissions by 60 percent or more, or limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.15 g/KW-hr (0.11 g/HP-hr).

(d) Owners and operators of non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the not-to-exceed (NTE) standards as indicated in §60.4212.

(e) Owners and operators of any modified or reconstructed non-emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed non-emergency stationary CI ICE that are specified in paragraphs (a) through (d) of this section.

(f) Owners and operators of stationary CI ICE certified to the standards in 40 CFR part 1039 and equipped with AECDs as specified in 40 CFR 1039.665 must meet the Tier 1 certification emission standards for new nonroad CI engines in 40 CFR 89.112 while the AECD is activated during a qualified emergency situation. A qualified emergency situation is defined in 40 CFR 1039.665. When the qualified emergency situation has ended and the AECD is deactivated, the engine must resume meeting the otherwise applicable emission standard specified in this section.

The INL is subject to §60.4204(b) because INL owns and operates non-emergency stationary CI ICE with a displacement of less than 30 liters per cylinder are subject to the emission standards of §60.4201 and fire engine pumps with a displacement of less than 30 liters per cylinder.

The INL is not subject to §60.4204(a) or (c) because INL does not own or operate pre 2007 non-emergency stationary CI ICE or non-emergency CI ICE with a displacement of greater than or equal to 30 liters per cylinder.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011; 81 FR 44219, July 7, 2016]

§60.4205 What emission standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of less than 10 liters per cylinder that are not fire pump engines must comply with the emission standards in Table 1 to this subpart. Owners and operators of pre-2007 model year emergency stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards in 40 CFR 94.8(a)(1).

(b) Owners and operators of 2007 model year and later emergency stationary CI ICE with a displacement of less than 30 liters per cylinder that are not fire pump engines must comply with the emission standards for new nonroad CI engines in §60.4202, for all pollutants, for the same model year and maximum engine power for their 2007 model year and later emergency stationary CI ICE.

(c) Owners and operators of fire pump engines with a displacement of less than 30 liters per cylinder must comply with the emission standards in table 4 to this subpart, for all pollutants.

(d) Owners and operators of emergency stationary CI engines with a displacement of greater than or equal to 30 liters per cylinder must meet the requirements in this section.

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/kW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

(e) Owners and operators of emergency stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests in-use must meet the NTE standards as indicated in §60.4212.

(f) Owners and operators of any modified or reconstructed emergency stationary CI ICE subject to this subpart must meet the emission standards applicable to the model year, maximum engine power, and displacement of the modified or reconstructed CI ICE that are specified in paragraphs (a) through (e) of this section.

The INL is subject to §60.4205(b)&(c) because INL owns and operates emergency stationary CI ICE with a displacement of less than 30 liters per cylinder are subject to the emission standards of §60.4202 and fire engine pumps with a displacement of less than 30 liters per cylinder.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§60.4206 How long must I meet the emission standards if I am an owner or operator of a stationary CI internal combustion engine?

Owners and operators of stationary CI ICE must operate and maintain stationary CI ICE that achieve the emission standards as required in §§60.4204 and 60.4205 over the entire life of the engine.

The INL is subject to §60.4206 because the INL is subject to the emission standards of §60.4205.

[76 FR 37969, June 28, 2011]

FUEL REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4207 What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?

(a) Beginning October 1, 2007, owners and operators of stationary CI ICE subject to this subpart that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(a).

(b) Beginning October 1, 2010, owners and operators of stationary CI ICE subject to this subpart with a displacement of less than 30 liters per cylinder that use diesel fuel must use diesel fuel that meets the requirements of 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, may be used until depleted.

(c) [Reserved]

(d) Beginning June 1, 2012, owners and operators of stationary CI ICE subject to this subpart with a displacement of greater than or equal to 30 liters per cylinder are no longer subject to the requirements of paragraph (a) of this section, and must use fuel that meets a maximum per-gallon sulfur content of 1,000 parts per million (ppm).

(e) Stationary CI ICE that have a national security exemption under §60.4200(d) are also exempt from the fuel requirements in this section.

The INL is subject to §60.4207(b) because the INL is subject to this subpart.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 78 FR 6695, Jan. 30, 2013]

OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4208 What is the deadline for importing or installing stationary CI ICE produced in previous model years?

(a) After December 31, 2008, owners and operators may not install stationary CI ICE (excluding fire pump engines) that do not meet the applicable requirements for 2007 model year engines.

(b) After December 31, 2009, owners and operators may not install stationary CI ICE with a maximum engine power of less than 19 KW (25 HP) (excluding fire pump engines) that do not meet the applicable requirements for 2008 model year engines.

(c) After December 31, 2014, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 19 KW (25 HP) and less than 56 KW (75 HP) that do not meet the applicable requirements for 2013 model year non-emergency engines.

(d) After December 31, 2013, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 56 KW (75 HP) and less than 130 KW (175 HP) that do not meet the applicable requirements for 2012 model year non-emergency engines.

(e) After December 31, 2012, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 130 KW (175 HP), including those above 560 KW (750 HP), that do not meet the applicable requirements for 2011 model year non-emergency engines.

(f) After December 31, 2016, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power of greater than or equal to 560 KW (750 HP) that do not meet the applicable requirements for 2015 model year non-emergency engines.

(g) After December 31, 2018, owners and operators may not install non-emergency stationary CI ICE with a maximum engine power greater than or equal to 600 KW (804 HP) and less than 2,000 KW (2,680 HP) and a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder that do not meet the applicable requirements for 2017 model year non-emergency engines.

(h) In addition to the requirements specified in §§60.4201, 60.4202, 60.4204, and 60.4205, it is prohibited to import stationary CI ICE with a displacement of less than 30 liters per cylinder that do not meet the applicable requirements specified in paragraphs (a) through (g) of this section after the dates specified in paragraphs (a) through (g) of this section.

(i) The requirements of this section do not apply to owners or operators of stationary CI ICE that have been modified, reconstructed, and do not apply to engines that were removed from one existing location and reinstalled at a new location.

The INL is subject to §60.4208 because the INL is subject to this subpart.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§60.4209 What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?

If you are an owner or operator, you must meet the monitoring requirements of this section. In addition, you must also meet the monitoring requirements specified in §60.4211.

(a) If you are an owner or operator of an emergency stationary CI internal combustion engine that does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter prior to startup of the engine.

(b) If you are an owner or operator of a stationary CI internal combustion engine equipped with a diesel particulate filter to comply with the emission standards in §60.4204, the diesel particulate filter must be installed with a backpressure monitor that notifies the owner or operator when the high backpressure limit of the engine is approached.

The INL is subject to §60.4209 because the INL is subject to the monitoring requirements of §60.4211.

The INL is not subject to the monitoring requirements of §60.4209(a) because the engines purchased are certified in accordance with §60.4211(c) and the respective non-emergency standard.

The INL is not subject to §60.4209(b) because it does not own or operate non-emergency engines requiring a diesel particulate filter.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

COMPLIANCE REQUIREMENTS

§60.4210 What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?

The INL is not subject to §60.4210 because the INL is not a stationary CI ICE manufacturer.

(a) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of less than 10 liters per cylinder to the emission standards specified in §§60.4201(a) through (c) and 60.4202(a), (b) and (d) using the certification procedures required in 40 CFR part 89, subpart B, or 40 CFR part 1039, subpart C, as applicable, and must test their engines as specified in those parts. For the purposes of this subpart, engines certified to the standards in table 1 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89. For the purposes of this subpart, engines certified to the standards in table 4 to this subpart shall be subject to the same requirements as engines certified to the standards in 40 CFR part 89, except that engines with NFPA nameplate power of less than 37 KW (50 HP) certified to model year 2011 or later standards shall be subject to the same requirements as engines certified to the standards in 40 CFR part 1039.

(b) Stationary CI internal combustion engine manufacturers must certify their stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder to the emission standards specified in §§60.4201(d) and (e) and 60.4202(e) and (f) using the certification procedures required in 40 CFR part 94, subpart C, or 40 CFR part 1042, subpart C, as applicable, and must test their engines as specified in 40 CFR part 94 or 1042, as applicable.

(c) Stationary CI internal combustion engine manufacturers must meet the requirements of 40 CFR 1039.120, 1039.125, 1039.130, and 1039.135, and 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1039. Stationary CI internal combustion engine manufacturers must meet the corresponding provisions of 40 CFR part 89, 40 CFR part 94 or 40 CFR part 1042 for engines that would be covered by that part if they were nonroad (including marine) engines. Labels on such engines must refer to stationary engines, rather than or in addition to nonroad or marine engines, as appropriate. Stationary CI internal combustion engine manufacturers must label their engines according to paragraphs (c)(1) through (3) of this section.

(1) Stationary CI internal combustion engines manufactured from January 1, 2006 to March 31, 2006 (January 1, 2006 to June 30, 2006 for fire pump engines), other than those that are part of certified engine families under the nonroad CI engine regulations, must be labeled according to 40 CFR 1039.20.

(2) Stationary CI internal combustion engines manufactured from April 1, 2006 to December 31, 2006 (or, for fire pump engines, July 1, 2006 to December 31 of the year preceding the year listed in table 3 to this subpart) must be labeled according to paragraphs (c)(2)(i) through (iii) of this section:

(i) Stationary CI internal combustion engines that are part of certified engine families under the nonroad regulations must meet the labeling requirements for nonroad CI engines, but do not have to meet the labeling requirements in 40 CFR 1039.20.

(ii) Stationary CI internal combustion engines that meet Tier 1 requirements (or requirements for fire pumps) under this subpart, but do not meet the requirements applicable to nonroad CI engines must be labeled according to 40 CFR 1039.20. The engine manufacturer may add language to the label clarifying that the engine meets Tier 1 requirements (or requirements for fire pumps) of this subpart.

(iii) Stationary CI internal combustion engines manufactured after April 1, 2006 that do not meet Tier 1 requirements of this subpart, or fire pumps engines manufactured after July 1, 2006 that do not meet the

requirements for fire pumps under this subpart, may not be used in the U.S. If any such engines are manufactured in the U.S. after April 1, 2006 (July 1, 2006 for fire pump engines), they must be exported or must be brought into compliance with the appropriate standards prior to initial operation. The export provisions of 40 CFR 1068.230 would apply to engines for export and the manufacturers must label such engines according to 40 CFR 1068.230.

(3) Stationary CI internal combustion engines manufactured after January 1, 2007 (for fire pump engines, after January 1 of the year listed in table 3 to this subpart, as applicable) must be labeled according to paragraphs (c)(3)(i) through (iii) of this section.

(i) Stationary CI internal combustion engines that meet the requirements of this subpart and the corresponding requirements for nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate.

(ii) Stationary CI internal combustion engines that meet the requirements of this subpart, but are not certified to the standards applicable to nonroad (including marine) engines of the same model year and HP must be labeled according to the provisions in 40 CFR parts 89, 94, 1039 or 1042, as appropriate, but the words “stationary” must be included instead of “nonroad” or “marine” on the label. In addition, such engines must be labeled according to 40 CFR 1039.20.

(iii) Stationary CI internal combustion engines that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230.

(d) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR parts 89, 94, 1039 or 1042 for that model year may certify any such family that contains both nonroad (including marine) and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts.

(e) Manufacturers of engine families discussed in paragraph (d) of this section may meet the labeling requirements referred to in paragraph (c) of this section for stationary CI ICE by either adding a separate label containing the information required in paragraph (c) of this section or by adding the words “and stationary” after the word “nonroad” or “marine,” as appropriate, to the label.

(f) Starting with the model years shown in table 5 to this subpart, stationary CI internal combustion engine manufacturers must add a permanent label stating that the engine is for stationary emergency use only to each new emergency stationary CI internal combustion engine greater than or equal to 19 KW (25 HP) that meets all the emission standards for emergency engines in §60.4202 but does not meet all the emission standards for non-emergency engines in §60.4201. The label must be added according to the labeling requirements specified in 40 CFR 1039.135(b). Engine manufacturers must specify in the owner's manual that operation of emergency engines is limited to emergency operations and required maintenance and testing.

(g) Manufacturers of fire pump engines may use the test cycle in table 6 to this subpart for testing fire pump engines and may test at the NFPA certified nameplate HP, provided that the engine is labeled as “Fire Pump Applications Only”.

(h) Engine manufacturers, including importers, may introduce into commerce uncertified engines or engines certified to earlier standards that were manufactured before the new or changed standards took effect until inventories are depleted, as long as such engines are part of normal inventory. For example, if the engine manufacturers' normal industry practice is to keep on hand a one-month supply of engines based on its projected sales, and a new tier of standards starts to apply for the 2009 model year, the engine manufacturer may manufacture engines based on the normal inventory requirements late in the 2008 model year, and sell those engines for installation. The engine manufacturer may not circumvent the provisions of §60.4201 or §60.4202 by stockpiling engines that are built before new or changed standards take effect. Stockpiling of such engines beyond normal industry practice is a violation of this subpart.

(i) The replacement engine provisions of 40 CFR 89.1003(b)(7), 40 CFR 94.1103(b)(3), 40 CFR 94.1103(b)(4) and 40 CFR 1068.240 are applicable to stationary CI engines replacing existing equipment that is less than 15 years old.

(j) Stationary CI ICE manufacturers may equip their stationary CI internal combustion engines certified to the emission standards in 40 CFR part 1039 with AECDs for qualified emergency situations according to the requirements of 40 CFR 1039.665. Manufacturers of stationary CI ICE equipped with AECDs as allowed by 40 CFR 1039.665 must meet all of the requirements in 40 CFR 1039.665 that apply to manufacturers. Manufacturers must document that the engine complies with the Tier 1 standard in 40 CFR 89.112 when the AECD is activated. Manufacturers must provide any relevant testing, engineering analysis, or other information in sufficient detail to support such statement when applying for certification (including amending an existing certificate) of an engine equipped with an AECD as allowed by 40 CFR 1039.665.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011; 81 FR 44219, July 7, 2016]

§60.4211 What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) If you are an owner or operator and must comply with the emission standards specified in this subpart, you must do all of the following, except as permitted under paragraph (g) of this section:

(1) Operate and maintain the stationary CI internal combustion engine and control device according to the manufacturer's emission-related written instructions;

(2) Change only those emission-related settings that are permitted by the manufacturer; and

(3) Meet the requirements of 40 CFR parts 89, 94 and/or 1068, as they apply to you.

(b) If you are an owner or operator of a pre-2007 model year stationary CI internal combustion engine and must comply with the emission standards specified in §§60.4204(a) or 60.4205(a), or if you are an owner or operator of a CI fire pump engine that is manufactured prior to the model years in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) through (5) of this section.

(1) Purchasing an engine certified according to 40 CFR part 89 or 40 CFR part 94, as applicable, for the same model year and maximum engine power. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(5) Conducting an initial performance test to demonstrate compliance with the emission standards according to the requirements specified in §60.4212, as applicable.

(c) If you are an owner or operator of a 2007 model year and later stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(b) or §60.4205(b), or if you are an owner or operator of a CI fire pump engine that is manufactured during or after the model year that applies to your fire pump engine power rating in table 3 to this subpart and must comply with the emission standards specified in §60.4205(c), you must comply by purchasing an engine certified to the emission standards in §60.4204(b), or §60.4205(b) or (c), as applicable, for the same model year and maximum (or in the case of fire pumps, NFPA nameplate) engine power. The engine must be installed and configured according to the manufacturer's emission-related specifications, except as permitted in paragraph (g) of this section.

(d) If you are an owner or operator and must comply with the emission standards specified in §60.4204(c) or §60.4205(d), you must demonstrate compliance according to the requirements specified in paragraphs (d)(1) through (3) of this section.

(1) Conducting an initial performance test to demonstrate initial compliance with the emission standards as specified in §60.4213.

(2) Establishing operating parameters to be monitored continuously to ensure the stationary internal combustion engine continues to meet the emission standards. The owner or operator must petition the Administrator for approval of operating parameters to be monitored continuously. The petition must include the information described in paragraphs (d)(2)(i) through (v) of this section.

(i) Identification of the specific parameters you propose to monitor continuously;

(ii) A discussion of the relationship between these parameters and NO_X and PM emissions, identifying how the emissions of these pollutants change with changes in these parameters, and how limitations on these parameters will serve to limit NO_X and PM emissions;

(iii) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(iv) A discussion identifying the methods and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(v) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(3) For non-emergency engines with a displacement of greater than or equal to 30 liters per cylinder, conducting annual performance tests to demonstrate continuous compliance with the emission standards as specified in §60.4213.

(e) If you are an owner or operator of a modified or reconstructed stationary CI internal combustion engine and must comply with the emission standards specified in §60.4204(e) or §60.4205(f), you must demonstrate compliance according to one of the methods specified in paragraphs (e)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4204(e) or §60.4205(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4212 or §60.4213, as appropriate. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

(f) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (f)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (f)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, *or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.*

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response *provided in paragraph (f)(2) of this section.* Except as provided in paragraph (f)(3)(i) of this section, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(g) If you do not install, configure, operate, and maintain your engine and control device according to the manufacturer's emission-related written instructions, or you change emission-related settings in a way that is not permitted by the manufacturer, you must demonstrate compliance as follows:

(1) If you are an owner or operator of a stationary CI internal combustion engine with maximum engine power less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, if you do not install and configure the engine and control device according to the manufacturer's emission-related written instructions, or you change the emission-related settings in a way that is not permitted by the manufacturer, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of such action.

(2) If you are an owner or operator of a stationary CI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer.

(3) If you are an owner or operator of a stationary CI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance with the applicable emission standards within 1 year of startup, or within 1 year after an engine and control device is no longer installed, configured, operated, and maintained in accordance with the manufacturer's emission-related written instructions, or within 1 year after you change emission-related settings in a way that is not permitted by the manufacturer. You must conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable emission standards.

(h) The requirements for operators and prohibited acts specified in 40 CFR 1039.665 apply to owners or operators of stationary CI ICE equipped with AECDs for qualified emergency situations as allowed by 40 CFR 1039.665.

The INL is subject to §60.4211(a&c) because it is subject to the emission standards specified in §60.4205(b).

The INL is subject to the applicable requirements of §60.4211(f)(1),(2)(i&lll)&(3) because it owns and operates emergency stationary ICE. The INL is not subject to the portions of §60.4211(f) that pertain to emergency demand response or to supply power as part of a financial arrangement.

The INL is not subject to the applicable requirements of §60.4211(b)(d)(e)or(g) because it does not own or operate pre-2007 model year stationary CI internal combustion engine or a CI fire pump engine that is manufactured prior to the model years in table 3, is not required to comply with 60.4205(d), own or operate a reconstructed a stationary CI internal combustion engine, and will install, configure, operate, and maintain each stationary CI ICE according to the manufacturer's emission-related written instructions and will not choose §60.4211(g) as an option for compliance with this requirement.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37970, June 28, 2011; 78 FR 6695, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

TESTING REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4212 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?

The INL is not subject to §60.4212 because performance tests are not currently required for the aforementioned stationary CI ICE. If §60.4211(g) is exercised by the INL §60.4212 would become applicable.

Owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder who conduct performance tests pursuant to this subpart must do so according to paragraphs (a) through (e) of this section.

(a) The performance test must be conducted according to the in-use testing procedures in 40 CFR part 1039, subpart F, for stationary CI ICE with a displacement of less than 10 liters per cylinder, and according to 40 CFR part 1042, subpart F, for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder.

(b) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1039 must not exceed the not-to-exceed (NTE) standards for the same model year and maximum engine power as required in 40 CFR 1039.101(e) and 40 CFR 1039.102(g)(1), except as specified in 40 CFR 1039.104(d). This requirement starts when NTE requirements take effect for nonroad diesel engines under 40 CFR part 1039.

(c) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8, as applicable, must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in 40 CFR 89.112 or 40 CFR 94.8, as applicable, determined from the following equation:

NTE requirement for each pollutant = (1.25) (STD) (Eq. 1)

Where:

STD = The standard specified for that pollutant in 40 CFR 89.112 or 40 CFR 94.8, as applicable.

Alternatively, stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR 89.112 or 40 CFR 94.8 may follow the testing procedures specified in §60.4213 of this subpart, as appropriate.

(d) Exhaust emissions from stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) must not exceed the NTE numerical requirements, rounded to the same number of decimal places as the applicable standard in §60.4204(a), §60.4205(a), or §60.4205(c), determined from the equation in paragraph (c) of this section.

Where:

STD = The standard specified for that pollutant in §60.4204(a), §60.4205(a), or §60.4205(c).

Alternatively, stationary CI ICE that are complying with the emission standards for pre-2007 model year engines in §60.4204(a), §60.4205(a), or §60.4205(c) may follow the testing procedures specified in §60.4213, as appropriate.

(e) Exhaust emissions from stationary CI ICE that are complying with the emission standards for new CI engines in 40 CFR part 1042 must not exceed the NTE standards for the same model year and maximum engine power as required in 40 CFR 1042.101(c).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

§60.4213 What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

The INL is not subject to §60.4213 because the aforementioned stationary CI ICE displacements are less than 30 liters per cylinder.

Owners and operators of stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder must conduct performance tests according to paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted according to the requirements in §60.8 and under the specific conditions that this subpart specifies in table 7. The test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c).

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must last at least 1 hour.

(d) To determine compliance with the percent reduction requirement, you must follow the requirements as specified in paragraphs (d)(1) through (3) of this section.

(1) You must use Equation 2 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \qquad \text{(Eq. 2)}$$

Where:

C_i = concentration of NO_X or PM at the control device inlet,

C_o = concentration of NO_X or PM at the control device outlet, and

R = percent reduction of NO_X or PM emissions.

(2) You must normalize the NO_X or PM concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen (O_2) using Equation 3 of this section, or an equivalent percent carbon dioxide (CO_2) using the procedures described in paragraph (d)(3) of this section.

$$C_{adj} = C_d \frac{5.9}{20.9 - \%\ O_2} \quad \text{(Eq. 3)}$$

Where:

C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.

C_d = Measured concentration of NO_X or PM, uncorrected.

5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2 correction value, percent.

$\%O_2$ = Measured O_2 concentration, dry basis, percent.

(3) If pollutant concentrations are to be corrected to 15 percent O_2 and CO_2 concentration is measured in lieu of O_2 concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (d)(3)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_o = \frac{0.209_{F_d}}{F_c} \quad \text{(Eq. 4)}$$

Where:

F_o = Fuel factor based on the ratio of O_2 volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is O_2, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO_2} = \frac{5.9}{F_o} \quad \text{(Eq. 5)}$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2−15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the NO_X and PM gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO_2}}{\%CO_2} \quad \text{(Eq. 6)}$$

Where:

C_{adj} = Calculated NO_X or PM concentration adjusted to 15 percent O_2.

C_d = Measured concentration of NO_X or PM, uncorrected.

$\%CO_2$ = Measured CO_2 concentration, dry basis, percent.

(e) To determine compliance with the NO_X mass per unit output emission limitation, convert the concentration of NO_X in the engine exhaust using Equation 7 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{KW\text{-hour}} \quad \text{(Eq. 7)}$$

Where:

ER = Emission rate in grams per KW-hour.

C_d = Measured NO_X concentration in ppm.

$1.912x10^{-3}$ = Conversion constant for ppm NO_X to grams per standard cubic meter at 25 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Brake work of the engine, in KW-hour.

(f) To determine compliance with the PM mass per unit output emission limitation, convert the concentration of PM in the engine exhaust using Equation 8 of this section:

$$ER = \frac{C_{adj} \times Q \times T}{KW\text{-hour}} \quad \text{(Eq. 8)}$$

Where:

ER = Emission rate in grams per KW-hour.

C_{adj} = Calculated PM concentration in grams per standard cubic meter.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour.

T = Time of test run, in hours.

KW-hour = Energy output of the engine, in KW.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

§60.4214 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?

(a) Owners and operators of non-emergency stationary CI ICE that are greater than 2,237 KW (3,000 HP), or have a displacement of greater than or equal to 10 liters per cylinder, or are pre-2007 model year engines that are greater than 130 KW (175 HP) and not certified, must meet the requirements of paragraphs (a)(1) and (2) of this section.

(1) Submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (a)(1)(i) through (v) of this section.

(i) Name and address of the owner or operator;

(ii) The address of the affected source;

(iii) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(iv) Emission control equipment; and

(v) Fuel used.

(2) Keep records of the information in paragraphs (a)(2)(i) through (iv) of this section.

(i) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(ii) Maintenance conducted on the engine.

(iii) If the stationary CI internal combustion is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards.

(iv) If the stationary CI internal combustion is not a certified engine, documentation that the engine meets the emission standards.

(b) If the stationary CI internal combustion engine is an emergency stationary internal combustion engine, the owner or operator is not required to submit an initial notification. Starting with the model years in table 5 to this subpart, if the emergency engine does not meet the standards applicable to non-emergency engines in the applicable model year, the owner or operator must keep records of the operation of the engine in emergency and non-emergency service that are recorded through the non-resettable hour meter. The owner must record the time of operation of the engine and the reason the engine was in operation during that time.

(c) If the stationary CI internal combustion engine is equipped with a diesel particulate filter, the owner or operator must keep records of any corrective action taken after the backpressure monitor has notified the owner or operator that the high backpressure limit of the engine is approached.

(d) If you own or operate an emergency stationary CI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4211(f)(2)(ii) and (iii) or that operates for the purposes specified in §60.4211(f)(3)(i), you must submit an annual report according to the requirements in paragraphs (d)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4211(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4211(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4211(f)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4211(f)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

(e) Owners or operators of stationary CI ICE equipped with AECDs pursuant to the requirements of 40 CFR 1039.665 must report the use of AECDs as required by 40 CFR 1039.665(e).

The INL is partially subject only to §60.4214(b) because it owns and operates emergency stationary ICE. Therefore, an initial notification is not required as stated in this section.

The INL is not subject §60.4214(a) because it owns and operates only emergency stationary CI ICE.

The INL stationary CI ICE are not subject to the latter requirement of §60.4214(b) to keep records of the operation of the engine in emergency and non-emergency service and the reason the engine was in operation because the CI ICE are not a model year listed in table 5 to Subpart IIII of Part 60 or the CI ICE are certified to the emission standard for the respective model year non-emergency engine.

The INL is not subject §60.4214(c) because it does not own and operate emergency stationary CI ICE equipped with a diesel particulate filters.

The INL is not subject §60.4214(d) because it does not own and operate emergency stationary CI ICE subject to the portions of §60.4211(f) that pertain to emergency demand response or to supply power as part of a financial arrangement.

[71 FR 39172, July 11, 2006, as amended at 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

SPECIAL REQUIREMENTS

§60.4215 What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?

The INL is not subject to §60.4215 because the stationary CI ICE will be used in Idaho.

(a) Stationary CI ICE with a displacement of less than 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §§60.4202 and 60.4205.

(b) Stationary CI ICE that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are not required to meet the fuel requirements in §60.4207.

(c) Stationary CI ICE with a displacement of greater than or equal to 30 liters per cylinder that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the following emission standards:

(1) For engines installed prior to January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 17.0 g/KW-hr (12.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $45 \cdot n^{-0.2}$ g/KW-hr ($34 \cdot n^{-0.2}$ g/HP-hr) when maximum engine speed is 130 or more but less than 2,000 rpm, where n is maximum engine speed; and

(iii) 9.8 g/KW-hr (7.3 g/HP-hr) when maximum engine speed is 2,000 rpm or more.

(2) For engines installed on or after January 1, 2012, limit the emissions of NO_X in the stationary CI internal combustion engine exhaust to the following:

(i) 14.4 g/KW-hr (10.7 g/HP-hr) when maximum engine speed is less than 130 rpm;

(ii) $44 \cdot n^{-0.23}$ g/KW-hr ($33 \cdot n^{-0.23}$ g/HP-hr) when maximum engine speed is greater than or equal to 130 but less than 2,000 rpm and where n is maximum engine speed; and

(iii) 7.7 g/KW-hr (5.7 g/HP-hr) when maximum engine speed is greater than or equal to 2,000 rpm.

(3) Limit the emissions of PM in the stationary CI internal combustion engine exhaust to 0.40 g/KW-hr (0.30 g/HP-hr).

[71 FR 39172, July 11, 2006, as amended at 76 FR 37971, June 28, 2011]

§60.4216 What requirements must I meet for engines used in Alaska?

The INL is not subject to §60.4216 because the stationary CI ICE will be used in Idaho.

(a) Prior to December 1, 2010, owners and operators of stationary CI ICE with a displacement of less than 30 liters per cylinder located in areas of Alaska not accessible by the FAHS should refer to 40 CFR part 69 to determine the diesel fuel requirements applicable to such engines.

(b) Except as indicated in paragraph (c) of this section, manufacturers, owners and operators of stationary CI ICE with a displacement of less than 10 liters per cylinder located in remote areas of Alaska may meet the requirements of this subpart by manufacturing and installing engines meeting the requirements of 40 CFR parts 94 or 1042, as appropriate, rather than the otherwise applicable requirements of 40 CFR parts 89 and 1039, as indicated in §§60.4201(f) and 60.4202(g).

(c) Manufacturers, owners and operators of stationary CI ICE that are located in remote areas of Alaska may choose to meet the applicable emission standards for emergency engines in §§60.4202 and 60.4205, and not those for non-emergency engines in §§60.4201 and 60.4204, except that for 2014 model year and later non-emergency CI ICE, the owner or operator of any such engine that was not certified as meeting Tier 4 PM standards, must meet the applicable requirements for PM in §§60.4201 and 60.4204 or install a PM emission control device that achieves PM emission reductions of 85 percent, or 60 percent for engines with a displacement of greater than or equal to 30 liters per cylinder, compared to engine-out emissions.

(d) The provisions of §60.4207 do not apply to owners and operators of pre-2014 model year stationary CI ICE subject to this subpart that are located in remote areas of Alaska.

(e) The provisions of §60.4208(a) do not apply to owners and operators of stationary CI ICE subject to this subpart that are located in areas of Alaska not accessible by the FAHS until after December 31, 2009.

(f) The provisions of this section and §60.4207 do not prevent owners and operators of stationary CI ICE subject to this subpart that are located in remote areas of Alaska from using fuels mixed with used lubricating oil, in volumes of up to 1.75 percent of the total fuel. The sulfur content of the used lubricating oil must be less than 200 parts per million. The used lubricating oil must meet the on-specification levels and properties for used oil in 40 CFR 279.11.

[76 FR 37971, June 28, 2011, as amended at 81 FR 44219, July 7, 2016]

§60.4217 What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?

The INL is not subject to §60.4217 because the stationary CI ICE do not use special fuels.

Owners and operators of stationary CI ICE that do not use diesel fuel may petition the Administrator for approval of alternative emission standards, if they can demonstrate that they use a fuel that is not the fuel on which the manufacturer of the engine certified the engine and that the engine cannot meet the applicable standards required in §60.4204 or §60.4205 using such fuels and that use of such fuel is appropriate and reasonably necessary, considering cost, energy, technical feasibility, human health and environmental, and other factors, for the operation of the engine.

[76 FR 37972, June 28, 2011]

GENERAL PROVISIONS

§60.4218 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

The INL is subject to the requirements of Table 8 to Subpart IIII of Part 60 in accordance with §60.4218 except for:

- ***§60.7 because the INL is not subject to §60.4214(a)***
- ***§60.8 because the displacement of the aforementioned stationary CI ICE is less than 30 liters per cylinder.***
- ***§60.13 because the displacement of the aforementioned stationary CI ICE is less than 30 liters per cylinder.***

DEFINITIONS

§60.4219 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary CI ICE with a displacement of less than 10 liters per cylinder are given in 40 CFR 1039.101(g). The values for certified emissions life for stationary CI ICE with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder are given in 40 CFR 94.9(a).

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Diesel particulate filter means an emission control technology that reduces PM emissions by trapping the particles in a flow filter substrate and periodically removes the collected particles by either physical action or by oxidizing (burning off) the particles in a process called regeneration.

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency

stationary ICE must comply with the requirements specified in §60.4211(f) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4211(f), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4211(f).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4211(f)(2)(ii) or (iii) and §60.4211(f)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of "manufacturer" in this section.

Fire pump engine means an emergency stationary internal combustion engine certified to NFPA requirements that is used to provide power to pump water for fire suppression or protection.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Manufacturer has the meaning given in section 216(1) of the Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for sale or resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1039.801.

Model year means the calendar year in which an engine is manufactured (see "date of manufacture"), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see "date of manufacture"), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see "date of manufacture").

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Reciprocating internal combustion engine means any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work.

Remote areas of Alaska means areas of Alaska that meet either paragraph (1) or (2) of this definition.

(1) Areas of Alaska that are not accessible by the Federal Aid Highway System (FAHS).

(2) Areas of Alaska that meet all of the following criteria:

(i) The only connection to the FAHS is through the Alaska Marine Highway System, or the stationary CI ICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary CI ICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the source is less than 12 megawatts, or the stationary CI ICE is used exclusively for backup power for renewable energy.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to a gasoline, natural gas, or liquefied petroleum gas fueled engine or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Subpart means 40 CFR part 60, subpart IIII.

The INL has read and understands these definitions and used them in providing this regulatory analysis. For this regulatory analysis, §60.4218 definitions underlined are for those definitions that specifically apply to INL operations of stationary CI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013; 81 FR 44219, July 7, 2016]

Table 1 to Subpart IIII of Part 60—Emission Standards for Stationary Pre-2007 Model Year Engines With a Displacement of <10 Liters per Cylinder and 2007-2010 Model Year Engines >2,237 KW (3,000 HP) and With a Displacement of <10 Liters per Cylinder

The INL emergency stationary CI ICE are not subject to the requirements of Table 1 to Subpart IIII of Part 60 because it is not subject to §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a).

[As stated in §§60.4201(b), 60.4202(b), 60.4204(a), and 60.4205(a), you must comply with the following emission standards]

Maximum engine power	Emission standards for stationary pre-2007 model year engines with a displacement of <10 liters per cylinder and 2007-2010 model year engines >2,237 KW (3,000 HP) and with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)				
	NMHC + NO_X	**HC**	**NO_X**	**CO**	**PM**
KW<8 (HP<11)	10.5 (7.8)			8.0 (6.0)	1.0 (0.75)
8≤KW<19 (11≤HP<25)	9.5 (7.1)			6.6 (4.9)	0.80 (0.60)

19≤KW<37 (25≤HP<50)	9.5 (7.1)			5.5 (4.1)	0.80 (0.60)
37≤KW<56 (50≤HP<75)			9.2 (6.9)		
56≤KW<75 (75≤HP<100)			9.2 (6.9)		
75≤KW<130 (100≤HP<175)			9.2 (6.9)		
130≤KW<225 (175≤HP<300)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
225≤KW<450 (300≤HP<600)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
450≤KW≤560 (600≤HP≤750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)
KW>560 (HP>750)		1.3 (1.0)	9.2 (6.9)	11.4 (8.5)	0.54 (0.40)

Table 2 to Subpart IIII of Part 60—Emission Standards for 2008 Model Year and Later Emergency Stationary CI ICE <37 KW (50 HP) With a Displacement of <10 Liters per Cylinder

The INL emergency stationary CI ICE are not subject to the requirements of Table 2 to Subpart IIII of Part 60 because it is not subject to §60.4202(a)(1).

[As stated in §60.4202(a)(1), you must comply with the following emission standards]

	Emission standards for 2008 model year and later emergency stationary CI ICE <37 KW (50 HP) with a displacement of <10 liters per cylinder in g/KW-hr (g/HP-hr)			
Engine power	**Model year(s)**	**NO_X + NMHC**	**CO**	**PM**
KW<8 (HP<11)	2008+	7.5 (5.6)	8.0 (6.0)	0.40 (0.30)
8≤KW<19 (11≤HP<25)	2008+	7.5 (5.6)	6.6 (4.9)	0.40 (0.30)
19≤KW<37 (25≤HP<50)	2008+	7.5 (5.6)	5.5 (4.1)	0.30 (0.22)

Table 3 to Subpart IIII of Part 60—Certification Requirements for Stationary Fire Pump Engines

The INL emergency stationary CI ICE are not subject to the requirements of Table 3 to Subpart IIII of Part 60 because it is not subject to §60.4202(b), 60.4204(d).

As stated in §60.4202(d), you must certify new stationary fire pump engines beginning with the following model years:

Engine power	Starting model year engine manufacturers must certify new stationary fire pump engines according to §60.4202(d)[1]
KW<75 (HP<100)	2011
75≤KW<130 (100≤HP<175)	2010
130≤KW≤560 (175≤HP≤750)	2009
KW>560 (HP>750)	2008

[1]Manufacturers of fire pump stationary CI ICE with a maximum engine power greater than or equal to 37 kW (50 HP) and less than 450 KW (600 HP) and a rated speed of greater than 2,650 revolutions per minute (rpm) are not required to certify such engines until three model years following the model year indicated in this Table 3 for engines in the applicable engine power category.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011]

Table 4 to Subpart IIII of Part 60—Emission Standards for Stationary Fire Pump Engines

[As stated in §§60.4202(d) and 60.4205(c), you must comply with the following emission standards for stationary fire pump engines]

The INL emergency stationary fire pump engines are subject to the requirements of Table 4 to Subpart IIII of Part 60 because it owns and operates emergency stationary fire pump ICE.

Maximum engine power	Model year(s)	NMHC + NO_X	CO	PM
KW<8 (HP<11)	2010 and earlier	10.5 (7.8)	8.0 (6.0)	1.0 (0.75)
	2011+	7.5 (5.6)		0.40 (0.30)
8≤KW<19 (11≤HP<25)	2010 and earlier	9.5 (7.1)	6.6 (4.9)	0.80 (0.60)
	2011+	7.5 (5.6)		0.40 (0.30)
19≤KW<37 (25≤HP<50)	2010 and earlier	9.5 (7.1)	5.5 (4.1)	0.80 (0.60)
	2011+	7.5 (5.6)		0.30 (0.22)
37≤KW<56 (50≤HP<75)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2011+[1]	4.7 (3.5)		0.40 (0.30)
56≤KW<75 (75≤HP<100)	2010 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)

	2011+[1]	4.7 (3.5)		0.40 (0.30)
75≤KW<130 (100≤HP<175)	2009 and earlier	10.5 (7.8)	5.0 (3.7)	0.80 (0.60)
	2010+[2]	4.0 (3.0)		0.30 (0.22)
130≤KW<225 (175≤HP<300)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+[3]	4.0 (3.0)		0.20 (0.15)
225≤KW<450 (300≤HP<600)	*2008 and earlier*	*10.5 (7.8)*	*3.5 (2.6)*	*0.54 (0.40)*
	2009+[3]	*4.0 (3.0)*		*0.20 (0.15)*
450≤KW≤560 (600≤HP≤750)	2008 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2009+	4.0 (3.0)		0.20 (0.15)
KW>560 (HP>750)	2007 and earlier	10.5 (7.8)	3.5 (2.6)	0.54 (0.40)
	2008+	6.4 (4.8)		0.20 (0.15)

[1]For model years 2011-2013, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 revolutions per minute (rpm) may comply with the emission limitations for 2010 model year engines.

[2]For model years 2010-2012, manufacturers, owners and operators of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2009 model year engines.

[3]In model years 2009-2011, manufacturers of fire pump stationary CI ICE in this engine power category with a rated speed of greater than 2,650 rpm may comply with the emission limitations for 2008 model year engines.

Table 5 to Subpart IIII of Part 60—Labeling and Recordkeeping Requirements for New Stationary Emergency Engines

The INL emergency stationary CI ICE are not subject to the requirements of Table 5 to Subpart IIII of Part 60 because the INL is not a manufacturer of fire pump engines, are not a model year listed in table 5, or are certified to the emission standard for the respective model year non-emergency engine.

[You must comply with the labeling requirements in §60.4210(f) and the recordkeeping requirements in §60.4214(b) for new emergency stationary CI ICE beginning in the following model years:]

Engine power	**Starting model year**
19≤KW<56 (25≤HP<75)	2013
56≤KW<130 (75≤HP<175)	2012
KW≥130 (HP≥175)	2011

Table 6 to Subpart IIII of Part 60—Optional 3-Mode Test Cycle for Stationary Fire Pump Engines

The INL emergency stationary fire pump engines are not subject to the requirements of Table 5 to Subpart IIII of Part 60 because it is not subject to §60.4210(g)

[As stated in §60.4210(g), manufacturers of fire pump engines may use the following test cycle for testing fire pump engines:]

Mode No.	Engine speed[1]	Torque (percent)[2]	Weighting factors
1	Rated	100	0.30
2	Rated	75	0.50
3	Rated	50	0.20

[1]Engine speed: ±2 percent of point.

[2]Torque: NFPA certified nameplate HP for 100 percent point. All points should be ±2 percent of engine percent load value.

Table 7 to Subpart IIII of Part 60—Requirements for Performance Tests for Stationary CI ICE With a Displacement of ≥30 Liters per Cylinder

The INL emergency stationary CI ICE are not subject to the requirements of Table 7 to Subpart IIII of Part 60 because they are not greater than or equal to 30 liters per cylinder and therefore not subject to §60.4213.

As stated in §60.4213, you must comply with the following requirements for performance tests for stationary CI ICE with a displacement of ≥30 liters per cylinder:

Each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary CI internal combustion engine with a displacement of ≥ 30 liters per cylinder	a. Reduce NO_X emissions by 90 percent or more;	i. Select the sampling port location and number/location of traverse points at the inlet and outlet of the control device;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the

				stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Measure O_2 at the inlet and outlet of the control device;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for NO_X concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.
		iv. Measure NO_X at the inlet and outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	b. Limit the concentration of NO_X in the stationary CI internal combustion engine exhaust.	i. Select the sampling port location and number/location of traverse points at the exhaust of the stationary internal combustion engine;		(a) For NO_X, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and

				select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(1) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurement for NO_X concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.
		iv. Measure NO_X at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(3) Method 7E of 40 CFR part 60, appendix A-4, Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03 (incorporated by reference, see §60.17)	(d) NO_X concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	c. Reduce PM emissions by 60 percent or more	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1	(a) Sampling sites must be located at the inlet and outlet of the control device.
		ii. Measure O_2 at the inlet and outlet of the control device;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content at the inlet and outlet of the control device; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine and moisture content must be made at the same time as the measurements for PM concentration.

		iv. Measure PM at the inlet and outlet of the control device.	(4) Method 5 of 40 CFR part 60, appendix A-3	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
	d. Limit the concentration of PM in the stationary CI internal combustion engine exhaust	i. Select the sampling port location and the number of traverse points;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1	(a) If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B of 40 CFR part 60, appendix A-2	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for PM concentration.
		iii. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(3) Method 4 of 40 CFR part 60, appendix A-3	(c) Measurements to determine moisture content must be made at the same time as the measurements for PM concentration.
		iv. Measure PM at the exhaust of the stationary internal combustion engine.	(4) Method 5 of 40 CFR part 60, appendix A-3.	(d) PM concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[79 FR 11251, Feb. 27, 2014]

Table 8 to Subpart IIII of Part 60—Applicability of General Provisions to Subpart IIII

[As stated in §60.4218, you must comply with the following applicable General Provisions:]

General Provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4219.
§60.3	Units and abbreviations	Yes	

§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4214(a).
§60.8	Performance tests	Yes	Except that §60.8 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder and engines that are not certified.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance requirements	No	Requirements are specified in subpart IIII.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	Yes	Except that §60.13 only applies to stationary CI ICE with a displacement of (≥30 liters per cylinder.
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

The INL is subject to the requirements of Table 8 to Subpart IIII of Part 60 in accordance with §60.4218 except for:

- ***§60.7 because the INL is not subject to §60.4214(a)***
- ***§60.8 because the displacement of the emergency stationary CI ICE is less than 30 liters per cylinder.***
- ***§60.13 because the displacement of the emergency stationary CI ICE is less than 30 liters per cylinder.***

ATTACHMENT FRA-3

40 CFR Part 60 Subpart JJJJ Regulatory Review

E-CFR DATA IS CURRENT AS OF JULY 8, 2019

40 CFR PART 60 SUBPART JJJJ REGULATORY ANALYSIS

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 60—STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES

Subpart JJJJ—Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

SOURCE: 73 FR 3591, January 18, 2008, unless otherwise noted.

WHAT THIS SUBPART COVERS

§60.4230 Am I subject to this subpart?

(a) The provisions of this subpart are applicable to manufacturers, *owners, and operators of stationary spark ignition (SI) internal combustion engines (ICE)* as specified in paragraphs (a)(1) through (6) of this section. *For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator.*

(1) Manufacturers of stationary SI ICE with a maximum engine power less than or equal to 19 kilowatt (KW) (25 horsepower (HP)) that are manufactured on or after July 1, 2008.

(2) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline fueled or that are rich burn engines fueled by liquefied petroleum gas (LPG), where the date of manufacture is:

(i) On or after July 1, 2008; or

(ii) On or after January 1, 2009, for emergency engines.

(3) Manufacturers of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are not gasoline fueled and are not rich burn engines fueled by LPG, where the manufacturer participates in the voluntary manufacturer certification program described in this subpart and where the date of manufacture is:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) On or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) On or after July 1, 2008, for engines with a maximum engine power less than 500 HP; or

(iv) On or after January 1, 2009, for emergency engines.

(4) Owners and operators of stationary SI ICE that commence construction after June 12, 2006, where the stationary SI ICE are manufactured:

(i) On or after July 1, 2007, for engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) on or after January 1, 2008, for lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP;

(iii) *on or after July 1, 2008, for engines with a maximum engine power less than 500 HP*; or

(iv) on or after January 1, 2009, for emergency engines with a maximum engine power greater than 19 KW (25 HP).

(5) Owners and operators of stationary SI ICE that are modified or reconstructed after June 12, 2006, and any person that modifies or reconstructs any stationary SI ICE after June 12, 2006.

(6) The provisions of §60.4236 of this subpart are applicable to all owners and operators of stationary SI ICE that commence construction after June 12, 2006.

(b) The provisions of this subpart are not applicable to stationary SI ICE being tested at an engine test cell/stand.

(c) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or 40 CFR part 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(d) For the purposes of this subpart, stationary SI ICE using alcohol-based fuels are considered gasoline engines.

(e) Stationary SI ICE may be eligible for exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C (or the exemptions described in 40 CFR parts 90 and 1048, for engines that would need to be certified to standards in those parts), except that owners and operators, as well as manufacturers, may be eligible to request an exemption for national security.

(f) Owners and operators of facilities with internal combustion engines that are acting as temporary replacement units and that are located at a stationary source for less than 1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this subpart with regard to such engines.

The Idaho National Laboratory (INL) is subject to this subpart because the INL owns and operates emergency stationary SI ICE that meets the applicable criteria under §60.4230(a)(4)(iii).

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37972, June 28, 2011]

EMISSION STANDARDS FOR MANUFACTURERS

§60.4231 What emission standards must I meet I am a manufacturer of stationary SI internal combustion engines or equipment containing such engines?

The INL is not subject to §60.4231 because the INL is not a stationary SI ICE manufacturer.

(a) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008 to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as follows:

If engine displacement is * * *	**and manufacturing dates are * * ***	**the engine must meet emission standards and related requirements for nonhandheld engines under * * ***
(1) below 225 cc	July 1, 2008 to December 31, 2011	40 CFR part 90.
(2) below 225 cc	January 1, 2012 or later	40 CFR part 1054.
(3) at or above 225 cc	July 1, 2008 to December 31, 2010	40 CFR part 90.
(4) at or above 225 cc	January 1, 2011 or later	40 CFR part 1054.

(b) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that use gasoline and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE with a maximum engine power greater than 25 HP and less than 130 HP that use gasoline and that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cubic centimeters (cc) that use gasoline to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(c) Stationary SI internal combustion engine manufacturers must certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) (except emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) that are rich burn engines that use LPG and that are manufactured on or after the applicable date in §60.4230(a)(2), or manufactured on or after the applicable date in §60.4230(a)(4) for emergency stationary ICE with a maximum engine power greater than or equal to 130 HP, to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers must certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP that are rich burn engines that use LPG and that are manufactured on or after the applicable date in §60.4230(a)(4) to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, and other requirements for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc that are rich burn engines that use LPG to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate.

(d) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) under the voluntary manufacturer certification program described in this subpart must certify those engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048. Stationary SI internal combustion engine manufacturers who choose to certify their emergency stationary SI ICE greater than 25 HP and less than 130 HP (except gasoline and rich burn engines that use LPG), must certify those engines to the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, for new nonroad SI engines in 40 CFR part 90. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc (except gasoline and rich burn engines that use LPG) to the certification emission standards for new nonroad SI engines in 40 CFR part 90 or 1054, as appropriate. For stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG and emergency stationary ICE with a maximum engine power greater than 25 HP and less than 130 HP) manufactured prior to January 1, 2011, manufacturers may choose to certify these engines to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP.

(e) Stationary SI internal combustion engine manufacturers who choose to certify their stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) under the voluntary manufacturer certification program described in this subpart must certify those engines to the emission standards in Table 1 to this subpart. Stationary SI internal combustion engine manufacturers may certify their stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) that are lean burn engines that use LPG to the certification

emission standards for new nonroad SI engines in 40 CFR part 1048. For stationary SI ICE with a maximum engine power greater than or equal to 100 HP (75 KW) and less than 500 HP (373 KW) manufactured prior to January 1, 2011, and for stationary SI ICE with a maximum engine power greater than or equal to 500 HP (373 KW) manufactured prior to July 1, 2010, manufacturers may choose to certify these engines to the certification emission standards for new nonroad SI engines in 40 CFR part 1048 applicable to engines that are not severe duty engines.

(f) Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, to the extent they apply to equipment manufacturers.

(g) Notwithstanding the requirements in paragraphs (a) through (c) of this section, stationary SI internal combustion engine manufacturers are not required to certify reconstructed engines; however manufacturers may elect to do so. The reconstructed engine must be certified to the emission standards specified in paragraphs (a) through (e) of this section that are applicable to the model year, maximum engine power and displacement of the reconstructed stationary SI ICE.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59175, Oct. 8, 2008; 76 FR 37973, June 28, 2011; 78 FR 6697, Jan. 30, 2013]

§60.4232 How long must my engines meet the emission standards if I am a manufacturer of stationary SI internal combustion engines?

The INL is not subject to §60.4232 because the INL is not a stationary SI ICE manufacturer.

Engines manufactured by stationary SI internal combustion engine manufacturers must meet the emission standards as required in §60.4231 during the certified emissions life of the engines.

EMISSION STANDARDS FOR OWNERS AND OPERATORS

§60.4233 What emission standards must I meet if I am an owner or operator of a stationary SI internal combustion engine?

(a) *Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) manufactured on or after July 1, 2008, must comply with the emission standards in §60.4231(a) for their stationary SI ICE.*

(b) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that use gasoline must comply with the emission standards in §60.4231(b) for their stationary SI ICE.

(c) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) manufactured on or after the applicable date in §60.4230(a)(4) that are rich burn engines that use LPG must comply with the emission standards in §60.4231(c) for their stationary SI ICE.

(d) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards for field testing in 40 CFR 1048.101l for their non-emergency stationary SI ICE and with the emission standards in Table 1 to this subpart for their emergency stationary SI ICE. Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) and less than 75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this subpart applicable to engines with a maximum engine power greater than or equal to 100 HP and less than 500 HP, may optionally choose to meet those standards.

(e) Owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 75 KW (100 HP) (except gasoline and rich burn engines that use LPG) must comply with the emission standards in Table 1 to this subpart for their stationary SI ICE. For owners and operators of stationary SI ICE with a maximum engine power greater than or equal to 100 HP (except gasoline and rich burn engines that use LPG) manufactured prior to January 1, 2011 that were certified to the certification

emission standards in 40 CFR part 1048 applicable to engines that are not severe duty engines, if such stationary SI ICE was certified to a carbon monoxide (CO) standard above the standard in Table 1 to this subpart, then the owners and operators may meet the CO certification (not field testing) standard for which the engine was certified.

(f) Owners and operators of any modified or reconstructed stationary SI ICE subject to this subpart must meet the requirements as specified in paragraphs (f)(1) through (5) of this section.

(1) Owners and operators of stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with emission standards in §60.4231(a) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in §60.4231(a) applicable to engines manufactured on July 1, 2008.

(2) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are gasoline engines and are modified or reconstructed after June 12, 2006, must comply with the emission standards in §60.4231(b) for their stationary SI ICE. Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231(b) applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(3) Owners and operators of stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) that are rich burn engines that use LPG, that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in §60.4231I. Engines with a date of manufacture prior to July 1, 2008 (or January 1, 2009 for emergency engines) must comply with the emission standards specified in §60.4231I applicable to engines manufactured on July 1, 2008 (or January 1, 2009 for emergency engines).

(4) Owners and operators of stationary SI natural gas and lean burn LPG engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (d) or (e) of this section, except that such owners and operators of non-emergency engines and emergency engines greater than or equal to 130 HP must meet a nitrogen oxides (NO_x) emission standard of 3.0 grams per HP-hour (g/HP-hr), a CO emission standard of 4.0 g/HP-hr (5.0 g/HP-hr for non-emergency engines less than 100 HP), and a volatile organic compounds (VOC) emission standard of 1.0 g/HP-hr, or a NO_x emission standard of 250 ppmvd at 15 percent oxygen (O_2), a CO emission standard 540 ppmvd at 15 percent O_2 (675 ppmvd at 15 percent O_2 for non-emergency engines less than 100 HP), and a VOC emission standard of 86 ppmvd at 15 percent O_2, where the date of manufacture of the engine is:

(i) Prior to July 1, 2007, for non-emergency engines with a maximum engine power greater than or equal to 500 HP (except lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP);

(ii) Prior to July 1, 2008, for non-emergency engines with a maximum engine power less than 500 HP;

(iii) Prior to January 1, 2009, for emergency engines;

(iv) Prior to January 1, 2008, for non-emergency lean burn natural gas engines and LPG engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP.

(5) Owners and operators of stationary SI landfill/digester gas ICE engines with a maximum engine power greater than 19 KW (25 HP), that are modified or reconstructed after June 12, 2006, must comply with the same emission standards as those specified in paragraph (e) of this section for stationary landfill/digester gas engines. Engines with maximum engine power less than 500 HP and a date of manufacture prior to July 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power less than 500 HP manufactured on July 1, 2008. Engines with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) and a date of manufacture prior to July 1, 2007 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE with a maximum engine power greater than or equal to 500 HP (except lean burn engines greater than or equal to 500 HP and less than 1,350 HP) manufactured on July 1, 2007. Lean

burn engines greater than or equal to 500 HP and less than 1,350 HP with a date of manufacture prior to January 1, 2008 must comply with the emission standards specified in paragraph (e) of this section for stationary landfill/digester gas ICE that are lean burn engines greater than or equal to 500 HP and less than 1,350 HP and manufactured on January 1, 2008.

(g) Owners and operators of stationary SI wellhead gas ICE engines may petition the Administrator for approval on a case-by-case basis to meet emission standards no less stringent than the emission standards that apply to stationary emergency SI engines greater than 25 HP and less than 130 HP due to the presence of high sulfur levels in the fuel, as specified in Table 1 to this subpart. The request must, at a minimum, demonstrate that the fuel has high sulfur levels that prevent the use of aftertreatment controls and also that the owner has reasonably made all attempts possible to obtain an engine that will meet the standards without the use of aftertreatment controls. The petition must request the most stringent standards reasonably applicable to the engine using the fuel.

(h) Owners and operators of stationary SI ICE that are required to meet standards that reference 40 CFR 1048.101 must, if testing their engines in use, meet the standards in that section applicable to field testing, except as indicated in paragraph (e) of this section.

The INL is subject to §60.4233 because the INL owns and operates emergency stationary SI ICE with a maximum engine power of less than 19 KW (25 HP) and is subject to the emission standards of §60.4231(a).

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37973, June 28, 2011]

§60.4234 How long must I meet the emission standards if I am an owner or operator of a stationary SI internal combustion engine?

Owners and operators of stationary SI ICE must operate and maintain stationary SI ICE that achieve the emission standards as required in §60.4233 over the entire life of the engine.

The INL is subject to §60.4234 because the INL is subject to the emission standards of §60.4233.

OTHER REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4235 What fuel requirements must I meet if I am an owner or operator of a stationary SI gasoline fired internal combustion engine subject to this subpart?

Owners and operators of stationary SI ICE subject to this subpart that use gasoline must use gasoline that meets the per gallon sulfur limit in 40 CFR 80.195.

The INL is not subject to §60.4235 because the INL does not own or operate stationary gasoline fired ICE.

§60.4236 What is the deadline for importing or installing stationary SI ICE produced in previous model years?

(a) After July 1, 2010, owners and operators may not install stationary SI ICE with a maximum engine power of less than 500 HP that do not meet the applicable requirements in §60.4233.

(b) After July 1, 2009, owners and operators may not install stationary SI ICE with a maximum engine power of greater than or equal to 500 HP that do not meet the applicable requirements in §60.4233, except that lean burn engines with a maximum engine power greater than or equal to 500 HP and less than 1,350 HP that do not meet the applicable requirements in §60.4233 may not be installed after January 1, 2010.

(c) For emergency stationary SI ICE with a maximum engine power of greater than 19 KW (25 HP), owners and operators may not install engines that do not meet the applicable requirements in §60.4233 after January 1, 2011.

(d) In addition to the requirements specified in §§60.4231 and 60.4233, it is prohibited to import stationary SI ICE less than or equal to 19 KW (25 HP), stationary rich burn LPG SI ICE, and stationary gasoline SI ICE that do not meet the applicable requirements specified in paragraphs (a), (b), and (c) of this section, after the date specified in paragraph (a), (b), and (c) of this section.

(e) The requirements of this section do not apply to owners and operators of stationary SI ICE that have been modified or reconstructed, and they do not apply to engines that were removed from one existing location and reinstalled at a new location.

The INL is subject to §60.4236(a) because the INL is subject to this subpart.

The INL is not subject to §60.4236(b-e) because the INL does not operate or import stationary SI ICE that do not meet the applicable requirements of §60.4233.

§60.4237 What are the monitoring requirements if I am an owner or operator of an emergency stationary SI internal combustion engine?

The INL is not subject to §60.4237 because the stationary because the engine purchased is certified in accordance with §60.4231(a).

(a) Starting on July 1, 2010, if the emergency stationary SI internal combustion engine that is greater than or equal to 500 HP that was built on or after July 1, 2010, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(b) Starting on January 1, 2011, if the emergency stationary SI internal combustion engine that is greater than or equal to 130 HP and less than 500 HP that was built on or after January 1, 2011, does not meet the standards applicable to non-emergency engines, the owner or operator must install a non-resettable hour meter.

(c) If you are an owner or operator of an emergency stationary SI internal combustion engine that is less than 130 HP, was built on or after July 1, 2008, and does not meet the standards applicable to non-emergency engines, you must install a non-resettable hour meter upon startup of your emergency engine.

COMPLIANCE REQUIREMENTS FOR MANUFACTURERS

§60.4238 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines ≤19 KW (25 HP) or a manufacturer of equipment containing such engines?

The INL is not subject to §60.4238 because the INL is not a stationary SI ICE manufacturer.

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(a) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§60.4239 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that use gasoline or a manufacturer of equipment containing such engines?

The INL is not subject to §60.4239 because the INL is not a stationary SI ICE manufacturer.

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(b) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§60.4240 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines >19 KW (25 HP) that are rich burn engines that use LPG or a manufacturer of equipment containing such engines?

The INL is not subject to §60.4240 because the INL is not a stationary SI ICE manufacturer.

Stationary SI internal combustion engine manufacturers who are subject to the emission standards specified in §60.4231(c) must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must test their engines as specified in that part. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of stationary SI emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 emission standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

[73 FR 59176, Oct. 8, 2008]

§60.4241 What are my compliance requirements if I am a manufacturer of stationary SI internal combustion engines participating in the voluntary certification program or a manufacturer of equipment containing such engines?

The INL is not subject to §60.4241 because the INL is not a stationary SI ICE manufacturer.

(a) Manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to certify their engines to the emission standards in §60.4231(d) or (e), as applicable, under the voluntary certification program described in this subpart. Manufacturers who certify their engines under the voluntary certification program must meet the requirements as specified in paragraphs (b) through (g) of

this section. In addition, manufacturers of stationary SI internal combustion engines who choose to certify their engines under the voluntary certification program, must also meet the requirements as specified in §60.4247.

(b) Manufacturers of engines other than those certified to standards in 40 CFR part 90 or 40 CFR part 1054 must certify their stationary SI ICE using the certification procedures required in 40 CFR part 1048, subpart C, and must follow the same test procedures that apply to large SI nonroad engines under 40 CFR part 1048, but must use the D-1 cycle of International Organization of Standardization 8178-4: 1996(E) (incorporated by reference, see 40 CFR 60.17) or the test cycle requirements specified in Table 3 to 40 CFR 1048.505, except that Table 3 of 40 CFR 1048.505 applies to high load engines only. Stationary SI internal combustion engine manufacturers who certify their stationary SI ICE with a maximum engine power less than or equal to 30 KW (40 HP) with a total displacement less than or equal to 1,000 cc to the certification emission standards and other requirements for new nonroad SI engines in 40 CFR part 90 or 40 CFR part 1054, and manufacturers of emergency engines that are greater than 25 HP and less than 130 HP who meet the Phase 1 standards in 40 CFR 90.103, applicable to class II engines, must certify their stationary SI ICE using the certification procedures required in 40 CFR part 90, subpart B, or 40 CFR part 1054, subpart C, as applicable, and must test their engines as specified in those parts. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, subpart C, to the extent they apply to equipment manufacturers.

(c) Certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, is voluntary, but manufacturers who decide to certify are subject to all of the requirements indicated in this subpart with regard to the engines included in their certification. Manufacturers must clearly label their stationary SI engines as certified or non-certified engines.

(d) Manufacturers of natural gas fired stationary SI ICE who conduct voluntary certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the definition of pipeline-quality natural gas. The fuel used for certifying stationary SI natural gas engines must meet the definition of pipeline-quality natural gas as described in §60.4248. In addition, the manufacturer must provide information to the owner and operator of the certified stationary SI engine including the specifications of the pipeline-quality natural gas to which the engine is certified and what adjustments the owner or operator must make to the engine when installed in the field to ensure compliance with the emission standards.

(e) Manufacturers of stationary SI ICE that are lean burn engines fueled by LPG who conduct voluntary certification of stationary SI ICE to the emission standards specified in §60.4231(d) or (e), as applicable, must certify their engines for operation using fuel that meets the specifications in 40 CFR 1065.720.

(f) Manufacturers may certify their engines for operation using gaseous fuels in addition to pipeline-quality natural gas; however, the manufacturer must specify the properties of that fuel and provide testing information showing that the engine will meet the emission standards specified in §60.4231(d) or (e), as applicable, when operating on that fuel. The manufacturer must also provide instructions for configuring the stationary engine to meet the emission standards on fuels that do not meet the pipeline-quality natural gas definition. The manufacturer must also provide information to the owner and operator of the certified stationary SI engine regarding the configuration that is most conducive to reduced emissions where the engine will be operated on gaseous fuels with different quality than the fuel that it was certified to.

(g) A stationary SI engine manufacturer may certify an engine family solely to the standards applicable to landfill/digester gas engines as specified in §60.4231(d) or (e), as applicable, but must certify their engines for operation using landfill/digester gas and must add a permanent label stating that the engine is for use only in landfill/digester gas applications. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(h) For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

(i) For engines being certified to the voluntary certification standards in Table 1 of this subpart, the VOC measurement shall be made by following the procedures in 40 CFR 1065.260 and 1065.265 in order to determine the total NMHC emissions by using a flame-ionization detector and non-methane cutter. As an

alternative to the nonmethane cutter, manufacturers may use a gas chromatograph as allowed under 40 CFR 1065.267 and may measure ethane, as well as methane, for excluding such levels from the total VOC measurement.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59176, Oct. 8, 2008; 76 FR 37974, June 28, 2011]

§60.4242 What other requirements must I meet if I am a manufacturer of stationary SI internal combustion engines or equipment containing stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

The INL is not subject to §60.4242 because the INL is not a stationary SI ICE manufacturer.

(a) Stationary SI internal combustion engine manufacturers must meet the provisions of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as applicable, as well as 40 CFR part 1068 for engines that are certified to the emission standards in 40 CFR part 1048 or 1054, except that engines certified pursuant to the voluntary certification procedures in §60.4241 are subject only to the provisions indicated in §60.4247 and are permitted to provide instructions to owners and operators allowing for deviations from certified configurations, if such deviations are consistent with the provisions of paragraphs §60.4241(c) through (f). Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060, as applicable. Labels on engines certified to 40 CFR part 1048 must refer to stationary engines, rather than or in addition to nonroad engines, as appropriate.

(b) An engine manufacturer certifying an engine family or families to standards under this subpart that are identical to standards applicable under 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054 for that model year may certify any such family that contains both nonroad and stationary engines as a single engine family and/or may include any such family containing stationary engines in the averaging, banking and trading provisions applicable for such engines under those parts. This provision also applies to equipment or component manufacturers certifying to standards under 40 CFR part 1060.

(c) Manufacturers of engine families certified to 40 CFR part 1048 may meet the labeling requirements referred to in paragraph (a) of this section for stationary SI ICE by either adding a separate label containing the information required in paragraph (a) of this section or by adding the words “and stationary” after the word “nonroad” to the label.

(d) For all engines manufactured on or after January 1, 2011, and for all engines with a maximum engine power greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, a stationary SI engine manufacturer that certifies an engine family solely to the standards applicable to emergency engines must add a permanent label stating that the engines in that family are for emergency use only. The label must be added according to the labeling requirements specified in 40 CFR 1048.135(b).

(e) All stationary SI engines subject to mandatory certification that do not meet the requirements of this subpart must be labeled according to 40 CFR 1068.230 and must be exported under the provisions of 40 CFR 1068.230. Stationary SI engines subject to standards in 40 CFR part 90 may use the provisions in 40 CFR 90.909. Manufacturers of stationary engines with a maximum engine power greater than 25 HP that are not certified to standards and other requirements under 40 CFR part 1048 are subject to the labeling provisions of 40 CFR 1048.20 pertaining to excluded stationary engines.

(f) For manufacturers of gaseous-fueled stationary engines required to meet the warranty provisions in 40 CFR 90.1103 or 1054.120, we may establish an hour-based warranty period equal to at least the certified emissions life of the engines (in engine operating hours) if we determine that these engines are likely to operate for a number of hours greater than the applicable useful life within 24 months. We will not approve an alternate warranty under this paragraph (f) for nonroad engines. An alternate warranty period approved under this paragraph (f) will be the specified number of engine operating hours or two years, whichever comes first. The engine manufacturer shall request this alternate warranty period in its application for certification or in an earlier submission. We may approve an alternate warranty period for an engine family subject to the following conditions:

(1) The engines must be equipped with non-resettable hour meters.

(2) The engines must be designed to operate for a number of hours substantially greater than the applicable certified emissions life.

(3) The emission-related warranty for the engines may not be shorter than any published warranty offered by the manufacturer without charge for the engines. Similarly, the emission-related warranty for any component shall not be shorter than any published warranty offered by the manufacturer without charge for that component.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008]

COMPLIANCE REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4243 What are my compliance requirements if I am an owner or operator of a stationary SI internal combustion engine?

(a) If you are an owner or operator of a stationary SI internal combustion engine that is manufactured after July 1, 2008, and must comply with the emission standards specified in §60.4233(a) through (c), you must comply by purchasing an engine certified to the emission standards in §60.4231(a) through (c), as applicable, for the same engine class and maximum engine power. In addition, you must meet one of the requirements specified in (a)(1) and (2) of this section.

(1) If you operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, you must keep records of conducted maintenance to demonstrate compliance, but no performance testing is required if you are an owner or operator. You must also meet the requirements as specified in 40 CFR part 1068, subparts A through D, as they apply to you. If you adjust engine settings according to and consistent with the manufacturer's instructions, your stationary SI internal combustion engine will not be considered out of compliance.

(2) If you do not operate and maintain the certified stationary SI internal combustion engine and control device according to the manufacturer's emission-related written instructions, your engine will be considered a non-certified engine, and you must demonstrate compliance according to (a)(2)(i) through (iii) of this section, as appropriate.

(i) If you are an owner or operator of a stationary SI internal combustion engine less than 100 HP, you must keep a maintenance plan and records of conducted maintenance to demonstrate compliance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions, but no performance testing is required if you are an owner or operator.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than or equal to 100 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup to demonstrate compliance.

(iii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test within 1 year of engine startup and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(b) If you are an owner or operator of a stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(d) or (e), you must demonstrate compliance according to one of the methods specified in paragraphs (b)(1) and (2) of this section.

(1) Purchasing an engine certified according to procedures specified in this subpart, for the same model year and demonstrating compliance according to one of the methods specified in paragraph (a) of this section.

(2) Purchasing a non-certified engine and demonstrating compliance with the emission standards specified in §60.4233(d) or (e) and according to the requirements specified in §60.4244, as applicable, and according to paragraphs (b)(2)(i) and (ii) of this section.

(i) If you are an owner or operator of a stationary SI internal combustion engine greater than 25 HP and less than or equal to 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test to demonstrate compliance.

(ii) If you are an owner or operator of a stationary SI internal combustion engine greater than 500 HP, you must keep a maintenance plan and records of conducted maintenance and must, to the extent practicable, maintain and operate the engine in a manner consistent with good air pollution control practice for minimizing emissions. In addition, you must conduct an initial performance test and conduct subsequent performance testing every 8,760 hours or 3 years, whichever comes first, thereafter to demonstrate compliance.

(c) If you are an owner or operator of a stationary SI internal combustion engine that must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according paragraph (b)(2)(i) or (ii) of this section, except that if you comply according to paragraph (b)(2)(i) of this section, you demonstrate that your non-certified engine complies with the emission standards specified in §60.4233(f).

(d) If you own or operate an emergency stationary ICE, you must operate the emergency stationary ICE according to the requirements in paragraphs (d)(1) through (3) of this section. In order for the engine to be considered an emergency stationary ICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, and operation in non-emergency situations for 50 hours per year, as described in paragraphs (d)(1) through (3) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (d)(1) through (3) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.

(1) There is no time limit on the use of emergency stationary ICE in emergency situations.

(2) You may operate your emergency stationary ICE for any combination of the purposes specified in paragraphs (d)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (d)(3) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (d)(2).

(i) Emergency stationary ICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency ICE beyond 100 hours per calendar year.

(ii) Emergency stationary ICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §60.17), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary ICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary ICE may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (d)(2) of this section. Except as provided in paragraph (d)(3)(i) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to

generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator;

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

(ii) [Reserved]

(e) Owners and operators of stationary SI natural gas fired engines may operate their engines using propane for a maximum of 100 hours per year as an alternative fuel solely during emergency operations, but must keep records of such use. If propane is used for more than 100 hours per year in an engine that is not certified to the emission standards when using propane, the owners and operators are required to conduct a performance test to demonstrate compliance with the emission standards of §60.4233.

(f) If you are an owner or operator of a stationary SI internal combustion engine that is less than or equal to 500 HP and you purchase a non-certified engine or you do not operate and maintain your certified stationary SI internal combustion engine and control device according to the manufacturer's written emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the stationary engine is rebuilt or undergoes major repair or maintenance. A rebuilt stationary SI ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(g) It is expected that air-to-fuel ratio controllers will be used with the operation of three-way catalysts/non-selective catalytic reduction. The AFR controller must be maintained and operated appropriately in order to ensure proper operation of the engine and control device to minimize emissions at all times.

(h) If you are an owner/operator of an stationary SI internal combustion engine with maximum engine power greater than or equal to 500 HP that is manufactured after July 1, 2007 and before July 1, 2008, and must comply with the emission standards specified in sections 60.4233(b) or (c), you must comply by one of the methods specified in paragraphs (h)(1) through (h)(4) of this section.

(1) Purchasing an engine certified according to 40 CFR part 1048. The engine must be installed and configured according to the manufacturer's specifications.

(2) Keeping records of performance test results for each pollutant for a test conducted on a similar engine. The test must have been conducted using the same methods specified in this subpart and these methods must have been followed correctly.

(3) Keeping records of engine manufacturer data indicating compliance with the standards.

(4) Keeping records of control device vendor data indicating compliance with the standards.

(i) If you are an owner or operator of a modified or reconstructed stationary SI internal combustion engine and must comply with the emission standards specified in §60.4233(f), you must demonstrate compliance according to one of the methods specified in paragraphs (i)(1) or (2) of this section.

(1) Purchasing, or otherwise owning or operating, an engine certified to the emission standards in §60.4233(f), as applicable.

(2) Conducting a performance test to demonstrate initial compliance with the emission standards according to the requirements specified in §60.4244. The test must be conducted within 60 days after the engine commences operation after the modification or reconstruction.

The INL is subject to §60.4243(a)&(a)(1) because it is subject to the emission standards specified in §60.4231(a).

The INL is subject to the applicable requirements of §60.4243(d)(1),(2)(i&iii)&(3) because it owns and operates emergency stationary SI ICE. The INL is not subject to the portions of §60.4211(d) that pertain to emergency demand response or to supply power as part of a financial arrangement.

The INL is not subject to the applicable requirements of §60.4243(b)(c)(e)(f)(g)or(h) because it does not own or operate large horsepower stationary SI internal combustion engine or own or operate a reconstructed a stationary SI internal combustion engine, and will install, configure, operate, and maintain each stationary SI ICE according to the manufacturer's emission-related written instructions.

[73 FR 3591, Jan. 18, 2008, as amended at 76 FR 37974, June 28, 2011; 78 FR 6697, Jan. 30, 2013]

TESTING REQUIREMENTS FOR OWNERS AND OPERATORS

§60.4244 What test methods and other procedures must I use if I am an owner or operator of a stationary SI internal combustion engine?

The INL is not subject to §60.4244 because performance tests are not required for Tier certified stationary SI ICE.

Owners and operators of stationary SI ICE who conduct performance tests must follow the procedures in paragraphs (a) through (f) of this section.

(a) Each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and according to the requirements in §60.8 and under the specific conditions that are specified by Table 2 to this subpart.

(b) You may not conduct performance tests during periods of startup, shutdown, or malfunction, as specified in §60.8(c). If your stationary SI internal combustion engine is non-operational, you do not need to startup the engine solely to conduct a performance test; however, you must conduct the performance test immediately upon startup of the engine.

(c) You must conduct three separate test runs for each performance test required in this section, as specified in §60.8(f). Each test run must be conducted within 10 percent of 100 percent peak (or the highest achievable) load and last at least 1 hour.

(d) To determine compliance with the NO_x mass per unit output emission limitation, convert the concentration of NO_x in the engine exhaust using Equation 1 of this section:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \qquad (Eq. 1)$$

Where:

ER = Emission rate of NO_x in g/HP-hr.

C_d = Measured NO_x concentration in parts per million by volume (ppmv).

1.912×10^{-3} = Conversion constant for ppm NO_x to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meter per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, horsepower-hour (HP-hr).

(e) To determine compliance with the CO mass per unit output emission limitation, convert the concentration of CO in the engine exhaust using Equation 2 of this section:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \qquad (Eq. 2)$$

Where:

ER = Emission rate of CO in g/HP-hr.

C_d = Measured CO concentration in ppmv.

1.164×10^{-3} = Conversion constant for ppm CO to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(f) For purposes of this subpart, when calculating emissions of VOC, emissions of formaldehyde should not be included. To determine compliance with the VOC mass per unit output emission limitation, convert the concentration of VOC in the engine exhaust using Equation 3 of this section:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \qquad (Eq. 3)$$

Where:

ER = Emission rate of VOC in g/HP-hr.

C_d = VOC concentration measured as propane in ppmv.

1.833×10^{-3} = Conversion constant for ppm VOC measured as propane, to grams per standard cubic meter at 20 degrees Celsius.

Q = Stack gas volumetric flow rate, in standard cubic meters per hour, dry basis.

T = Time of test run, in hours.

HP-hr = Brake work of the engine, in HP-hr.

(g) If the owner/operator chooses to measure VOC emissions using either Method 18 of 40 CFR part 60, appendix A, or Method 320 of 40 CFR part 63, appendix A, then it has the option of correcting the measured VOC emissions to account for the potential differences in measured values between these methods and Method 25A. The results from Method 18 and Method 320 can be corrected for response factor differences using Equations 4 and 5 of this section. The corrected VOC concentration can then be placed on a propane basis using Equation 6 of this section.

$$RF_i = \frac{C_{Mi}}{C_{Ai}} \qquad (Eq. 4)$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{Mi} = Measured concentration of compound i in ppmv as carbon.

C_{Ai} = True concentration of compound i in ppmv as carbon.

$$C_{ic} = RF_i \times C_{im} \qquad (Eq. 5)$$

Where:

C_{icorr} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imeas} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$$C_{Peq} = 0.6098 \times C_{icorr} \quad \text{(Eq. 6)}$$

Where:

C_{Peq} = Concentration of compound i in mg of propane equivalent per DSCM.

NOTIFICATION, REPORTS, AND RECORDS FOR OWNERS AND OPERATORS

§60.4245 What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary SI internal combustion engine?

Owners or operators of stationary SI ICE must meet the following notification, reporting and recordkeeping requirements.

(a) Owners and operators of all stationary SI ICE must keep records of the information in paragraphs (a)(1) through (4) of this section.

(1) All notifications submitted to comply with this subpart and all documentation supporting any notification.

(2) Maintenance conducted on the engine.

(3) If the stationary SI internal combustion engine is a certified engine, documentation from the manufacturer that the engine is certified to meet the emission standards and information as required in 40 CFR parts 90, 1048, 1054, and 1060, as applicable.

(4) If the stationary SI internal combustion engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to §60.4243(a)(2), documentation that the engine meets the emission standards.

(b) For all stationary SI emergency ICE greater than or equal to 500 HP manufactured on or after July 1, 2010, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than or equal to 130 HP and less than 500 HP manufactured on or after July 1, 2011 that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. For all stationary SI emergency ICE greater than 25 HP and less than 130 HP manufactured on or after July 1, 2008, that do not meet the standards applicable to non-emergency engines, the owner or operator of must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation.

(c) Owners and operators of stationary SI ICE greater than or equal to 500 HP that have not been certified by an engine manufacturer to meet the emission standards in §60.4231 must submit an initial notification as required in §60.7(a)(1). The notification must include the information in paragraphs (c)(1) through (5) of this section.

(1) Name and address of the owner or operator;

(2) The address of the affected source;

(3) Engine information including make, model, engine family, serial number, model year, maximum engine power, and engine displacement;

(4) Emission control equipment; and

(5) Fuel used.

(d) Owners and operators of stationary SI ICE that are subject to performance testing must submit a copy of each performance test as conducted in §60.4244 within 60 days after the test has been completed. Performance test reports using EPA Method 18, EPA Method 320, or ASTM D6348-03 (incorporated by reference—see 40 CFR 60.17) to measure VOC require reporting of all QA/QC data. For Method 18, report results from sections 8.4 and 11.1.1.4; for Method 320, report results from sections 8.6.2, 9.0, and 13.0; and for ASTM D6348-03 report results of all QA/QC procedures in Annexes 1-7.

(e) If you own or operate an emergency stationary SI ICE with a maximum engine power more than 100 HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §60.4243(d)(2)(ii) and (iii) or that operates for the purposes specified in §60.4243(d)(3)(i), you must submit an annual report according to the requirements in paragraphs (e)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §60.4243(d)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §60.4243(d)(2)(ii) and (iii).

(vii) Hours spent for operation for the purposes specified in §60.4243(d)(3)(i), including the date, start time, and end time for engine operation for the purposes specified in §60.4243(d)(3)(i). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §60.4.

The INL is subject only to §60.4245(a)(1)(2)&(3) because they own and operate stationary SI ICE.

The INL stationary SI ICE is not subject to §60.4214(b)(c)&(d) because the INL will purchase and operate certified engines.

The INL is not subject to §60.4214(e) because it is not contractually obligated to operate for emergency demand response or to supply power as part of a financial arrangement.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 78 FR 6697, Jan. 30, 2013]

GENERAL PROVISIONS

§60.4246 What parts of the General Provisions apply to me?

Table 3 to this subpart shows which parts of the General Provisions in §§60.1 through 60.19 apply to you.

The INL is subject to the requirements of Table 3 to Subpart JJJJ of Part 60 in accordance with §60.4246 except for:

- ***§60.8 because INL is not required to comply with performance testing.***
-

MOBILE SOURCE PROVISIONS

§60.4247 What parts of the mobile source provisions apply to me if I am a manufacturer of stationary SI internal combustion engines or a manufacturer of equipment containing such engines?

The INL is not subject to §60.42473 because the INL is not a stationary SI ICE manufacturer.

(a) Manufacturers certifying to emission standards in 40 CFR part 90, including manufacturers certifying emergency engines below 130 HP, must meet the provisions of 40 CFR part 90. Manufacturers certifying to emission standards in 40 CFR part 1054 must meet the provisions of 40 CFR part 1054. Manufacturers of equipment containing stationary SI internal combustion engines meeting the provisions of 40 CFR part 1054 must meet the provisions of 40 CFR part 1060 to the extent they apply to equipment manufacturers.

(b) Manufacturers required to certify to emission standards in 40 CFR part 1048 must meet the provisions of 40 CFR part 1048. Manufacturers certifying to emission standards in 40 CFR part 1048 pursuant to the voluntary certification program must meet the requirements in Table 4 to this subpart as well as the standards in 40 CFR 1048.101.

(c) For manufacturers of stationary SI internal combustion engines participating in the voluntary certification program and certifying engines to Table 1 to this subpart, Table 4 to this subpart shows which parts of the mobile source provisions in 40 CFR parts 1048, 1065, and 1068 apply to you. Compliance with the deterioration factor provisions under 40 CFR 1048.205(n) and 1048.240 will be required for engines built new on and after January 1, 2010. Prior to January 1, 2010, manufacturers of stationary internal combustion engines participating in the voluntary certification program have the option to develop their own deterioration factors based on an engineering analysis.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008]

DEFINITIONS

§60.4248 What definitions apply to this subpart?

As used in this subpart, all terms not defined herein shall have the meaning given them in the CAA and in subpart A of this part.

Certified emissions life means the period during which the engine is designed to properly function in terms of reliability and fuel consumption, without being remanufactured, specified as a number of hours of operation or calendar years, whichever comes first. The values for certified emissions life for stationary SI ICE with a maximum engine power less than or equal to 19 KW (25 HP) are given in 40 CFR 90.105, 40 CFR 1054.107, and 40 CFR 1060.101, as appropriate. The values for certified emissions life for stationary SI ICE with a maximum engine power greater than 19 KW (25 HP) certified to 40 CFR part 1048 are given in 40 CFR 1048.101(g). The certified emissions life for stationary SI ICE with a maximum engine power greater than 75 KW (100 HP) certified under the voluntary manufacturer certification program of this subpart is 5,000 hours or 7 years, whichever comes first. You may request in your application for certification that we approve a shorter certified emissions life for an engine family. We may approve a shorter certified emissions life, in hours of engine operation but not in years, if we determine that these engines will rarely operate longer than the shorter certified emissions life. If engines identical to those in the engine family have already been produced and are in use, your demonstration must include documentation from such in-use engines. In other cases, your demonstration must include an engineering analysis of information equivalent to such in-use data, such as data from research engines or similar engine models that are already in production. Your demonstration must also include any overhaul interval that you recommend, any mechanical warranty that you offer for the engine or its components, and any relevant customer design specifications. Your demonstration may include any other relevant information. The certified emissions life value may not be shorter than any of the following:

(i) 1,000 hours of operation.

(ii) Your recommended overhaul interval.

(iii) Your mechanical warranty for the engine.

Certified stationary internal combustion engine means an engine that belongs to an engine family that has a certificate of conformity that complies with the emission standards and requirements in this part, or of 40 CFR part 90, 40 CFR part 1048, or 40 CFR part 1054, as appropriate.

Combustion turbine means all equipment, including but not limited to the turbine, the fuel, air, lubrication and exhaust gas systems, control systems (except emissions control equipment), and any ancillary components and sub-components comprising any simple cycle combustion turbine, any regenerative/recuperative cycle combustion turbine, the combustion turbine portion of any cogeneration cycle combustion system, or the combustion turbine portion of any combined cycle steam/electric generating system.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Date of manufacture means one of the following things:

(1) For freshly manufactured engines and modified engines, date of manufacture means the date the engine is originally produced.

(2) For reconstructed engines, date of manufacture means the date the engine was originally produced, except as specified in paragraph (3) of this definition.

(3) Reconstructed engines are assigned a new date of manufacture if the fixed capital cost of the new and refurbished components exceeds 75 percent of the fixed capital cost of a comparable entirely new facility. An engine that is produced from a previously used engine block does not retain the date of manufacture of the engine in which the engine block was previously used if the engine is produced using all new components except for the engine block. In these cases, the date of manufacture is the date of reconstruction or the date the new engine is produced.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is number 2 distillate oil.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and carbon dioxide (CO_2).

Emergency stationary internal combustion engine means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary ICE must comply with the requirements specified in §60.4243(d) in order to be considered emergency stationary ICE. If the engine does not comply with the requirements specified in §60.4243(d), then it is not considered to be an emergency stationary ICE under this subpart.

(1) The stationary ICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary ICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary ICE used to pump water in the case of fire or flood, etc.

(2) The stationary ICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §60.4243(d).

(3) The stationary ICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §60.4243(d)(2)(ii) or (iii) and §60.4243(d)(3)(i).

Engine manufacturer means the manufacturer of the engine. See the definition of “manufacturer” in this section.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Freshly manufactured engine means an engine that has not been placed into service. An engine becomes freshly manufactured when it is originally produced.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Installed means the engine is placed and secured at the location where it is intended to be operated.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining or natural gas production.

Manufacturer has the meaning given in section 216(1) of the Clean Air Act. In general, this term includes any person who manufactures a stationary engine for sale in the United States or otherwise introduces a new stationary engine into commerce in the United States. This includes importers who import stationary engines for resale.

Maximum engine power means maximum engine power as defined in 40 CFR 1048.801.

Model year means the calendar year in which an engine is manufactured (see “date of manufacture”), except as follows:

(1) Model year means the annual new model production period of the engine manufacturer in which an engine is manufactured (see “date of manufacture”), if the annual new model production period is different than the calendar year and includes January 1 of the calendar year for which the model year is named. It may not begin before January 2 of the previous calendar year and it must end by December 31 of the named calendar year.

(2) For an engine that is converted to a stationary engine after being placed into service as a nonroad or other non-stationary engine, model year means the calendar year or new model production period in which the engine was manufactured (see “date of manufacture”).

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Other internal combustion engine means any internal combustion engine, except combustion turbines, which is not a reciprocating internal combustion engine or rotary internal combustion engine.

Pipeline-quality natural gas means a naturally occurring fluid mixture of hydrocarbons (e.g., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions, and which is provided by a supplier through a pipeline. Pipeline-quality natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1,100 British thermal units per standard cubic foot.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to June 12, 2006, with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Rotary internal combustion engine means any internal combustion engine which uses rotary motion to convert heat energy into mechanical work.

Spark ignition means relating to either: a gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary internal combustion engine means any internal combustion engine, except combustion turbines, that converts heat energy into mechanical work and is not mobile. Stationary ICE differ from mobile ICE in that a stationary internal combustion engine is not a nonroad engine as defined at 40 CFR 1068.30 (excluding paragraph (2)(ii) of that definition), and is not used to propel a motor vehicle, aircraft, or a vehicle used solely for competition. Stationary ICE include reciprocating ICE, rotary ICE, and other ICE, except combustion turbines.

Stationary internal combustion engine test cell/stand means an engine test cell/stand, as defined in 40 CFR part 63, subpart PPPPP, that tests stationary ICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Subpart means 40 CFR part 60, subpart JJJJ.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

Volatile organic compounds means volatile organic compounds as defined in 40 CFR 51.100(s).

Voluntary certification program means an optional engine certification program that manufacturers of stationary SI internal combustion engines with a maximum engine power greater than 19 KW (25 HP) that do not use gasoline and are not rich burn engines that use LPG can choose to participate in to certify their engines to the emission standards in §60.4231(d) or (e), as applicable.

[73 FR 3591, Jan. 18, 2008, as amended at 73 FR 59177, Oct. 8, 2008; 76 FR 37974, June 28, 2011; 78 FR 6698, Jan. 30, 2013]

The INL has read and understands these definitions and used them in providing this regulatory analysis. For this regulatory analysis, §60.4248 definitions underlined are for those definitions that specifically apply to INL operations of stationary SI ICE.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37972, June 28, 2011; 78 FR 6696, Jan. 30, 2013]

Table 1 to Subpart JJJJ of Part 60—NO_X, CO, and VOC Emission Standards for Stationary Non-Emergency SI Engines ≥100 HP (Except Gasoline and Rich Burn LPG), Stationary SI Landfill/Digester Gas Engines, and Stationary Emergency Engines >25 HP.

The INL emergency stationary CI ICE are not subject to the requirements of Table 1 to Subpart JJJJ of Part 60 because the aforementioned engine is not >25 HP.

Engine type and fuel	Maximum engine power	Manufacture date	Emission standards[a]	
			g/HP-hr	ppmvd at 15% O_2

			NO_x	CO	VOC[d]	NO_x	CO	VOC[d]
Non-Emergency SI Natural Gas[b] and Non-Emergency SI Lean Burn LPG[b]	100≤HP<500	7/1/2008	2.0	4.0	1.0	160	540	86
		1/1/2011	1.0	2.0	0.7	82	270	60
Non-Emergency SI Lean Burn Natural Gas and LPG	500≤HP<1,350	1/1/2008	2.0	4.0	1.0	160	540	86
		7/1/2010	1.0	2.0	0.7	82	270	60
Non-Emergency SI Natural Gas and Non-Emergency SI Lean Burn LPG (except lean burn 500≤HP<1,350)	HP≥500	7/1/2007	2.0	4.0	1.0	160	540	86
	HP≥500	7/1/2010	1.0	2.0	0.7	82	270	60
Landfill/Digester Gas (except lean burn 500≤HP<1,350)	HP<500	7/1/2008	3.0	5.0	1.0	220	610	80
		1/1/2011	2.0	5.0	1.0	150	610	80
	HP≥500	7/1/2007	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Landfill/Digester Gas Lean Burn	500≤HP<1,350	1/1/2008	3.0	5.0	1.0	220	610	80
		7/1/2010	2.0	5.0	1.0	150	610	80
Emergency	25<HP<130	1/1/2009	[c]10	387	N/A	N/A	N/A	N/A
	HP≥130		2.0	4.0	1.0	160	540	86

[a]Owners and operators of stationary non-certified SI engines may choose to comply with the emission standards in units of either g/HP-hr or ppmvd at 15 percent O_2.

[b]Owners and operators of new or reconstructed non-emergency lean burn SI stationary engines with a site rating of greater than or equal to 250 brake HP located at a major source that are meeting the requirements of 40 CFR part 63, subpart ZZZZ, Table 2a do not have to comply with the CO emission standards of Table 1 of this subpart.

[c]The emission standards applicable to emergency engines between 25 HP and 130 HP are in terms of NO_x + HC.

[d]For purposes of this subpart, when calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

[76 FR 37975, June 28, 2011]

Table 2 to Subpart JJJJ of Part 60—Requirements for Performance Tests

The INL emergency stationary CI ICE are not subject to the requirements of Table 2 to Subpart JJJJ of Part 60 because it is not subject to §§60.4244.

As stated in §60.4244, you must comply with the following requirements for performance tests within 10 percent of 100 percent peak (or the highest achievable) load:

For each	Complying with the requirement to	You must	Using	According to the following requirements
1. Stationary SI internal combustion engine demonstrating compliance according to §60.4244.	a. limit the concentration of NO_x in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for NO_x, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method	(b) Measurements to determine O_2 concentration must be made at the same time as

		exhaust at the sampling port location;	D6522-00 (Reapproved 2005)[ad]	the measurements for NO_x concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR part 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D 6348-03[d e]	(c) Measurements to determine moisture must be made at the same time as the measurement for NO_x concentration.
		v. Measure NO_x at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Method 7E of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (Reapproved 2005)[ad], Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D 6348-03[e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.
	b. limit the concentration of CO in the stationary SI internal combustion engine exhaust.	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line ('3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and

				half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at '3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method D6522-00 (Reapproved 2005)[ad]	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for CO concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	
		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D 6348-03[d e]	(c) Measurements to determine moisture must be made at the same time as the measurement for CO concentration.
		v. Measure CO at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Method 10 of 40 CFR part 60, appendix A4, ASTM Method D6522-00 (Reapproved 2005)[a d e], Method 320 of 40 CFR part 63, appendix A[e], or	(d) Results of this test consist of the average of the three 1-hour or longer runs.

			ASTM Method D 6348-03[d e]	
	c. limit the concentration of VOC in the stationary SI internal combustion engine exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary internal combustion engine;	(1) Method 1 or 1A of 40 CFR part 60, appendix A-1, if measuring flow rate	(a) Alternatively, for VOC, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter and the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, Appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, Appendix A.
		ii. Determine the O_2 concentration of the stationary internal combustion engine exhaust at the sampling port location;	(2) Method 3, 3A, or 3B[b] of 40 CFR part 60, appendix A-2 or ASTM Method D6522-00 (Reapproved 2005)[a d]	(b) Measurements to determine O_2 concentration must be made at the same time as the measurements for VOC concentration.
		iii. If necessary, determine the exhaust flowrate of the stationary internal combustion engine exhaust;	(3) Method 2 or 2C of 40 CFR 60, appendix A-1 or Method 19 of 40 CFR part 60, appendix A-7	

		iv. If necessary, measure moisture content of the stationary internal combustion engine exhaust at the sampling port location; and	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D 6348-03[e]	(c) Measurements to determine moisture must be made at the same time as the measurement for VOC concentration.
		v. Measure VOC at the exhaust of the stationary internal combustion engine; if using a control device, the sampling site must be located at the outlet of the control device.	(5) Methods 25A and 18 of 40 CFR part 60, appendices A-6 and A-7, Method 25A with the use of a hydrocarbon cutter as described in 40 CFR 1065.265, Method 18 of 40 CFR part 60, appendix A-6[c e], Method 320 of 40 CFR part 63, appendix A[e], or ASTM Method D 6348-03[d e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.

[a]Also, you may petition the Administrator for approval to use alternative methods for portable analyzer.

[b]You may use ASME PTC 19.10-1981, Flue and Exhaust Gas Analyses, for measuring the O_2 content of the exhaust gas as an alternative to EPA Method 3B. AMSE PTC 19.10-1981 incorporated by reference, see 40 CFR 60.17

[c]You may use EPA Method 18 of 40 CFR part 60, appendix A-6, provided that you conduct an adequate pre-survey test prior to the emissions test, such as the one described in OTM 11 on EPA's Web site (*http://www.epa.gov/ttn/emc/prelim/otm11.pdf*).

Incorporated by reference; see 40 CFR 60.17.

[e]You must meet the requirements in §60.4245(d).

[81 FR 59809, Aug. 30, 2016]Table 3 to Subpart JJJJ of Part 60—Applicability of General Provisions to Subpart JJJJ

[As stated in §60.4246, you must comply with the following applicable General Provisions]

General provisions citation	Subject of citation	Applies to subpart	Explanation
§60.1	General applicability of the General Provisions	Yes	
§60.2	Definitions	Yes	Additional terms defined in §60.4248.
§60.3	Units and abbreviations	Yes	

§60.4	Address	Yes	
§60.5	Determination of construction or modification	Yes	
§60.6	Review of plans	Yes	
§60.7	Notification and Recordkeeping	Yes	Except that §60.7 only applies as specified in §60.4245.
§60.8	Performance tests	Yes	Except that §60.8 only applies to owners and operators who are subject to performance testing in subpart JJJJ.
§60.9	Availability of information	Yes	
§60.10	State Authority	Yes	
§60.11	Compliance with standards and maintenance requirements	Yes	Requirements are specified in subpart JJJJ.
§60.12	Circumvention	Yes	
§60.13	Monitoring requirements	No	
§60.14	Modification	Yes	
§60.15	Reconstruction	Yes	
§60.16	Priority list	Yes	
§60.17	Incorporations by reference	Yes	
§60.18	General control device requirements	No	
§60.19	General notification and reporting requirements	Yes	

The INL is subject to the requirements of Table 3 to Subpart JJJJ of Part 60 in accordance with §60.4246 except for:

- ***§60.8 because the INL is not subject to performance testing***

Table 4 to Subpart JJJJ of Part 60—Applicability of Mobile Source Provisions for Manufacturers Participating in the Voluntary Certification Program and Certifying Stationary SI ICE to Emission Standards in Table 1 of Subpart JJJJ

The INL emergency stationary CI ICE are not subject to the requirements of Table 4 to Subpart JJJJ of Part 60 because it is not a manufacturer of stationary SI ICE.

[As stated in §60.4247, you must comply with the following applicable mobile source provisions if you are a manufacturer participating in the voluntary certification program and certifying stationary SI ICE to emission standards in Table 1 of subpart JJJJ]

Mobile source provisions citation	Subject of citation	Applies to subpart	Explanation
1048 subpart A	Overview and Applicability	Yes	

1048 subpart B	Emission Standards and Related Requirements	Yes	Except for the specific sections below.
1048.101	Exhaust Emission Standards	No	
1048.105	Evaporative Emission Standards	No	
1048.110	Diagnosing Malfunctions	No	
1048.140	Certifying Blue Sky Series Engines	No	
1048.145	Interim Provisions	No	
1048 subpart C	Certifying Engine Families	Yes	Except for the specific sections below.
1048.205(b)	AECD reporting	Yes	
1048.205(c)	OBD Requirements	No	
1048.205(n)	Deterioration Factors	Yes	Except as indicated in 60.4247(c).
1048.205(p)(1)	Deterioration Factor Discussion	Yes	
1048.205(p)(2)	Liquid Fuels as they require	No	
1048.240(b)(c)(d)	Deterioration Factors	Yes	
1048 subpart D	Testing Production-Line Engines	Yes	
1048 subpart E	Testing In-Use Engines	No	
1048 subpart F	Test Procedures	Yes	
1065.5(a)(4)	Raw sampling (refers reader back to the specific emissions regulation for guidance)	Yes	
1048 subpart G	Compliance Provisions	Yes	
1048 subpart H	Reserved		
1048 subpart I	Definitions and Other Reference Information	Yes	
1048 appendix I and II	Yes		
1065 (all subparts)	Engine Testing Procedures	Yes	Except for the specific section below.
1065.715	Test Fuel Specifications for Natural Gas	No	
1068 (all subparts)	General Compliance Provisions for Nonroad Programs	Yes	Except for the specific sections below.
1068.245	Hardship Provisions for Unusual Circumstances	No	
1068.250	Hardship Provisions for Small-Volume Manufacturers	No	
1068.255	Hardship Provisions for Equipment Manufacturers and Secondary Engine Manufacturers	No	

ATTACHMENT FRA-4

40 CFR Part 61 Subpart M Regulatory Analysis

E-CFR DATA IS CURRENT AS OF JULY 8, 2019

40 CFR PART 61 SUBPART M REGULATORY ANALYSIS

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 61—NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS

Subpart M—National Emission Standard for Asbestos

Source: 49 FR 13661, Apr. 5, 1984, unless otherwise noted.

§61.140 Applicability.

The provisions of this subpart are applicable to those sources specified in §§61.142 through 61.151, 61.154, and 61.155.

The INL is subject to §61.140 because it is subject to §61.145, §61.150, and §61.154 of this subpart.

[55 FR 48414, Nov. 20, 1990]

§61.141 Definitions.

All terms that are used in this subpart and are not defined below are given the same meaning as in the Act and in subpart A of this part.

Active waste disposal site means any disposal site other than an inactive site.

Adequately wet means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

Asbestos means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

Asbestos-containing waste materials means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this subpart. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

Asbestos mill means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos material is not considered a part of the asbestos mill.

Asbestos tailings means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

Asbestos waste from control devices means any waste material that contains asbestos and is collected by a pollution control device.

Category I nonfriable asbestos-containing material (ACM) means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Category II nonfriable ACM means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Commercial asbestos means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

Cutting means to penetrate with a sharp-edged instrument and includes sawing, but does not include shearing, slicing, or punching.

Demolition means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

Emergency renovation operation means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

Fabricating means any processing (*e.g.,* cutting, sawing, drilling) of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, debonding, grinding, sawing, drilling, or other similar operations performed as part of fabricating.

Facility means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this subpart is not excluded, regardless of its current use or function.

Facility component means any part of a facility including equipment.

Friable asbestos material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

Fugitive source means any source of emissions not controlled by an air pollution control device.

Glove bag means a sealed compartment with attached inner gloves used for the handling of asbestos-containing materials. Properly installed and used, glove bags provide a small work area enclosure typically used for small-scale asbestos stripping operations. Information on glove-bag installation, equipment and supplies, and work practices is contained in the Occupational Safety and Health Administration's (OSHA's) final rule on occupational exposure to asbestos (appendix G to 29 CFR 1926.58).

Grinding means to reduce to powder or small fragments and includes mechanical chipping or drilling.

In poor condition means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

Inactive waste disposal site means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

Installation means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

Leak-tight means that solids or liquids cannot escape or spill out. It also means dust-tight.

Malfunction means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of asbestos are increased. Failures of equipment shall not be considered malfunctions if they are caused in any way by poor maintenance, careless operation, or any other preventable upset conditions, equipment breakdown, or process failure.

Manufacturing means the combining of commercial asbestos—or, in the case of woven friction products, the combining of textiles containing commercial asbestos—with any other material(s), including commercial asbestos, and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.

Natural barrier means a natural object that effectively precludes or deters access. Natural barriers include physical obstacles such as cliffs, lakes or other large bodies of water, deep and wide ravines, and mountains. Remoteness by itself is not a natural barrier.

Nonfriable asbestos-containing material means any material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

Nonscheduled renovation operation means a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted.

Outside air means the air outside buildings and structures, including, but not limited to, the air under a bridge or in an open air ferry dock.

Owner or operator of a demolition or renovation activity means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

Particulate asbestos material means finely divided particles of asbestos or material containing asbestos.

Planned renovation operations means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

Regulated asbestos-containing material (RACM) means (a) Friable asbestos material, (b) Category I nonfriable ACM that has become friable, (c) Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or (d) Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations regulated by this subpart.

Remove means to take out RACM or facility components that contain or are covered with RACM from any facility.

Renovation means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

Resilient floor covering means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy.

Roadways means surfaces on which vehicles travel. This term includes public and private highways, roads, streets, parking areas, and driveways.

Strip means to take off RACM from any part of a facility or facility components.

Structural member means any load-supporting member of a facility, such as beams and load supporting walls; or any nonload-supporting member, such as ceilings and nonload-supporting walls.

Visible emissions means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

Waste generator means any owner or operator of a source covered by this subpart whose act or process produces asbestos-containing waste material.

Waste shipment record means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

Working day means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

The INL has read and understands these definitions and used them in providing this regulatory analysis. For this regulatory analysis, §61.141 definitions underlined are for those definitions that specifically apply to INL activities.

[49 FR 13661, Apr. 5, 1984; 49 FR 25453, June 21, 1984, as amended by 55 FR 48414, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991; 60 FR 31920, June 19, 1995]

§61.142 Standard for asbestos mills.

The INL is not subject to §61.142 because it is not an asbestos mill.

(a) Each owner or operator of an asbestos mill shall either discharge no visible emissions to the outside air from that asbestos mill, including fugitive sources, or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(b) Each owner or operator of an asbestos mill shall meet the following requirements:

(1) Monitor each potential source of asbestos emissions from any part of the mill facility, including air cleaning devices, process equipment, and buildings that house equipment for material processing and handling, at least once each day, during daylight hours, for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(2) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunction, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this paragraph, submit to the Administrator, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(i) Maintenance schedule.

(ii) Recordkeeping plan.

(3) Maintain records of the results of visible emissions monitoring and air cleaning device inspections using a format similar to that shown in Figures 1 and 2 and include the following:

(i) Date and time of each inspection.

(ii) Presence or absence of visible emissions.

(iii) Condition of fabric filters, including presence of any tears, holes, and abrasions.

(iv) Presence of dust deposits on clean side of fabric filters.

(v) Brief description of corrective actions taken, including date and time.

(vi) Daily hours of operation for each air cleaning device.

(4) Furnish upon request, and make available at the affected facility during normal business hours for inspection by the Administrator, all records required under this section.

(5) Retain a copy of all monitoring and inspection records for at least 2 years.

(6) Submit semiannually a copy of visible emission monitoring records to the Administrator if visible emissions occurred during the report period. Semiannual reports shall be postmarked by the 30th day following the end of the six-month period.

[55 FR 48416, Nov. 20, 1990, as amended at 64 FR 7467, Feb. 12, 1999]

§61.143 Standard for roadways.

The INL is not subject to §61.142 because it does not construct or maintain a roadway with asbestos tailings or asbestos-containing waste material.

No person may construct or maintain a roadway with asbestos tailings or asbestos-containing waste material on that roadway, unless, for asbestos tailings.

(a) It is a temporary roadway on an area of asbestos ore deposits (asbestos mine): or

(b) It is a temporary roadway at an active asbestos mill site and is encapsulated with a resinous or bituminous binder. The encapsulated road surface must be maintained at a minimum frequency of once per year to prevent dust emissions; or

(c) It is encapsulated in asphalt concrete meeting the specifications contained in section 401 of Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-85, 1985, or their equivalent.

[55 FR 48419, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

§61.144 Standard for manufacturing.

The INL is not subject to §61.144 because it is not a manufacturing operations using commercial asbestos.

(a) *Applicability.* This section applies to the following manufacturing operations using commercial asbestos.

(1) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving, lap, or other textile materials.

(2) The manufacture of cement products.

(3) The manufacture of fireproofing and insulating materials.

(4) The manufacture of friction products.

(5) The manufacture of paper, millboard, and felt.

(6) The manufacture of floor tile.

(7) The manufacture of paints, coatings, caulks, adhesives, and sealants.

(8) The manufacture of plastics and rubber materials.

(9) The manufacture of chlorine utilizing asbestos diaphragm technology.

(10) The manufacture of shotgun shell wads.

(11) The manufacture of asphalt concrete.

(b) *Standard.* Each owner or operator of any of the manufacturing operations to which this section applies shall either:

(1) Discharge no visible emissions to the outside air from these operations or from any building or structure in which they are conducted or from any other fugitive sources; or

(2) Use the methods specified by §61.152 to clean emissions from these operations containing particulate asbestos material before they escape to, or are vented to, the outside air.

(3) Monitor each potential source of asbestos emissions from any part of the manufacturing facility, including air cleaning devices, process equipment, and buildings housing material processing and handling equipment, at least once each day during daylight hours for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(4) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunctions, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this paragraph, submit to the Administrator, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(i) Maintenance schedule.

(ii) Recordkeeping plan.

(5) Maintain records of the results of visible emission monitoring and air cleaning device inspections using a format similar to that shown in Figures 1 and 2 and include the following.

(i) Date and time of each inspection.

(ii) Presence or absence of visible emissions.

(iii) Condition of fabric filters, including presence of any tears, holes and abrasions.

(iv) Presence of dust deposits on clean side of fabric filters.

(v) Brief description of corrective actions taken, including date and time.

(vi) Daily hours of operation for each air cleaning device.

(6) Furnish upon request, and make available at the affected facility during normal business hours for inspection by the Administrator, all records required under this section.

(7) Retain a copy of all monitoring and inspection records for at least 2 years.

(8) Submit semiannually a copy of the visible emission monitoring records to the Administrator if visible emission occurred during the report period. Semiannual reports shall be postmarked by the 30th day following the end of the six-month period.

[49 FR 13661, Apr. 5, 1984, as amended at 55 FR 48419, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991; 64 FR 7467, Feb. 12, 1999]

§61.145 Standard for demolition and renovation.

(a) Applicability. To determine which requirements of paragraphs (a), (b), and (c) of this section apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM. The requirements of paragraphs (b) and (c) of this section apply to each owner or operator of a demolition or renovation activity, including the removal of RACM as follows:

(1) In a facility being demolished, all the requirements of paragraphs (b) and (c) of this section apply, except as provided in paragraph (a)(3) of this section, if the combined amount of RACM is

(i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(2) In a facility being demolished, only the notification requirements of paragraphs (b)(1), (2), (3)(i) and (iv), and (4)(i) through (vii) and (4)(ix) and (xvi) of this section apply, if the combined amount of RACM is

(i) Less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) on other facility components, and

(ii) Less than one cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously or there is no asbestos.

(3) If the facility is being demolished under an order of a State or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of paragraphs (b)(1), (b)(2), (b)(3)(iii), (b)(4) (except (b)(4)(viii)), (b)(5), and (c)(4) through (c)(9) of this section apply.

(4) In a facility being renovated, including any individual nonscheduled renovation operation, all the requirements of paragraphs (b) and (c) of this section apply if the combined amount of RACM to be stripped, removed, dislodged, cut, drilled, or similarly disturbed is

(i) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(ii) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(iii) To determine whether paragraph (a)(4) of this section applies to planned renovation operations involving individual nonscheduled operations, predict the combined additive amount of RACM to be removed or stripped during a calendar year of January 1 through December 31.

(iv) To determine whether paragraph (a)(4) of this section applies to emergency renovation operations, estimate the combined amount of RACM to be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(5) Owners or operators of demolition and renovation operations are exempt from the requirements of §§61.05(a), 61.07, and 61.09.

(b) Notification requirements. Each owner or operator of a demolition or renovation activity to which this section applies shall:

(1) Provide the Administrator with written notice of intention to demolish or renovate. Delivery of the notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(2) Update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent.

(3) Postmark or deliver the notice as follows:

(i) At least 10 working days before asbestos stripping or removal work or any other activity begins (such as site preparation that would break up, dislodge or similarly disturb asbestos material), if the operation is described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section. If the operation is as described in paragraph (a)(2) of this section, notification is required 10 working days before demolition begins.

(ii) At least 10 working days before the end of the calendar year preceding the year for which notice is being given for renovations described in paragraph (a)(4)(iii) of this section.

(iii) As early as possible before, but not later than, the following working day if the operation is a demolition ordered according to paragraph (a)(3) of this section or, if the operation is a renovation described in paragraph (a)(4)(iv) of this section.

(iv) For asbestos stripping or removal work in a demolition or renovation operation, described in paragraphs (a) (1) and (4) (except (a)(4)(iii) and (a)(4)(iv)) of this section, and for a demolition described in paragraph (a)(2) of this section, that will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator as follows:

(A) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin after the date contained in the notice,

(1) Notify the Administrator of the new start date by telephone as soon as possible before the original start date, and

(2) Provide the Administrator with a written notice of the new start date as soon as possible before, and no later than, the original start date. Delivery of the updated notice by the U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(B) When the asbestos stripping or removal operation or demolition operation covered by this paragraph will begin on a date earlier than the original start date,

(1) Provide the Administrator with a written notice of the new start date at least 10 working days before asbestos stripping or removal work begins.

(2) For demolitions covered by paragraph (a)(2) of this section, provide the Administrator written notice of a new start date at least 10 working days before commencement of demolition. Delivery of updated notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(C) In no event shall an operation covered by this paragraph begin on a date other than the date contained in the written notice of the new start date.

(4) Include the following in the notice:

(i) An indication of whether the notice is the original or a revised notification.

(ii) Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.

(iii) Type of operation: demolition or renovation.

(iv) Description of the facility or affected part of the facility including the size (square meters [square feet] and number of floors), age, and present and prior use of the facility.

(v) Procedure, including analytical methods, employed to detect the presence of RACM and Category I and Category II nonfriable ACM.

(vi) Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in linear meters (linear feet), surface area in square meters (square feet) on other facility components, or volume in cubic meters (cubic feet) if off the facility components. Also, estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed before demolition.

(vii) Location and street address (including building number or name and floor or room number, if appropriate), city, county, and state, of the facility being demolished or renovated.

(viii) Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in paragraph (a)(4)(iii) of this section.

(ix) Scheduled starting and completion dates of demolition or renovation.

(x) Description of planned demolition or renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used and description of affected facility components.

(xi) Description of work practices and engineering controls to be used to comply with the requirements of this subpart, including asbestos removal and waste-handling emission control procedures.

(xii) Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

(xiii) A certification that at least one person trained as required by paragraph (c)(8) of this section will supervise the stripping and removal described by this notification. This requirement shall become effective 1 year after promulgation of this regulation.

(xiv) For facilities described in paragraph (a)(3) of this section, the name, title, and authority of the State or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(xv) For emergency renovations described in paragraph (a)(4)(iv) of this section, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

(xvi) Description of procedures to be followed in the event that unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder.

(xvii) Name, address, and telephone number of the waste transporter.

(5) The information required in paragraph (b)(4) of this section must be reported using a form similar to that shown in Figure 3.

(c) Procedures for asbestos emission control. Each owner or operator of a demolition or renovation activity to whom this paragraph applies, according to paragraph (a) of this section, shall comply with the following procedures:

(1) Remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. RACM need not be removed before demolition if:

(i) It is Category I nonfriable ACM that is not in poor condition and is not friable.

(ii) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; or

(iii) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and adequately wet at all times until disposed of.

(iv) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

(2) When a facility component that contains, is covered with, or is coated with RACM is being taken out of the facility as a unit or in sections:

(i) Adequately wet all RACM exposed during cutting or disjoining operations; and

(ii) Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.

(3) When RACM is stripped from a facility component while it remains in place in the facility, adequately wet the RACM during the stripping operation.

(i) In renovation operations, wetting is not required if:

(A) The owner or operator has obtained prior written approval from the Administrator based on a written application that wetting to comply with this paragraph would unavoidably damage equipment or present a safety hazard; and

(B) The owner or operator uses of the following emission control methods:

(1) A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in §61.152.

(2) A glove-bag system designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

(3) Leak-tight wrapping to contain all RACM prior to dismantlement.

(ii) In renovation operations where wetting would result in equipment damage or a safety hazard, and the methods allowed in paragraph (c)(3)(i) of this section cannot be used, another method may be used after obtaining written approval from the Administrator based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in paragraph (c)(3)(i) of this section.

(iii) A copy of the Administrator's written approval shall be kept at the worksite and made available for inspection.

(4) After a facility component covered with, coated with, or containing RACM has been taken out of the facility as a unit or in sections pursuant to paragraph (c)(2) of this section, it shall be stripped or contained in leak-tight wrapping, except as described in paragraph (c)(5) of this section. If stripped, either:

(i) Adequately wet the RACM during stripping; or

(ii) Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in §61.152.

(5) For large facility components such as reactor vessels, large tanks, and steam generators, but not beams (which must be handled in accordance with paragraphs (c)(2), (3), and (4) of this section), the RACM is not required to be stripped if the following requirements are met:

(i) The component is removed, transported, stored, disposed of, or reused without disturbing or damaging the RACM.

(ii) The component is encased in a leak-tight wrapping.

(iii) The leak-tight wrapping is labeled according to §61.149(d)(1)(i), (ii), and (iii) during all loading and unloading operations and during storage.

(6) For all RACM, including material that has been removed or stripped:

(i) Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with §61.150; and

(ii) Carefully lower the material to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the material.

(iii) Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.

(iv) RACM contained in leak-tight wrapping that has been removed in accordance with paragraphs (c)(4) and (c)(3)(i)(B)(3) of this section need not be wetted.

(7) When the temperature at the point of wetting is below 0 °C (32 °F):

(i) The owner or operator need not comply with paragraph (c)(2)(i) and the wetting provisions of paragraph (c)(3) of this section.

(ii) The owner or operator shall remove facility components containing, coated with, or covered with RACM as units or in sections to the maximum extent possible.

(iii) During periods when wetting operations are suspended due to freezing temperatures, the owner or operator must record the temperature in the area containing the facility components at the beginning, middle, and end of each workday and keep daily temperature records available for inspection by the Administrator during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.

(8) Effective 1 year after promulgation of this regulation, no RACM shall be stripped, removed, or otherwise handled or disturbed at a facility regulated by this section unless at least one on-site representative, such as a foreman or management-level person or other authorized representative, trained in the provisions of this regulation and the means of complying with them, is present. Every 2 years, the trained on-site individual shall receive refresher training in the provisions of this regulation. The required training shall include as a minimum: applicability; notifications; material identification; control procedures for removals including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove-bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and recordkeeping; and asbestos hazards and worker protection. Evidence that the required training has been completed shall be posted and made available for inspection by the Administrator at the demolition or renovation site.

(9) For facilities described in paragraph (a)(3) of this section, adequately wet the portion of the facility that contains RACM during the wrecking operation.

(10) If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable ACM must be removed in accordance with the NESHAP before burning.

The INL is subject to the indicated requirements of §61.145 because it is an owner or operator of demolition or renovation activities.

[55 FR 48419, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

§61.146 Standard for spraying.

The INL is not subject to §61.146 because it does not spray apply asbestos containing materials.

The owner or operator of an operation in which asbestos-containing materials are spray applied shall comply with the following requirements:

(a) For spray-on application on buildings, structures, pipes, and conduits, do not use material containing more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, except as provided in paragraph (c) of this section.

(b) For spray-on application of materials that contain more than 1 percent asbestos as determined using the method specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy, on equipment and machinery, except as provided in paragraph (c) of this section:

(1) Notify the Administrator at least 20 days before beginning the spraying operation. Include the following information in the notice:

(i) Name and address of owner or operator.

(ii) Location of spraying operation.

(iii) Procedures to be followed to meet the requirements of this paragraph.

(2) Discharge no visible emissions to the outside air from spray-on application of the asbestos-containing material or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(c) The requirements of paragraphs (a) and (b) of this section do not apply to the spray-on application of materials where the asbestos fibers in the materials are encapsulated with a bituminous or resinous binder during spraying and the materials are not friable after drying.

(d) Owners or operators of sources subject to this paragraph are exempt from the requirements of §§61.05(a), 61.07 and 61.09.

[49 FR 13661, Apr. 5, 1984. Redesignated and amended at 55 FR 48424, Nov. 20, 1990; 60 FR 31920, June 19, 1995]

§61.147 Standard for fabricating.

The INL is not subject to §61.147 because it does not conduct fabricating operations using commercial asbestos.

(a) *Applicability.* This section applies to the following fabricating operations using commercial asbestos:

(1) The fabrication of cement building products.

(2) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

(3) The fabrication of cement or silicate board for ventilation hoods; ovens; electrical panels; laboratory furniture, bulkheads, partitions, and ceilings for marine construction; and flow control devices for the molten metal industry.

(b) *Standard.* Each owner or operator of any of the fabricating operations to which this section applies shall either:

(1) Discharge no visible emissions to the outside air from any of the operations or from any building or structure in which they are conducted or from any other fugitive sources; or

(2) Use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(3) Monitor each potential source of asbestos emissions from any part of the fabricating facility, including air cleaning devices, process equipment, and buildings that house equipment for material processing and handling, at least once each day, during daylight hours, for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(4) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunctions, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this paragraph, submit to the Administrator, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(i) Maintenance schedule.

(ii) Recordkeeping plan.

(5) Maintain records of the results of visible emission monitoring and air cleaning device inspections using a format similar to that shown in Figures 1 and 2 and include the following:

(i) Date and time of each inspection.

(ii) Presence or absence of visible emissions.

(iii) Condition of fabric filters, including presence of any tears, holes, and abrasions.

(iv) Presence of dust deposits on clean side of fabric filters.

(v) Brief description of corrective actions taken, including date and time.

(vi) Daily hours of operation for each air cleaning device.

(6) Furnish upon request and make available at the affected facility during normal business hours for inspection by the Administrator, all records required under this section.

(7) Retain a copy of all monitoring and inspection records for at least 2 years.

(8) Submit semiannually a copy of the visible emission monitoring records to the Administrator if visible emission occurred during the report period. Semiannual reports shall be postmarked by the 30th day following the end of the six-month period.

[49 FR 13661, Apr. 5, 1984. Redesignated and amended at 55 FR 48424, Nov. 20, 1991; 64 FR 7467, Feb. 12, 1999]

§61.148 Standard for insulating materials.

The INL is not subject to §61.148 because it does not install or reinstall on a facility component any insulating materials that contain commercial asbestos.

No owner or operator of a facility may install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded and friable or wet-applied and friable after drying. The provisions of this section do not apply to spray-applied insulating materials regulated under §61.146.

[55 FR 48424, Nov. 20, 1990]

§61.149 Standard for waste disposal for asbestos mills.

The INL is not subject to §61.149 because it does not dispose of waste from asbestos mills.

Each owner or operator of any source covered under the provisions of §61.142 shall:

(a) Deposit all asbestos-containing waste material at a waste disposal site operated in accordance with the provisions of §61.154; and

(b) Discharge no visible emissions to the outside air from the transfer of control device asbestos waste to the tailings conveyor, or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air. Dispose of the asbestos waste from control devices in accordance with §61.150(a) or paragraph (c) of this section; and

(c) Discharge no visible emissions to the outside air during the collection, processing, packaging, or on-site transporting of any asbestos-containing waste material, or use one of the disposal methods specified in paragraphs (c) (1) or (2) of this section, as follows:

(1) Use a wetting agent as follows:

(i) Adequately mix all asbestos-containing waste material with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, before depositing the material at a waste disposal site. Use the agent as recommended for the particular dust by the manufacturer of the agent.

(ii) Discharge no visible emissions to the outside air from the wetting operation or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(iii) Wetting may be suspended when the ambient temperature at the waste disposal site is less than −9.5 °C (15 °F), as determined by an appropriate measurement method with an accuracy of ±1 °C (±2 °F). During periods when wetting operations are suspended, the temperature must be recorded at least at hourly intervals, and records must be retained for at least 2 years in a form suitable for inspection.

(2) Use an alternative emission control and waste treatment method that has received prior written approval by the Administrator. To obtain approval for an alternative method, a written application must be submitted to the Administrator demonstrating that the following criteria are met:

(i) The alternative method will control asbestos emissions equivalent to currently required methods.

(ii) The suitability of the alternative method for the intended application.

(iii) The alternative method will not violate other regulations.

(iv) The alternative method will not result in increased water pollution, land pollution, or occupational hazards.

(d) When waste is transported by vehicle to a disposal site:

(1) Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of the waste so that the signs are visible. The markings must:

(i) Be displayed in such a manner and location that a person can easily read the legend.

(ii) Conform to the requirements for 51 cm × 36 cm (20 in × 14 in) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend

DANGER

ASBESTOS DUST HAZARD

CANCER AND LUNG DISEASE HAZARD

Authorized Personnel Only

Notation

2.5 cm (1 inch) Sans Serif, Gothic or Block

2.5 cm (1 inch) Sans Serif, Gothic or Block

1.9 cm (¾ inch) Sans Serif, Gothic or Block

14 Point Gothic

Spacing between any two lines must be a least equal to the height of the upper of the two lines.

(2) For off-site disposal, provide a copy of the waste shipment record, described in paragraph (e)(1) of this section, to the disposal site owner or operator at the same time as the asbestos-containing waste material is delivered to the disposal site.

(e) For all asbestos-containing waste material transported off the facility site:

(1) Maintain asbestos waste shipment records, using a form similar to that shown in Figure 4, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name and address of the local, State, or EPA Regional agency responsible for administering the asbestos NESHAP program.

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The name and telephone number of the disposal site operator.

(v) The name and physical site location of the disposal site.

(vi) The date transported.

(vii) The name, address, and telephone number of the transporter(s).

(viii) A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

(2) For waste shipments where a copy of the waste shipment record, signed by the owner or operator of the designated disposal site, is not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated disposal site to determine the status of the waste shipment.

(3) Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator if a copy of the waste shipment record, signed by the owner or operator of the designated waste disposal site, is not received by the waste generator within 45 days of the date the waste was accepted by the initial transporter. Include in the report the following information:

(i) A copy of the waste shipment record for which a confirmation of delivery was not received, and

(ii) A cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.

(4) Retain a copy of all waste shipment records, including a copy of the waste shipment record signed by the owner or operator of the designated waste disposal site, for at least 2 years.

(f) Furnish upon request, and make available for inspection by the Administrator, all records required under this section.

§61.150 Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations.

Each owner or operator of any source covered under the provisions of §§61.144, 61.145, 61.146, and 61.147 shall comply with the following provisions:

(a) Discharge no visible emissions to the outside air during the collection, processing (including incineration), packaging, or transporting of any asbestos-containing waste material generated by the source, or use one of the emission control and waste treatment methods specified in paragraphs (a) (1) through (4) of this section.

(1) Adequately wet asbestos-containing waste material as follows:

(i) Mix control device asbestos waste to form a slurry; adequately wet other asbestos-containing waste material; and

(ii) Discharge no visible emissions to the outside air from collection, mixing, wetting, and handling operations, or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air; and

(iii) After wetting, seal all asbestos-containing waste material in leak-tight containers while wet; or, for materials that will not fit into containers without additional breaking, put materials into leak-tight wrapping; and

(iv) Label the containers or wrapped materials specified in paragraph (a)(1)(iii) of this section using warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.1001(j)(4) or 1926.1101(k)(8). The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible.

(v) For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.

(2) Process asbestos-containing waste material into nonfriable forms as follows:

(i) Form all asbestos-containing waste material into nonfriable pellets or other shapes;

(ii) Discharge no visible emissions to the outside air from collection and processing operations, including incineration, or use the method specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(3) For facilities demolished where the RACM is not removed prior to demolition according to §§61.145(c)(1) (i), (ii), (iii), and (iv) or for facilities demolished according to §61.145(c)(9), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to a disposal site. Asbestos-containing waste materials covered by this paragraph do not have to be sealed in leak-tight containers or wrapping but may be transported and disposed of in bulk.

(4) Use an alternative emission control and waste treatment method that has received prior approval by the Administrator according to the procedure described in §61.149(c)(2).

(5) As applied to demolition and renovation, the requirements of paragraph (a) of this section do not apply to Category I nonfriable ACM waste and Category II nonfriable ACM waste that did not become crumbled, pulverized, or reduced to powder.

(b) All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator at:

(1) A waste disposal site operated in accordance with the provisions of §61.154, or

(2) An EPA-approved site that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material according to the provisions of §61.155.

(3) The requirements of paragraph (b) of this section do not apply to Category I nonfriable ACM that is not RACM.

(c) Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of §§61.149(d)(1) (i), (ii), and (iii).

(d) For all asbestos-containing waste material transported off the facility site:

(1) Maintain waste shipment records, using a form similar to that shown in Figure 4, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name and address of the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program.

(iii) The approximate quantity in cubic meters (cubic yards).

(iv) The name and telephone number of the disposal site operator.

(v) The name and physical site location of the disposal site.

(vi) The date transported.

(vii) The name, address, and telephone number of the transporter(s).

(viii) A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

(2) Provide a copy of the waste shipment record, described in paragraph (d)(1) of this section, to the disposal site owners or operators at the same time as the asbestos-containing waste material is delivered to the disposal site.

(3) For waste shipments where a copy of the waste shipment record, signed by the owner or operator of the designated disposal site, is not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated disposal site to determine the status of the waste shipment.

(4) Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator if a copy of the waste shipment record, signed by the owner or operator of the designated waste disposal site, is not received by the waste generator within 45 days of the date the waste was accepted by the initial transporter. Include in the report the following information:

(i) A copy of the waste shipment record for which a confirmation of delivery was not received, and

(ii) A cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.

(5) Retain a copy of all waste shipment records, including a copy of the waste shipment record signed by the owner or operator of the designated waste disposal site, for at least 2 years.

(e) Furnish upon request, and make available for inspection by the Administrator, all records required under this section.

The INL is subject to the indicated requirements of §61.150 because it is subject to §61.145 of this subpart.

[55 FR 48429, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991, as amended at 68 FR 54793, Sept. 18, 2003]

§61.151 Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.

The INL is not subject to §61.151 because it is not subject to §61.142, §61.144, or §61.147 of this subpart.

Each owner or operator of any inactive waste disposal site that was operated by sources covered under §61.142, 61.144, or 61.147 and received deposits of asbestos-containing waste material generated by the sources, shall:

(a) Comply with one of the following:

(1) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this paragraph; or

(2) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or

(3) Cover the asbestos-containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(4) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent that effectively binds dust to control surface air emissions may be used instead of the methods in paragraphs (a) (1), (2), and (3) of this section. Use the agent in the manner and frequency recommended for the particular asbestos tailings by the manufacturer of the dust suppression agent to achieve and maintain dust control. Obtain prior written approval of the Administrator to use other equally effective dust suppression agents. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.

(b) Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with paragraph (a)(2) or (a)(3) of this section.

(1) Display warning signs at all entrances and at intervals of 100 m (328 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements for 51 cm×36 cm (20″×14″) upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	Notation
Asbestos Waste Disposal Site	2.5 cm (1 inch) Sans Serif, Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to Your Health	14 Point Gothic.

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(3) When requesting a determination on whether a natural barrier adequately deters public access, supply information enabling the Administrator to determine whether a fence or a natural barrier adequately deters access by the general public.

(c) The owner or operator may use an alternative control method that has received prior approval of the Administrator rather than comply with the requirements of paragraph (a) or (b) of this section.

(d) Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site under this section, and follow the procedures specified in the notification. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.

(2) Reason for disturbing the waste.

(3) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.

(4) Location of any temporary storage site and the final disposal site.

(e) Within 60 days of a site becoming inactive and after the effective date of this subpart, record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that:

(1) The land has been used for the disposal of asbestos-containing waste material;

(2) The survey plot and record of the location and quantity of asbestos-containing waste disposed of within the disposal site required in §61.154(f) have been filed with the Administrator; and

(3) The site is subject to 40 CFR part 61, subpart M.

[49 FR 13661, Apr. 5, 1984, as amended at 53 FR 36972, Sept. 23, 1988. Redesignated and amended at 55 FR 48429, Nov. 20, 1990]

§61.152 Air-cleaning.

The INL is not subject to §61.152 because it does not use air cleaning as specified in §61.152(a) below.

(a) The owner or operator who uses air cleaning, as specified in §§61.142(a), 61.144(b)(2), 61.145(c)(3)(i)(B)(*1*), 61.145(c)(4)(ii), 61.145(c)(11)(i), 61.146(b)(2), 61.147(b)(2), 61.149(b), 61.149(c)(1)(ii), 61.150(a)(1)(ii), 61.150(a)(2)(ii), and 61.155(e) shall:

(1) Use fabric filter collection devices, except as noted in paragraph (b) of this section, doing all of the following:

(i) Ensuring that the airflow permeability, as determined by ASTM Method D737-75, does not exceed 9 $m^3/min/m^2$ (30 $ft^3/min/ft^2$) for woven fabrics or $11^3/min/m^2$(35 $ft^3/min/ft^2$) for felted fabrics, except that 12 $m^3/min/m^2$ (40 ft^3min/ft^2) for woven and 14 $m^3/min/m^2$ (45 ft $^3min/ft^2$) for felted fabrics is allowed for filtering air from asbestos ore dryers; and

(ii) Ensuring that felted fabric weighs at least 475 grams per square meter (14 ounces per square yard) and is at least 1.6 millimeters (one-sixteenth inch) thick throughout; and

(iii) Avoiding the use of synthetic fabrics that contain fill yarn other than that which is spun.

(2) Properly install, use, operate, and maintain all air-cleaning equipment authorized by this section. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

(3) For fabric filter collection devices installed after January 10, 1989, provide for easy inspection for faulty bags.

(b) There are the following exceptions to paragraph (a)(1):

(1) After January 10, 1989, if the use of fabric creates a fire or explosion hazard, or the Administrator determines that a fabric filter is not feasible, the Administrator may authorize as a substitute the use of wet collectors designed to operate with a unit contacting energy of at least 9.95 kilopascals (40 inches water gage pressure).

(2) Use a HEPA filter that is certified to be at least 99.97 percent efficient for 0.3 micron particles.

(3) The Administrator may authorize the use of filtering equipment other than described in paragraphs (a)(1) and (b)(1) and (2) of this section if the owner or operator demonstrates to the Administrator's satisfaction that it is equivalent to the described equipment in filtering particulate asbestos material.

[49 FR 13661, Apr. 5, 1984; 49 FR 25453, June 21, 1984, as amended at 51 FR 8199, Mar. 10, 1986. Redesignated and amended at 55 FR 48430, Nov. 20, 1990]

§61.153 Reporting.

(a) Any new source to which this subpart applies (with the exception of sources subject to §§61.143, 61.145, 61.146, and 61.148), which has an initial startup date preceding the effective date of this revision, shall provide the following information to the Administrator postmarked or delivered within 90 days of the effective date. In the case of a new source that does not have an initial startup date preceding the effective date, the information shall be provided, postmarked or delivered, within 90 days of the initial startup date. *Any owner or operator of an existing source shall provide the following information to the Administrator within 90 days of the effective date of this subpart unless the owner or operator of the existing source has previously provided this information to the Administrator. Any changes in the information provided by any existing source shall be provided to the Administrator, postmarked or delivered, within 30 days after the change.*

(1) A description of the emission control equipment used for each process; and

(i) If the fabric device uses a woven fabric, the airflow permeability in $m^3/min/m^2$ and; if the fabric is synthetic, whether the fill yarn is spun or not spun; and

(ii) If the fabric filter device uses a felted fabric, the density in g/m^2, the minimum thickness in inches, and the airflow permeability in $m^3/min/m^2$.

(2) If a fabric filter device is used to control emissions,

(i) The airflow permeability in $m^3/min/m^2$ ($ft^3/min/ft^2$) if the fabric filter device uses a woven fabric, and, if the fabric is synthetic, whether the fill yarn is spun or not spun; and

(ii) If the fabric filter device uses a felted fabric, the density in g/m^2 (oz/yd^2), the minimum thickness in millimeters (inches), and the airflow permeability in $m^3/min/m^2$ ($ft^3/min/ft^2$).

(3) If a HEPA filter is used to control emissions, the certified efficiency.

*(4) For sources subject to §§*61.149 and *61.150:*

(i) A brief description of each process that generates asbestos-containing waste material; and

(ii) The average volume of asbestos-containing waste material disposed of, measured in m^3/day (yd^3/day); and

(iii) The emission control methods used in all stages of waste disposal; and

(iv) The type of disposal site or incineration site used for ultimate disposal, the name of the site operator, and the name and location of the disposal site.

(5) For sources subject to §§61.151 and *61.154:*

(i) A brief description of the site; and

(ii) The method or methods used to comply with the standard, or alternative procedures to be used.

(b) The information required by paragraph (a) of this section must accompany the information required by §61.10. *Active waste disposal sites subject to §61.154 shall also comply with this provision.* Roadways, demolition and renovation, spraying, and insulating materials are exempted from the requirements of §61.10(a). *The information described in this section must be reported using the format of appendix A of this part as a guide.*

The INL is subject to the requirements of §61.153(a)(4)(i-iv) because it is subject to §61.150 of this subpart.

The INL is subject to the requirements of §61.153(a)(5)(i-ii) because it is subject to §61.154 of this subpart.

The INL is subject to the requirements of §61.153(b) because it is subject to §61.154 of this subpart.

(Sec. 114. Clean Air Act as amended (42 U.S.C. 7414))

[49 FR 13661, Apr. 5, 1984. Redesignated and amended at 55 FR 48430, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

§61.154 Standard for active waste disposal sites.

Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under §61.149, 61.150, or 61.155 shall meet the requirements of this section:

(a) Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of paragraph (c) or (d) of this section must be met.

(b) Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of paragraph (c)(1) of this section must be met.

(1) Warning signs must be displayed at all entrances and at intervals of 100 m (330 ft) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements of 51 cm × 36 cm (20"×14") upright format signs specified in 29 CFR 1910.145(d)(4) and this paragraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this paragraph.

Legend	***Notation***
Asbestos Waste Disposal Site	*2.5 cm (1 inch) Sans Serif, Gothic or Block.*
Do Not Create Dust	*1.9 cm (3/4 inch) Sans Serif, Gothic or Block.*
Breathing Asbestos is Hazardous to Your Health	*14 Point Gothic.*

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(2) The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public.

(3) Upon request and supply of appropriate information, the Administrator will determine whether a fence or a natural barrier adequately deters access by the general public.

(c) Rather than meet the no visible emission requirement of paragraph (a) of this section, at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:

(1) Be covered with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, or

(2) Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Administrator. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust suppression agent.

(d) Rather than meet the no visible emission requirement of paragraph (a) of this section, use an alternative emissions control method that has received prior written approval by the Administrator according to the procedures described in §61.149(c)(2).

(e) For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall:

(1) Maintain waste shipment records, using a form similar to that shown in Figure 4, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name, address, and telephone number of the transporter(s).

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site, by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report.

(v) The date of the receipt.

(2) As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

(3) Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report in writing to the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the waste generator (identified in the waste shipment record), and, if different, the local, State, or EPA Regional office responsible for administering the asbestos NESHAP program for the disposal site. Describe the discrepancy and attempts to reconcile it, and submit a copy of the waste shipment record along with the report.

(4) Retain a copy of all records and reports required by this paragraph for at least 2 years.

(f) Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area.

(g) Upon closure, comply with all the provisions of §61.151.

(h) Submit to the Administrator, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities.

(i) Furnish upon request, and make available during normal business hours for inspection by the Administrator, all records required under this section.

(j) Notify the Administrator in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Administrator at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(1) Scheduled starting and completion dates.

(2) Reason for disturbing the waste.

(3) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Administrator may require changes in the emission control procedures to be used.

(4) Location of any temporary storage site and the final disposal site.

The INL is subject to the requirements of §61.154 because it is subject to §61.150 of this subpart.

(Secs. 112 and 301(a) of the Clean Air Act as amended (42 U.S.C. 7412, 7601(a))

[49 FR 13661, Apr. 5, 1990. Redesignated and amended at 55 FR 48431, Nov. 20, 1990; 56 FR 1669, Jan. 16, 1991]

§61.155 Standard for operations that convert asbestos-containing waste material into nonasbestos (asbestos-free) material.

The INL is not subject to §61.152 because it does not convert asbestos-containing waste material into nonasbestos (asbestos-free) material.

Each owner or operator of an operation that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material shall:

(a) Obtain the prior written approval of the Administrator to construct the facility. To obtain approval, the owner or operator shall provide the Administrator with the following information:

(1) Application to construct pursuant to §61.07.

(2) In addition to the information requirements of §61.07(b)(3), a

(i) Description of waste feed handling and temporary storage.

(ii) Description of process operating conditions.

(iii) Description of the handling and temporary storage of the end product.

(iv) Description of the protocol to be followed when analyzing output materials by transmission electron microscopy.

(3) Performance test protocol, including provisions for obtaining information required under paragraph (b) of this section.

(4) The Administrator may require that a demonstration of the process be performed prior to approval of the application to construct.

(b) Conduct a start-up performance test. Test results shall include:

(1) A detailed description of the types and quantities of nonasbestos material, RACM, and asbestos-containing waste material processed, *e.g.,* asbestos cement products, friable asbestos insulation, plaster, wood, plastic, wire, etc. Test feed is to include the full range of materials that will be encountered in actual operation of the process.

(2) Results of analyses, using polarized light microscopy, that document the asbestos content of the wastes processed.

(3) Results of analyses, using transmission electron microscopy, that document that the output materials are free of asbestos. Samples for analysis are to be collected as 8-hour composite samples (one 200-

gram (7-ounce) sample per hour), beginning with the initial introduction of RACM or asbestos-containing waste material and continuing until the end of the performance test.

(4) A description of operating parameters, such as temperature and residence time, defining the full range over which the process is expected to operate to produce nonasbestos (asbestos-free) materials. Specify the limits for each operating parameter within which the process will produce nonasbestos (asbestos-free) materials.

(5) The length of the test.

(c) During the initial 90 days of operation,

(1) Continuously monitor and log the operating parameters identified during start-up performance tests that are intended to ensure the production of nonasbestos (asbestos-free) output material.

(2) Monitor input materials to ensure that they are consistent with the test feed materials described during start-up performance tests in paragraph (b)(1) of this section.

(3) Collect and analyze samples, taken as 10-day composite samples (one 200-gram (7-ounce) sample collected every 8 hours of operation) of all output material for the presence of asbestos. Composite samples may be for fewer than 10 days. Transmission electron microscopy (TEM) shall be used to analyze the output material for the presence of asbestos. During the initial 90-day period, all output materials must be stored on-site until analysis shows the material to be asbestos-free or disposed of as asbestos-containing waste material according to §61.150.

(d) After the initial 90 days of operation,

(1) Continuously monitor and record the operating parameters identified during start-up performance testing and any subsequent performance testing. Any output produced during a period of deviation from the range of operating conditions established to ensure the production of nonasbestos (asbestos-free) output materials shall be:

(i) Disposed of as asbestos-containing waste material according to §61.150, or

(ii) Recycled as waste feed during process operation within the established range of operating conditions, or

(iii) Stored temporarily on-site in a leak-tight container until analyzed for asbestos content. Any product material that is not asbestos-free shall be either disposed of as asbestos-containing waste material or recycled as waste feed to the process.

(2) Collect and analyze monthly composite samples (one 200-gram (7-ounce) sample collected every 8 hours of operation) of the output material. Transmission electron microscopy shall be used to analyze the output material for the presence of asbestos.

(e) Discharge no visible emissions to the outside air from any part of the operation, or use the methods specified by §61.152 to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(f) Maintain records on-site and include the following information:

(1) Results of start-up performance testing and all subsequent performance testing, including operating parameters, feed characteristic, and analyses of output materials.

(2) Results of the composite analyses required during the initial 90 days of operation under §61.155(c).

(3) Results of the monthly composite analyses required under §61.155(d).

(4) Results of continuous monitoring and logs of process operating parameters required under §61.155 (c) and (d).

(5) The information on waste shipments received as required in §61.154(e).

(6) For output materials where no analyses were performed to determine the presence of asbestos, record the name and location of the purchaser or disposal site to which the output materials were sold or deposited, and the date of sale or disposal.

(7) Retain records required by paragraph (f) of this section for at least 2 years.

(g) Submit the following reports to the Administrator:

(1) A report for each analysis of product composite samples performed during the initial 90 days of operation.

(2) A quarterly report, including the following information concerning activities during each consecutive 3-month period:

(i) Results of analyses of monthly product composite samples.

(ii) A description of any deviation from the operating parameters established during performance testing, the duration of the deviation, and steps taken to correct the deviation.

(iii) Disposition of any product produced during a period of deviation, including whether it was recycled, disposed of as asbestos-containing waste material, or stored temporarily on-site until analyzed for asbestos content.

(iv) The information on waste disposal activities as required in §61.154(f).

(h) Nonasbestos (asbestos-free) output material is not subject to any of the provisions of this subpart. Output materials in which asbestos is detected, or output materials produced when the operating parameters deviated from those established during the start-up performance testing, unless shown by TEM analysis to be asbestos-free, shall be considered to be asbestos-containing waste and shall be handled and disposed of according to §§61.150 and 61.154 or reprocessed while all of the established operating parameters are being met.

[55 FR 48431, Nov. 20, 1990]

§61.156 Cross-reference to other asbestos regulations.

In addition to this subpart, the regulations referenced in Table 1 also apply to asbestos and may be applicable to those sources specified in §§61.142 through 61.151, 61.154, and 61.155 of this subpart. These cross-references are presented for the reader's information and to promote compliance with the cited regulations.

Table 1—Cross-Reference to Other Asbestos Regulations

Agency	CFR citation	Comment
EPA	40 CFR part 763, subpart E	Requires schools to inspect for asbestos and implement response actions and submit asbestos management plans to States. Specifies use of accredited inspectors, air sampling methods, and waste disposal procedures.

	40 CFR part 427	Effluent standards for asbestos manufacturing source categories.
	40 CFR part 763, subpart G	Protects public employees performing asbestos abatement work in States not covered by OSHA asbestos standard.
OSHA	*29 CFR 1910.1001*	*Worker protection measures-engineering controls, worker training, labeling, respiratory protection, bagging of waste, permissible exposure level.*
	29 CFR 1926.1101	*Worker protection measures for all construction work involving asbestos, including demolition and renovation-work practices, worker training, bagging of waste, permissible exposure level.*
MSHA	30 CFR part 56, subpart D	Specifies exposure limits, engineering controls, and respiratory protection measures for workers in surface mines.
	30 CFR part 57, subpart D	Specifies exposure limits, engineering controls, and respiratory protection measures for workers in underground mines.
DOT	*49 CFR parts 171 and 172*	*Regulates the transportation of asbestos-containing waste material. Requires waste containment and shipping papers.*

The INL is subject to the requirements of §61.156 because it is subject to the OSHA and DOT regulations listed in Table 1.

[55 FR 48432, Nov. 20, 1990, as amended at 60 FR 31920, June 19, 1995; 68 FR 54793, Sept. 18, 2003; 69 FR 43324, July 20, 2004]

§61.157 Delegation of authority.

The INL is not subject to §61.157 because it is not an implementing or enforcement entity.

(a) In delegating implementation and enforcement authority to a State under section 112(d) of the Act, the authorities contained in paragraph (b) of this section shall be retained by the Administrator and not transferred to a State.

(b) Authorities that will not be delegated to States:

(1) Section 61.149(c)(2)

(2) Section 61.150(a)(4)

(3) Section 61.151(c)

(4) Section 61.152(b)(3)

(5) Section 61.154(d)

(6) Section 61.155(a).

[55 FR 48433, Nov. 20, 1990]

Appendix A to Subpart M of Part 61—Interpretive Rule Governing Roof Removal Operations

1 I. Applicability of the Asbestos NESHAP

1.1. Asbestos-containing material (ACM) is material containing more than one percent asbestos as determined using the methods specified in appendix E, subpart E, 40 CFR part 763, section 1, Polarized Light Microscopy. The NESHAP classifies ACM as either "friable" or "nonfriable". Friable ACM is ACM that, when dry, can be crumbled, pulverized or reduced to powder by hand pressure. Nonfriable ACM is ACM that, when dry, cannot be crumbled, pulverized or reduced to powder by hand pressure.

1.2. Nonfriable ACM is further classified as either Category I ACM or Category II ACM. Category I ACM and Category II ACM are distinguished from each other by their potential to release fibers when damaged. Category I ACM includes asbestos-containing gaskets, packings, resilient floor coverings, resilient floor covering mastic, and asphalt roofing products containing more than one percent asbestos. Asphalt roofing products which may contain asbestos include built-up roofing; asphalt-containing single ply membrane systems; asphalt shingles; asphalt-containing underlayment felts; asphalt-containing roof coatings and mastics; and asphalt-containing base flashings. ACM roofing products that use other bituminous or resinous binders (such as coal tars or pitches) are also considered to be Category I ACM. Category II ACM includes all other nonfriable ACM, for example, asbestos-cement (A/C) shingles, A/C tiles, and transite boards or panels containing more than one percent asbestos. Generally speaking, Category II ACM is more likely to become friable when damaged than is Category I ACM. The applicability of the NESHAP to Category I and II ACM depends on: (1) the condition of the material at the time of demolition or renovation, (2) the nature of the operation to which the material will be subjected, (3) the amount of ACM involved.

1.3. Asbestos-containing material regulated under the NESHAP is referred to as "regulated asbestos-containing material" (RACM). RACM is defined in §61.141 of the NESHAP and includes: (1) friable asbestos-containing material; (2) Category I nonfriable ACM that has become friable; (3) Category I nonfriable ACM that has been or will be sanded, ground, cut, or abraded; or (4) Category II nonfriable ACM that has already been or is likely to become crumbled, pulverized, or reduced to powder. If the coverage threshold for RACM is met or exceeded in a renovation or demolition operation, then all friable ACM in the operation, and in certain situations, nonfriable ACM in the operation, are subject to the NESHAP.

A. Threshold Amounts of Asbestos-Containing Roofing Material

1.A.1. The NESHAP does not cover roofing projects on single family homes or on residential buildings containing four or fewer dwelling units. 40 CFR 61.141. For other roofing renovation projects, if the total asbestos-containing roof area undergoing renovation is less than 160 ft^2, the NESHAP does not apply, regardless of the removal method to be used, the type of material (Category I or II), or its condition (friable versus nonfriable). 40 CFR 61.145(a)(4). However, EPA would recommend the use of methods that damage asbestos-containing roofing material as little as possible. EPA has determined that where a rotating blade (RB) roof cutter or equipment that similarly damages the roofing material is used to remove Category I nonfriable asbestos-containing roofing material, the removal of 5580 ft^2 of that material will create 160 ft^2 of RACM. For the purposes of this interpretive rule, "RB roof cutter" means an engine-powered roof cutting machine with one or more rotating cutting blades the edges of which are blunt. (Equipment with blades having sharp or tapered edges, and/or which does not use a rotating blade, is used for "slicing" rather than "cutting" the roofing material; such equipment is not included in the term "RB roof cutter".) Therefore, it is EPA's interpretation that when an RB roof cutter or equipment that similarly damages the roofing material is used to remove Category I nonfriable asbestos-containing roofing material, any project that is 5580 ft^2 or greater is subject to the NESHAP; conversely, it is EPA's interpretation that when an RB roof cutter or equipment that similarly damages the roofing material is

used to remove Category I nonfriable asbestos-containing roofing material in a roof removal project that is less than 5580 ft^2, the project is not subject to the NESHAP, except that notification is always required for demolitions. EPA further construes the NESHAP to mean that if slicing or other methods that do not sand, grind, cut or abrade will be used on Category I nonfriable ACM, the NESHAP does not apply, regardless of the area of roof to be removed.

1.A.2. For asbestos cement (A/C) shingles (or other Category II roofing material), if the area of the roofing material to be removed is at least 160 ft^2 and the removal methods will crumble, pulverize, reduce to powder, or contaminate with RACM (from other ACM that has been crumbled, pulverized or reduced to powder) 160 ft^2 or more of such roofing material, the removal is subject to the NESHAP. Conversely, if the area of the A/C shingles (or other Category II roofing materials) to be removed is less than 160 ft^2, the removal is not subject to the NESHAP regardless of the removal method used, except that notification is always required for demolitions. 40 CFR 61.145(a). However, EPA would recommend the use of methods that damage asbestos-containing roofing material as little as possible. If A/C shingles (or other Category II roofing materials) are removed without 160 ft^2 or more of such roofing material being crumbled, pulverized, reduced to powder, or contaminated with RACM (from other ACM that has been crumbled, pulverized or reduced to powder), the operation is not subject to the NESHAP, even where the total area of the roofing material to be removed exceeds 160 ft^2; provided, however, that if the renovation includes other operations involving RACM, the roof removal operation is covered if the total area of RACM from all renovation activities exceeds 160 ft^2. See the definition of regulated asbestos-containing material (RACM), 40 CFR 61.141.

1.A.3. Only roofing material that meets the definition of ACM can qualify as RACM subject to the NESHAP. Therefore, to determine if a removal operation that meets or exceeds the coverage threshold is subject to the NESHAP, any suspect roofing material (i.e. roofing material that may be ACM) should be tested for asbestos. If any such roofing material contains more than one percent asbestos and if the removal operation is covered by the NESHAP, then EPA must be notified and the work practices in §61.145(c) must be followed. In EPA's view, if a removal operation involves at least the threshold level of suspect material, a roofing contractor may choose not to test for asbestos if the contractor follows the notification and work practice requirements of the NESHAP.

B. A/C Shingle Removal (Category II ACM Removal)

1.B.1. A/C shingles, which are Category II nonfriable ACM, become regulated ACM if the material has a high probability of becoming or has become crumbled, pulverized or reduced to powder by the forces expected to act on the material in the course of demolition or renovation operations. 40 CFR 61.141. However, merely breaking an A/C shingle (or any other category II ACM) that is not friable may not necessarily cause the material to become RACM. A/C shingles are typically nailed to buildings on which they are attached. EPA believes that the extent of breakage that will normally result from carefully removing A/C shingles and lowering the shingles to the ground will not result in crumbling, pulverizing or reducing the shingles to powder. Conversely, the extent of breakage that will normally occur if the A/C shingles are dropped from a building or scraped off of a building with heavy machinery would cause the shingles to become RACM. EPA therefore construes the NESHAP to mean that the removal of A/C shingles that are not friable, using methods that do not crumble, pulverize, or reduce the A/C shingles to powder (such as pry bars, spud bars and shovels to carefully pry the material), is not subject to the NESHAP provided that the A/C shingles are properly handled during and after removal, as discussed in this paragraph and the asbestos NESHAP. This interpretation also applies to other Category II nonfriable asbestos-containing roofing materials.

C. Cutting vs. Slicing and Manual Methods for Removal of Category I ACM

1.C.1. Because of damage to the roofing material, and the potential for fiber release, roof removal operations using rotating blade (RB) roof cutters or other equipment that sand, grind, cut or abrade the roof material are subject to the NESHAP. As EPA interprets the NESHAP, the use of certain manual methods (using equipment such as axes, hatchets, or knives, spud bars, pry bars, and shovels, but not saws) or methods that slice, shear, or punch (using equipment such as a power slicer or power plow) does not constitute "cutting, sanding, grinding or abrading." This is because these methods do not destroy the structural matrix or integrity of the material such that the material is crumbled, pulverized or reduced to powder. Hence, it is EPA's interpretation that when such methods are used, assuming the roof material is not friable, the removal operation is not subject to the regulation.

1.C.2. Power removers or power tear-off machines are typically used to pry the roofing material up from the deck after the roof membrane has been cut. It is EPA's interpretation that when these machines are used to pry roofing material up, their use is not regulated by the NESHAP.

1.C.3. As noted previously, the NESHAP only applies to the removal of asbestos-containing roofing materials. Thus, the NESHAP does not apply to the use of RB cutters to remove non-asbestos built up roofing (BUR). On roofs containing some asbestos-containing and some non-asbestos-containing materials, coverage under the NESHAP depends on the methods used to remove each type of material in addition to other coverage thresholds specified above. For example, it is not uncommon for existing roofs to be made of non-asbestos BUR and base flashings that do contain asbestos. In that situation, EPA construes the NESHAP to be inapplicable to the removal of the non-asbestos BUR using an RB cutter so long as the RB cutter is not used to cut 5580 ft^2 or more of the asbestos-containing base flashing or other asbestos-containing material into sections. In addition, the use of methods that slice, shear, punch or pry could then be used to remove the asbestos flashings and not trigger coverage under the NESHAP.

2 II. Notification

2.1. Notification for a demolition is always required under the NESHAP. However, EPA believes that few roof removal jobs constitute "demolitions" as defined in the NESHAP (§61.141). In particular, it is EPA's view that the removal of roofing systems (i.e., the roof membrane, insulation, surfacing, coatings, flashings, mastic, shingles, and felt underlayment), when such removal is not a part of a demolition project, constitutes a "renovation" under the NESHAP. If the operation is a renovation, and Category I roofing material is being removed using either manual methods or slicing, notification is not required by the NESHAP. If Category II material is not friable and will be removed without crumbling, pulverizing, or reducing it to powder, no notification is required. Also, if the renovation involves less than the threshold area for applicability as discussed above, then no notification is required. However, if a roof removal meets the applicability and threshold requirements under the NESHAP, then EPA (or the delegated agency) must be notified in advance of the removal in accordance with the requirements of §61.145(b), as follows:

• Notification must be given in writing at least 10 working days in advance and must include the information in §61.145(b)(4), except for emergency renovations as discussed below.

• The notice must be updated as necessary, including, for example, when the amount of asbestos-containing roofing material reported changes by 20 percent or more.

• EPA must be notified if the start date of the roof removal changes. If the start date of a roof removal project is changed to an earlier date, EPA must be provided with a written notice of the new start date at least 10 working days in advance. If the start date changes to a later date, EPA must be notified by telephone as soon as possible before the original start date and a written notice must be sent as soon as possible.

• For emergency renovations (as defined in §61.141), where work must begin immediately to avoid safety or public health hazards, equipment damage, or unreasonable financial burden, the notification must be postmarked or delivered to EPA as soon as possible, but no later than the following work day.

3 III. Emission Control Practices

A. Requirements To Adequately Wet and Discharge No Visible Emission

3.A.1. The principal controls contained in the NESHAP for removal operations include requirements that the affected material be adequately wetted, and that asbestos waste be handled, collected, and disposed of properly. The requirements for disposal of waste materials are discussed separately in section IV below. The emission control requirements discussed in this section III apply only to roof removal operations that are covered by the NESHAP as set forth in Section I above.

3.A.2. For any operation subject to the NESHAP, the regulation (§§61.145(c)(2)(i), (3), (6)(i)) requires that RACM be adequately wet (as defined in §61.141) during the operation that damages or disturbs the asbestos material until collected for disposal.

3.A.3. When using an RB roof cutter (or any other method that sands, grinds, cuts or abrades the roofing material) to remove Category I asbestos-containing roofing material, the emission control requirements of §61.145(c) apply as discussed in Section I above. EPA will consider a roof removal project to be in compliance with the "adequately wet" and "discharge no visible emission" requirements of the NESHAP if the RB roof cutter is equipped and operated with the following: (1) a blade guard that completely encloses the blade and extends down close to the roof surface; and (2) a device for spraying a fine mist of water inside the blade guard, and which device is in operation during the cutting of the roof.

B. Exemptions From Wetting Requirements

3.B.1. The NESHAP provides that, in certain instances, wetting may not be required during the cutting of Category I asbestos roofing material with an RB roof cutter. If EPA determines in accordance with §61.145(c)(3)(i), that wetting will unavoidably damage the building, equipment inside the building, or will present a safety hazard while stripping the ACM from a facility component that remains in place, the roof removal operation will be exempted from the requirement to wet during cutting. EPA must have sufficient written information on which to base such a decision. Before proceeding with a dry removal, the contractor must have received EPA's written approval. Such exemptions will be made on a case-by-case basis.

3.B.2. It is EPA's view that, in most instances, exemptions from the wetting requirements are not necessary. Where EPA grants an exemption from wetting because of the potential for damage to the building, damage to equipment within the building or a safety hazard, the NESHAP specifies alternative control methods (§61.145(c)(3)(i)(B)). Alternative control methods include (a) the use of local exhaust ventilation systems that capture the dust, and do not produce visible emissions, or (b) methods that are designed and operated in accordance with the requirements of §61.152, or (c) other methods that have received the written approval of EPA. EPA will consider an alternative emission control method in compliance with the NESHAP if the method has received written approval from EPA and the method is being implemented consistent with the approved procedures (§61.145(c)(3)(ii) or §61.152(b)(3)).

3.B.3. An exemption from wetting is also allowed when the air or roof surface temperature at the point of wetting is below freezing, as specified in §61.145(c)(7). If freezing temperatures are indicated as the reason for not wetting, records must be kept of the temperature at the beginning, middle and end of the day on which wetting is not performed and the records of temperature must be retained for at least 2 years. 42 CFR §61.145(c)(7)(iii). It is EPA's interpretation that in such cases, no written application to, or written approval by the Administrator is needed for using emission control methods listed in §61.145(c)(3)(i)(B), or alternative emission control methods that have been previously approved by the

Administrator. However, such written application or approval is required for alternative emission control methods that have not been previously approved. Any dust and debris collected from cutting must still be kept wet and placed in containers. All of the other requirements for notification and waste disposal would continue to apply as described elsewhere in this notice and the Asbestos NESHAP.

C. Waste Collection and Handling

3.C.1. It is EPA's interpretation that waste resulting from slicing and other methods that do not cut, grind, sand or abrade Category I nonfriable asbestos-containing roofing material is not subject to the NESHAP and can be disposed of as nonasbestos waste. EPA further construes the NESHAP to provide that if Category II roofing material (such as A/C shingles) is removed and disposed of without crumbling, pulverizing, or reducing it to powder, the waste from the removal is not subject to the NESHAP waste disposal requirements. EPA also interprets the NESHAP to be inapplicable to waste resulting from roof removal operations that do not meet or exceed the coverage thresholds described in section I above. Of course, other State, local, or Federal regulations may apply.

3.C.2. It is EPA's interpretation that when an RB roof cutter, or other method that similarly damages the roofing material, is used to cut Category I asbestos containing roofing material, the damaged material from the cut (the sawdust or debris) is considered asbestos containing waste subject to §61.150 of the NESHAP, provided the coverage thresholds discussed above in section 1 are met or exceeded. This sawdust or debris must be disposed of at a disposal site operated in accordance with the NESHAP. It is also EPA's interpretation of the NESHAP that if the remainder of the roof is free of the sawdust and debris generated by the cutting, or if such sawdust or debris is collected as discussed below in paragraphs 3.C.3, 3.C.4, 3.C.5 and 3.C.6, the remainder of the roof can be disposed of as nonasbestos waste because it is considered to be Category I nonfriable material (as long as the remainder of the roof is in fact nonasbestos material or if it is Category I asbestos material and the removal methods do not further sand, grind, cut or abrade the roof material). EPA further believes that if the roof is not cleaned of such sawdust or debris, i.e., it is contaminated, then it must be treated as asbestos-containing waste material and be handled in accordance with §61.150.

3.C.3. In order to be in compliance with the NESHAP while using an RB roof cutter (or device that similarly damages the roofing material) to cut Category I asbestos containing roofing material, the dust and debris resulting from the cutting of the roof should be collected as soon as possible after the cutting operation, and kept wet until collected and placed in leak-tight containers. EPA believes that where the blade guard completely encloses the blade and extends down close to the roof surface and is equipped with a device for spraying a fine mist of water inside the blade guard, and the spraying device is in operation during the cutting, most of the dust and debris from cutting will be confined along the cut. The most efficient methods to collect the dust and debris from cutting are to immediately collect or vacuum up the damaged material where it lies along the cut using a filtered vacuum cleaner or debris collector that meets the requirements of 40 CFR 61.152 to clean up as much of the debris as possible, or to gently sweep up the bulk of the debris, and then use a filtered vacuum cleaner that meets the requirements of 40 CFR 61.152 to clean up as much of the remainder of the debris as possible. On smooth surfaced roofs (nonaggregate roofs), sweeping up the debris and then wet wiping the surface may be done in place of using a filtered vacuum cleaner. It is EPA's view that if these decontamination procedures are followed, the remaining roofing material does not have to be collected and disposed of as asbestos waste. Additionally, it is EPA's view that where such decontamination procedures are followed, if the remaining portions of the roof are non-asbestos or Category I nonfriable asbestos material, and if the remaining portions are removed using removal methods that slice, shear, punch or pry, as discussed in section 1.C above, then the remaining portions do not have to be collected and disposed of as asbestos waste and the NESHAP's no visible emissions and adequately wet requirements are not applicable to the removal of the remaining portions. In EPA's interpretation, the failure of a filtered vacuum cleaner or debris collector

to collect larger chunks or pieces of damaged roofing material created by the RB roof cutter does not require the remaining roofing material to be handled and disposed of as asbestos waste, provided that such visible chunks or pieces of roofing material are collected (e.g. by gentle sweeping) and disposed of as asbestos waste. Other methods of decontamination may not be adequate, and should be approved by the local delegated agency.

3.C.4. In EPA's interpretation, if the debris from the cutting is not collected immediately, it will be necessary to lightly mist the dust or debris, until it is collected, as discussed above, and placed in containers. The dust or debris should be lightly misted frequently enough to prevent the material from drying, and to prevent airborne emissions, prior to collection as described above. It is EPA's interpretation of the NESHAP that if these procedures are followed, the remaining roofing material does not have to be collected and disposed of as asbestos waste, as long as the remaining roof material is in fact nonasbestos material or if it is Category I asbestos material and the removal methods do not further sand, grind, cut or abrade the roof material.

3.C.5. It is EPA's interpretation that, provided the roofing material is not friable prior to the cutting operation, and provided the roofing material has not been made friable by the cutting operation, the appearance of rough, jagged or damaged edges on the remaining roofing material, due to the use of an RB roof cutter, does not require that such remaining roofing material be handled and disposed of as asbestos waste. In addition, it is also EPA's interpretation that if the sawdust or debris generated by the use of an RB roof cutter has been collected as discussed in paragraphs 3.C.3, 3.C.4 and 3.C.6, the presence of dust along the edge of the remaining roof material does not render such material "friable" for purposes of this interpretive rule or the NESHAP, provided the roofing material is not friable prior to the cutting operation, and provided that the remaining roofing material near the cutline has not been made friable by the cutting operation. Where roofing material near the cutline has been made friable by the use of the RB cutter (i.e. where such remaining roofing material near the cutline can be crumbled, pulverized or reduced to powder using hand pressure), it is EPA's interpretation that the use of an encapsulant will ensure that such friable material need not be treated or disposed of as asbestos containing waste material. The encapsulant may be applied to the friable material after the roofing material has been collected into stacks for subsequent disposal as nonasbestos waste. It is EPA's view that if the encapsulation procedure set forth in this paragraph is followed in operations where roofing material near the cutline has been rendered friable by the use of an RB roof cutter, and if the decontamination procedures set forth in paragraph 3.C.3 have been followed, the NESHAP's no visible emissions and adequately wet requirements would be met for the removal, handling and disposal of the remaining roofing material.

3.C.6. As one way to comply with the NESHAP, the dust and debris from cutting can be placed in leak-tight containers, such as plastic bags, and the containers labeled using warning labels required by OSHA (29 CFR 1926.58). In addition, the containers must have labels that identify the waste generator (such as the name of the roofing contractor, abatement contractor, and/or building owner or operator) and the location of the site at which the waste was generated.

4 IV. Waste Disposal

A. Disposal Requirements

4.A.1. Section 61.150(b) requires that, as soon as is practical, all collected dust and debris from cutting as well as any contaminated roofing squares, must be taken to a landfill that is operated in accordance with §61.154 or to an EPA-approved site that converts asbestos waste to nonasbestos material in accordance with §61.155. During the loading and unloading of affected waste, asbestos warning signs must be affixed to the vehicles.

B. Waste Shipment Record

4.B.1. For each load of asbestos waste that is regulated under the NESHAP, a waste shipment record (WSR) must be maintained in accordance with §61.150(d). Information that must be maintained for each waste load includes the following:

- *Name, address, and telephone number of the waste generator*
- *Name and address of the local, State, or EPA regional office responsible for administering the asbestos NESHAP program*
- *Quantity of waste in cubic meters (or cubic yards)*
- *Name and telephone number of the disposal site operator*
- *Name and physical site location of the disposal site*
- *Date transported*
- *Name, address, and telephone number of the transporter(s)*
- *Certification that the contents meet all government regulations for transport by highways.*

4.B.2. The waste generator is responsible for ensuring that a copy of the WSR is delivered to the disposal site along with the waste shipment. If a copy of the WSR signed by the disposal site operator is not returned to the waste generator within 35 days, the waste generator must contact the transporter and/or the disposal site to determine the status of the waste shipment. 40 CFR 61.150(d)(3). If the signed WSR is not received within 45 days, the waste generator must report, in writing, to the responsible NESHAP program agency and send along a copy of the WSR. 40 CFR 61.150(d)(4). Copies of WSRs, including those signed by the disposal site operator, must be retained for at least 2 years. 40 CFR 61.150(d)(5).

5 V. Training

5.1. For those roof removals that are subject to the NESHAP, at least one on-site supervisor trained in the provisions of the NESHAP must be present during the removal of the asbestos roofing material. 40 CFR 61.145(c)(8). In EPA's view, this person can be a job foreman, a hired consultant, or someone who can represent the building owner or contractor responsible for the removal. In addition to the initial training requirement, a refresher training course is required every 2 years. The NESHAP training requirements became effective on November 20, 1991.

5.2. Asbestos training courses developed specifically to address compliance with the NESHAP in roofing work, as well as courses developed for other purposes can satisfy this requirement of the NESHAP, as long as the course covers the areas specified in the regulation. EPA believes that Asbestos Hazard Emergency Response Act (AHERA) training courses will, for example, satisfy the NESHAP training requirements. However, nothing in this interpretive rule or in the NESHAP shall be deemed to require that roofing contractors or roofing workers performing operations covered by the NESHAP must be trained or accredited under AHERA, as amended by the Asbestos School Hazard Abatement Reauthorization Act (ASHARA). Likewise, state or local authorities may independently impose additional training, licensing, or accreditation requirements on roofing contractors performing operations covered by the NESHAP, but such additional training, licensing or accreditation is not called for by this interpretive rule or the federal NESHAP.

5.3. For removal of Category I asbestos containing roofing material where RB roof cutters or equipment that similarly damages the asbestos-containing roofing material are used, the NESHAP training requirements (§61.145(c)(8)) apply as discussed in Section I above. It is EPA's intention that removal of Category I asbestos-containing roofing material using hatchets, axes, knives, and/or the use of spud bars,

pry bars and shovels to lift the roofing material, or similar removal methods that slice, punch, or shear the roof membrane are not subject to the training requirements, since these methods do not cause the roof removal to be subject to the NESHAP. Likewise, it is EPA's intention that roof removal operations involving Category II nonfriable ACM are not subject to the training requirements where such operations are not subject to the NESHAP as discussed in section I above.

The INL is subject to Appendix A to Subpart M of Part 61.

[59 FR 31158, June 17, 1994, as amended at 60 FR 31920, June 19, 1995]

ATTACHMENT FRA-5

40 CFR Part 63 Subpart ZZZZ Regulatory Review

E-CFR DATA IS CURRENT AS OF JULY 8, 2019

40 CFR PART 63 SUBPART ZZZZ REGULATORY ANALYSIS

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 63--NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

Subpart ZZZZ—National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

SOURCE: 69 FR 33506, June 15, 2004, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.6580 What is the purpose of subpart ZZZZ?

Subpart ZZZZ establishes national emission limitations and operating limitations for hazardous air pollutants (HAP) emitted from stationary reciprocating internal combustion engines (RICE) located at major and area sources of HAP emissions. This subpart also establishes requirements to demonstrate initial and continuous compliance with the emission limitations and operating limitations.

The Idaho National Laboratory (INL) is subject to this subpart because the INL was an area source of HAP emissions on the compliance dates of this subpart, remains an area source of HAP emissions, and owns and operates stationary RICE.

[73 FR 3603, Jan. 18, 2008]

§63.6585 Am I subject to this subpart?

You are subject to this subpart if you own or operate a stationary RICE at a major or *area source of HAP emissions*, except if the stationary RICE is being tested at a stationary RICE test cell/stand.

(*a) A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.*

(b) A major source of HAP emissions is a plant site that emits or has the potential to emit any single HAP at a rate of 10 tons (9.07 megagrams) or more per year or any combination of HAP at a rate of 25 tons (22.68 megagrams) or more per year, except that for oil and gas production facilities, a major source of HAP emissions is determined for each surface site.

(*c) An area source of HAP emissions is a source that is not a major source.*

(d) If you are an owner or operator of an area source subject to this subpart, your status as an entity subject to a standard or other requirements under this subpart does not subject you to the obligation to obtain a permit under 40 CFR part 70 or 71, provided you are not required to obtain a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) for a reason other than your status as an area source under this subpart. Notwithstanding the previous sentence, you must continue to comply with the provisions of this subpart as applicable.

(e) If you are an owner or operator of a stationary RICE used for national security purposes, you may be eligible to request an exemption from the requirements of this subpart as described in 40 CFR part 1068, subpart C.

(f) The emergency stationary RICE listed in paragraphs (f)(1) through *(3) of this section are not subject to this subpart. The stationary RICE must meet the definition of an emergency stationary RICE in §63.6675, which includes operating according to the provisions specified in §63.6640(f).*

(1) Existing residential emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(2) Existing commercial emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

(3) Existing institutional emergency stationary RICE located at an area source of HAP emissions that do not operate or are not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) and that do not operate for the purpose specified in §63.6640(f)(4)(ii).

The INL is subject to this subpart because the INL owns and operates existing institutional emergency stationary RICE in accordance with §63.6585(a) and as previously notified to the DEQ, the INL is currently designated as an area source of HAP emissions in accordance with §63.6585(c) and (d) in accordance with Voluntary Consent Order – Case No. E-2015.0018.

The INL is not subject to §63.6585(b) because it is not currently a major source of HAP emissions.

The INL is not subject to §63.6585(e) because the INL does not operate stationary RICE for national security purposes as described in 40 CFR 1068, subpart C.

The INL is subject to §63.6585(f)(3) because the INL operates existing institutional emergency stationary RICE at an area source of hazardous air pollutants that do not operate or are not contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii).

[69 FR 33506, June 15, 2004, as amended at 73 FR 3603, Jan. 18, 2008; 78 FR 6700, Jan. 30, 2013]

§63.6590 What parts of my plant does this subpart cover?

This subpart applies to each affected source.

(a) Affected source. An affected source is any existing, new, or reconstructed stationary RICE located at a major or area source of HAP emissions, excluding stationary RICE being tested at a stationary RICE test cell/stand.

(1) Existing stationary RICE.

(i) For stationary RICE with a site rating of more than 500 brake horsepower (HP) located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before December 19, 2002.

(ii) For stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iii) For stationary RICE located at an area source of HAP emissions, a stationary RICE is existing if you commenced construction or reconstruction of the stationary RICE before June 12, 2006.

(iv) A change in ownership of an existing stationary RICE does not make that stationary RICE a new or reconstructed stationary RICE.

(2) New stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is new if you commenced construction of the stationary RICE on or after June 12, 2006.

(3) Reconstructed stationary RICE.

(i) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after December 19, 2002.

(ii) A stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(iii) A stationary RICE located at an area source of HAP emissions is reconstructed if you meet the definition of reconstruction in §63.2 and reconstruction is commenced on or after June 12, 2006.

(b) Stationary RICE subject to limited requirements. (1) An affected source which meets either of the criteria in paragraphs (b)(1)(i) through (ii) of this section does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of §63.6645(f).

(i) The stationary RICE is a new or reconstructed emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(ii) The stationary RICE is a new or reconstructed limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(2) A new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis must meet the initial notification requirements of §63.6645(f) and the requirements of §§63.6625(c), 63.6650(g), and 63.6655(c). These stationary RICE do not have to meet the emission limitations and operating limitations of this subpart.

(3) The following stationary RICE do not have to meet the requirements of this subpart and of subpart A of this part, including initial notification requirements:

(i) Existing spark ignition 2 stroke lean burn (2SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(ii) Existing spark ignition 4 stroke lean burn (4SLB) stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(iii) Existing emergency stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that does not operate or is not contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(iv) Existing limited use stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions;

(v) Existing stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(c) Stationary RICE subject to Regulations under 40 CFR Part 60. An affected source that meets any of the criteria in paragraphs (c)(1) through (7) of this section must meet the requirements of this part by meeting the requirements of 40 CFR part 60 subpart IIII, for compression ignition engines or 40 CFR part 60 subpart JJJJ, for spark ignition engines. No further requirements apply for such engines under this part.

(1) A new or reconstructed stationary RICE located at an area source;

(2) A new or reconstructed 2SLB stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(3) A new or reconstructed 4SLB stationary RICE with a site rating of less than 250 brake HP located at a major source of HAP emissions;

(4) A new or reconstructed spark ignition 4 stroke rich burn (4SRB) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(5) A new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis;

(6) A new or reconstructed emergency or limited use stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions;

(7) A new or reconstructed compression ignition (CI) stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

The INL is subject §63.6590 (a)(1)(iii) and (iv), (a)(2)(iii), (a)(3)(iii) because it is an area source of HAP emissions and operates existing, new, or potentially reconstructed stationary RICE.

The INL is not subject to §63.6590 (a)(1)(i) and (ii), (a)(2)(i) and (ii), (a)(3)(i) and (ii), and (b) because it is an area source of HAP emissions.

The INL is subject to §63.6590(c)(1) because it is an area source of HAP emissions and operates new, or potentially reconstructed stationary RICE.

The INL is not subject to §63.6590(c)(2)-(7) because it is an area source of HAP emissions.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9674, Mar. 3, 2010; 75 FR 37733, June 30, 2010; 75 FR 51588, Aug. 20, 2010; 78 FR 6700, Jan. 30, 2013]

§63.6595 When do I have to comply with this subpart?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1)and is an area source of hazardous air pollutants.

(a) Affected sources. (1) If you have an existing stationary RICE, excluding existing non-emergency CI stationary RICE, with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the applicable emission limitations, operating limitations and other requirements no later than June 15, 2007. If you have an existing non-emergency CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, an existing stationary CI RICE with a site rating of less than or equal to 500 brake HP located at a major source of

HAP emissions, or an existing stationary CI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than May 3, 2013. If you have an existing stationary SI RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions, or an existing stationary SI RICE located at an area source of HAP emissions, you must comply with the applicable emission limitations, operating limitations, and other requirements no later than October 19, 2013.

(2) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart no later than August 16, 2004.

(3) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions after August 16, 2004, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(4) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(5) If you start up your new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(6) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions before January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart no later than January 18, 2008.

(7) If you start up your new or reconstructed stationary RICE located at an area source of HAP emissions after January 18, 2008, you must comply with the applicable emission limitations and operating limitations in this subpart upon startup of your affected source.

(b) Area sources that become major sources. If you have an area source that increases its emissions or its potential to emit such that it becomes a major source of HAP, the compliance dates in paragraphs (b)(1) and (2) of this section apply to you.

(1) Any stationary RICE for which construction or reconstruction is commenced after the date when your area source becomes a major source of HAP must be in compliance with this subpart upon startup of your affected source.

(2) Any stationary RICE for which construction or reconstruction is commenced before your area source becomes a major source of HAP must be in compliance with the provisions of this subpart that are applicable to RICE located at major sources within 3 years after your area source becomes a major source of HAP.

(c) If you own or operate an affected source, you must meet the applicable notification requirements in §63.6645 and in 40 CFR part 63, subpart A.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3604, Jan. 18, 2008; 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 78 FR 6701, Jan. 30, 2013]

EMISSION AND OPERATING LIMITATIONS

§63.6600 What emission limitations and operating limitations must I meet if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

The INL is not subject to this subpart because the INL is an area source of hazardous air pollutants.

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing, new, or reconstructed spark ignition 4SRB stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 1a to this subpart and the operating limitations in Table 1b to this subpart which apply to you.

(b) If you own or operate a new or reconstructed 2SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, a new or reconstructed 4SLB stationary RICE with a site rating of more than 500 brake HP located at major source of HAP emissions, or a new or reconstructed CI stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

(c) If you own or operate any of the following stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the emission limitations in Tables 1a, 2a, 2c, and 2d to this subpart or operating limitations in Tables 1b and 2b to this subpart: an existing 2SLB stationary RICE; an existing 4SLB stationary RICE; a stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis; an emergency stationary RICE; or a limited use stationary RICE.

(d) If you own or operate an existing non-emergency stationary CI RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations in Table 2c to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010]

§63.6601 What emission limitations must I meet if I own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP and less than or equal to 500 brake HP located at a major source of HAP emissions?

The INL is not subject to this subpart because the INL is an area source of hazardous air pollutants.

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart. If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at major source of HAP emissions manufactured on or after January 1, 2008, you must comply with the emission limitations in Table 2a to this subpart and the operating limitations in Table 2b to this subpart which apply to you.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 9675, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010]

§63.6602 What emission limitations and other requirements must I meet if I own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions?

The INL is not subject to this subpart because the INL is an area source of hazardous air pollutants.

If you own or operate an existing stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions, you must comply with the emission limitations and other requirements in Table 2c to this subpart which apply to you. Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

[78 FR 6701, Jan. 30, 2013]

§63.6603 What emission limitations, operating limitations, and other requirements must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

Compliance with the numerical emission limitations established in this subpart is based on the results of testing the average of three 1-hour runs using the testing requirements and procedures in §63.6620 and Table 4 to this subpart.

(a) If you own or operate an existing stationary RICE located at an area source of HAP emissions, you must comply with the requirements in Table 2d to this subpart and the operating limitations in Table 2b to this subpart that apply to you.

(b) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meets either paragraph (b)(1) or (2) of this section, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. Existing stationary non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP that meet either paragraph (b)(1) or (2) of this section must meet the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart.

(1) The area source is located in an area of Alaska that is not accessible by the Federal Aid Highway System (FAHS).

(2) The stationary RICE is located at an area source that meets paragraphs (b)(2)(i), (ii), and (iii) of this section.

(i) The only connection to the FAHS is through the Alaska Marine Highway System (AMHS), or the stationary RICE operation is within an isolated grid in Alaska that is not connected to the statewide electrical grid referred to as the Alaska Railbelt Grid.

(ii) At least 10 percent of the power generated by the stationary RICE on an annual basis is used for residential purposes.

(iii) The generating capacity of the area source is less than 12 megawatts, or the stationary RICE is used exclusively for backup power for renewable energy.

(c) If you own or operate an existing stationary non-emergency CI RICE with a site rating of more than 300 HP located on an offshore vessel that is an area source of HAP and is a nonroad vehicle that is an Outer Continental Shelf (OCS) source as defined in 40 CFR 55.2, you do not have to meet the numerical CO emission limitations specified in Table 2d of this subpart. You must meet all of the following management practices:

(1) Change oil every 1,000 hours of operation or annually, whichever comes first. Sources have the option to utilize an oil analysis program as described in §63.6625(i) in order to extend the specified oil change requirement.

(2) Inspect and clean air filters every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(3) Inspect fuel filters and belts, if installed, every 750 hours of operation or annually, whichever comes first, and replace as necessary.

(4) Inspect all flexible hoses every 1,000 hours of operation or annually, whichever comes first, and replace as necessary.

(d) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and that is subject to an enforceable state or local standard that requires the engine to be replaced no later than June 1, 2018, you may until January 1, 2015, or 12 years after the

installation date of the engine (whichever is later), but not later than June 1, 2018, choose to comply with the management practices that are shown for stationary non-emergency CI RICE with a site rating of less than or equal to 300 HP in Table 2d of this subpart instead of the applicable emission limitations in Table 2d, operating limitations in Table 2b, and crankcase ventilation system requirements in §63.6625(g). You must comply with the emission limitations in Table 2d and operating limitations in Table 2b that apply for non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018. You must also comply with the crankcase ventilation system requirements in §63.6625(g) by January 1, 2015, or 12 years after the installation date of the engine (whichever is later), but not later than June 1, 2018.

(e) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 3 (Tier 2 for engines above 560 kilowatt (kW)) emission standards in Table 1 of 40 CFR 89.112, you may comply with the requirements under this part by meeting the requirements for Tier 3 engines (Tier 2 for engines above 560 kW) in 40 CFR part 60 subpart IIII instead of the emission limitations and other requirements that would otherwise apply under this part for existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions.

(f) An existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP must meet the definition of remote stationary RICE in §63.6675 on the initial compliance date for the engine, October 19, 2013, in order to be considered a remote stationary RICE under this subpart. Owners and operators of existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that meet the definition of remote stationary RICE in §63.6675 of this subpart as of October 19, 2013 must evaluate the status of their stationary RICE every 12 months. Owners and operators must keep records of the initial and annual evaluation of the status of the engine. If the evaluation indicates that the stationary RICE no longer meets the definition of remote stationary RICE in §63.6675 of this subpart, the owner or operator must comply with all of the requirements for existing non-emergency SI 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at area sources of HAP that are not remote stationary RICE within 1 year of the evaluation.

[75 FR 9675, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6701, Jan. 30, 2013]

§63.6604 What fuel requirements must I meet if I own or operate a stationary CI RICE?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) If you own or operate an existing non-emergency, non-black start CI stationary RICE with a site rating of more than 300 brake HP with a displacement of less than 30 liters per cylinder that uses diesel fuel, you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel.

(b) Beginning January 1, 2015, if you own or operate an existing emergency CI stationary RICE with a site rating of more than 100 brake HP and a displacement of less than 30 liters per cylinder that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(c) Beginning January 1, 2015, if you own or operate a new emergency CI stationary RICE with a site rating of more than 500 brake HP and a displacement of less than 30 liters per cylinder located at a major source of HAP that uses diesel fuel and operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii), you must use diesel fuel that meets the requirements in 40 CFR 80.510(b) for nonroad diesel fuel, except that any existing diesel fuel purchased (or otherwise obtained) prior to January 1, 2015, may be used until depleted.

(d) Existing CI stationary RICE located in Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2), or are on offshore vessels that meet §63.6603(c) are exempt from the requirements of this section.

[78 FR 6702, Jan. 30, 2013]

General Compliance Requirements

§63.6605 What are my general requirements for complying with this subpart?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) You must be in compliance with the emission limitations, operating limitations, and other requirements in this subpart that apply to you at all times.

(b) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator which may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.

[75 FR 9675, Mar. 3, 2010, as amended at 78 FR 6702, Jan. 30, 2013]

Testing and Initial Compliance Requirements

§63.6610 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions?

The INL is not subject to this subpart because the INL is an area source of hazardous air pollutants.

If you own or operate a stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct the initial performance test or other initial compliance demonstrations in Table 4 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you must demonstrate initial compliance with either the proposed emission limitations or the promulgated emission limitations no later than February 10, 2005 or no later than 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(c) If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004 and own or operate stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, and you chose to comply with the proposed emission limitations when demonstrating initial compliance, you must conduct a second performance test to demonstrate compliance with the promulgated emission limitations by December 13, 2007 or after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(d) An owner or operator is not required to conduct an initial performance test on units for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (d)(1) through (5) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

(5) The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3605, Jan. 18, 2008]

§63.6611 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate a new or reconstructed 4SLB SI stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions?

The INL is not subject to this subpart because the INL is an area source of hazardous air pollutants.

If you own or operate a new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must conduct an initial performance test within 240 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions specified in Table 4 to this subpart, as appropriate.

[73 FR 3605, Jan. 18, 2008, as amended at 75 FR 51589, Aug. 20, 2010]

§63.6612 By what date must I conduct the initial performance tests or other initial compliance demonstrations if I own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3).

If you own or operate an existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing stationary RICE located at an area source of HAP emissions you are subject to the requirements of this section.

(a) You must conduct any initial performance test or other initial compliance demonstration according to Tables 4 and 5 to this subpart that apply to you within 180 days after the compliance date that is specified for your stationary RICE in §63.6595 and according to the provisions in §63.7(a)(2).

(b) An owner or operator is not required to conduct an initial performance test on a unit for which a performance test has been previously conducted, but the test must meet all of the conditions described in paragraphs (b)(1) through (4) of this section.

(1) The test must have been conducted using the same methods specified in this subpart, and these methods must have been followed correctly.

(2) The test must not be older than 2 years.

(3) The test must be reviewed and accepted by the Administrator.

(4) Either no process or equipment changes must have been made since the test was performed, or the owner or operator must be able to demonstrate that the results of the performance test, with or without adjustments, reliably demonstrate compliance despite process or equipment changes.

[75 FR 9676, Mar. 3, 2010, as amended at 75 FR 51589, Aug. 20, 2010]

§63.6615 When must I conduct subsequent performance tests?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

If you must comply with the emission limitations and operating limitations, you must conduct subsequent performance tests as specified in Table 3 of this subpart.

§63.6620 What performance tests and other procedures must I use?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) You must conduct each performance test in Tables 3 and 4 of this subpart that applies to you.

(b) Each performance test must be conducted according to the requirements that this subpart specifies in Table 4 to this subpart. If you own or operate a non-operational stationary RICE that is subject to performance testing, you do not need to start up the engine solely to conduct the performance test. Owners and operators of a non-operational engine can conduct the performance test when the engine is started up again. The test must be conducted at any load condition within plus or minus 10 percent of 100 percent load for the stationary RICE listed in paragraphs (b)(1) through (4) of this section.

(1) Non-emergency 4SRB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(2) New non-emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 brake HP located at a major source of HAP emissions.

(3) New non-emergency 2SLB stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(4) New non-emergency CI stationary RICE with a site rating of greater than 500 brake HP located at a major source of HAP emissions.

(c) [Reserved]

(d) You must conduct three separate test runs for each performance test required in this section, as specified in §63.7(e)(3). Each test run must last at least 1 hour, unless otherwise specified in this subpart.

(e)(1) You must use Equation 1 of this section to determine compliance with the percent reduction requirement:

$$\frac{C_i - C_o}{C_i} \times 100 = R \quad (Eq.\ 1)$$

Where:

C_i = concentration of carbon monoxide (CO), total hydrocarbons (THC), or formaldehyde at the control device inlet,

C_o = concentration of CO, THC, or formaldehyde at the control device outlet, and

R = percent reduction of CO, THC, or formaldehyde emissions.

(2) You must normalize the CO, THC, or formaldehyde concentrations at the inlet and outlet of the control device to a dry basis and to 15 percent oxygen, or an equivalent percent carbon dioxide (CO_2). If pollutant concentrations are to be corrected to 15 percent oxygen and CO_2 concentration is measured in lieu of oxygen concentration measurement, a CO_2 correction factor is needed. Calculate the CO_2 correction factor as described in paragraphs (e)(2)(i) through (iii) of this section.

(i) Calculate the fuel-specific F_o value for the fuel burned during the test using values obtained from Method 19, Section 5.2, and the following equation:

$$F_O = \frac{0.209\ F_d}{F_C} \quad (Eq.\ 2)$$

Where:

F_o = Fuel factor based on the ratio of oxygen volume to the ultimate CO_2 volume produced by the fuel at zero percent excess air.

0.209 = Fraction of air that is oxygen, percent/100.

F_d = Ratio of the volume of dry effluent gas to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu).

F_c = Ratio of the volume of CO_2 produced to the gross calorific value of the fuel from Method 19, dsm^3/J ($dscf/10^6$ Btu)

(ii) Calculate the CO_2 correction factor for correcting measurement data to 15 percent O_2, as follows:

$$X_{CO2} = \frac{5.9}{F_O} \quad (Eq.\ 3)$$

Where:

X_{CO2} = CO_2 correction factor, percent.

5.9 = 20.9 percent O_2—15 percent O_2, the defined O_2 correction value, percent.

(iii) Calculate the CO, THC, and formaldehyde gas concentrations adjusted to 15 percent O_2 using CO_2 as follows:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad (Eq.\ 4)$$

Where:

C_{adj} = Calculated concentration of CO, THC, or formaldehyde adjusted to 15 percent O_2.

C_d = Measured concentration of CO, THC, or formaldehyde, uncorrected.

X_{CO2} = CO_2 correction factor, percent.

$\%CO_2$ = Measured CO_2 concentration measured, dry basis, percent.

(f) If you comply with the emission limitation to reduce CO and you are not using an oxidation catalyst, if you comply with the emission limitation to reduce formaldehyde and you are not using NSCR, or if you comply with the emission limitation to limit the concentration of formaldehyde in the stationary RICE exhaust and you are not using an oxidation catalyst or NSCR, you must petition the Administrator for operating limitations to be established during the initial performance test and continuously monitored thereafter; or for approval of no operating limitations. You must not conduct the initial performance test until after the petition has been approved by the Administrator.

(g) If you petition the Administrator for approval of operating limitations, your petition must include the information described in paragraphs (g)(1) through (5) of this section.

(1) Identification of the specific parameters you propose to use as operating limitations;

(2) A discussion of the relationship between these parameters and HAP emissions, identifying how HAP emissions change with changes in these parameters, and how limitations on these parameters will serve to limit HAP emissions;

(3) A discussion of how you will establish the upper and/or lower values for these parameters which will establish the limits on these parameters in the operating limitations;

(4) A discussion identifying the methods you will use to measure and the instruments you will use to monitor these parameters, as well as the relative accuracy and precision of these methods and instruments; and

(5) A discussion identifying the frequency and methods for recalibrating the instruments you will use for monitoring these parameters.

(h) If you petition the Administrator for approval of no operating limitations, your petition must include the information described in paragraphs (h)(1) through (7) of this section.

(1) Identification of the parameters associated with operation of the stationary RICE and any emission control device which could change intentionally (*e.g.,* operator adjustment, automatic controller adjustment, etc.) or unintentionally (*e.g.,* wear and tear, error, etc.) on a routine basis or over time;

(2) A discussion of the relationship, if any, between changes in the parameters and changes in HAP emissions;

(3) For the parameters which could change in such a way as to increase HAP emissions, a discussion of whether establishing limitations on the parameters would serve to limit HAP emissions;

(4) For the parameters which could change in such a way as to increase HAP emissions, a discussion of how you could establish upper and/or lower values for the parameters which would establish limits on the parameters in operating limitations;

(5) For the parameters, a discussion identifying the methods you could use to measure them and the instruments you could use to monitor them, as well as the relative accuracy and precision of the methods and instruments;

(6) For the parameters, a discussion identifying the frequency and methods for recalibrating the instruments you could use to monitor them; and

(7) A discussion of why, from your point of view, it is infeasible or unreasonable to adopt the parameters as operating limitations.

(i) The engine percent load during a performance test must be determined by documenting the calculations, assumptions, and measurement devices used to measure or estimate the percent load in a specific application. A written report of the average percent load determination must be included in the notification of compliance status. The following information must be included in the written report: the engine model number, the engine manufacturer, the year of purchase, the manufacturer's site-rated brake horsepower, the ambient temperature, pressure, and humidity during the performance test, and all assumptions that were made to estimate or calculate percent load during the performance test must be clearly explained. If measurement devices such as flow meters, kilowatt meters, beta analyzers, stain gauges, etc. are used, the model number of the measurement device, and an estimate of its accurate in percentage of true value must be provided.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9676, Mar. 3, 2010; 78 FR 6702, Jan. 30, 2013]

§63.6625 What are my monitoring, installation, collection, operation, and maintenance requirements?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) If you elect to install a CEMS as specified in Table 5 of this subpart, you must install, operate, and maintain a CEMS to monitor CO and either O_2 or CO_2 according to the requirements in paragraphs (a)(1) through (4) of this section. If you are meeting a requirement to reduce CO emissions, the CEMS must be installed at both the inlet and outlet of the control device. If you are meeting a requirement to limit the concentration of CO, the CEMS must be installed at the outlet of the control device.

(1) Each CEMS must be installed, operated, and maintained according to the applicable performance specifications of 40 CFR part 60, appendix B.

(2) You must conduct an initial performance evaluation and an annual relative accuracy test audit (RATA) of each CEMS according to the requirements in §63.8 and according to the applicable performance specifications of 40 CFR part 60, appendix B as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.

(3) As specified in §63.8(c)(4)(ii), each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. You must have at least two data points, with each representing a different 15-minute period, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2) and recorded in parts per million or parts per billion (as appropriate for the applicable limitation) at 15 percent oxygen or the equivalent CO_2 concentration.

(b) If you are required to install a continuous parameter monitoring system (CPMS) as specified in Table 5 of this subpart, you must install, operate, and maintain each CPMS according to the requirements in paragraphs (b)(1) through (6) of this section. For an affected source that is complying with the emission limitations and operating limitations on March 9, 2011, the requirements in paragraph (b) of this section are applicable September 6, 2011.

(1) You must prepare a site-specific monitoring plan that addresses the monitoring system design, data collection, and the quality assurance and quality control elements outlined in paragraphs (b)(1)(i) through (v) of this section and in §63.8(d). As specified in §63.8(f)(4), you may request approval of monitoring system quality assurance and quality control procedures alternative to those specified in paragraphs (b)(1) through (5) of this section in your site-specific monitoring plan.

(i) The performance criteria and design specifications for the monitoring system equipment, including the sample interface, detector signal analyzer, and data acquisition and calculations;

(ii) Sampling interface (*e.g.,* thermocouple) location such that the monitoring system will provide representative measurements;

(iii) Equipment performance evaluations, system accuracy audits, or other audit procedures;

(iv) Ongoing operation and maintenance procedures in accordance with provisions in §63.8(c)(1)(ii) and (c)(3); and

(v) Ongoing reporting and recordkeeping procedures in accordance with provisions in §63.10(c), (e)(1), and (e)(2)(i).

(2) You must install, operate, and maintain each CPMS in continuous operation according to the procedures in your site-specific monitoring plan.

(3) The CPMS must collect data at least once every 15 minutes (see also §63.6635).

(4) For a CPMS for measuring temperature range, the temperature sensor must have a minimum tolerance of 2.8 degrees Celsius (5 degrees Fahrenheit) or 1 percent of the measurement range, whichever is larger.

(5) You must conduct the CPMS equipment performance evaluation, system accuracy audits, or other audit procedures specified in your site-specific monitoring plan at least annually.

(6) You must conduct a performance evaluation of each CPMS in accordance with your site-specific monitoring plan.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must monitor and record your fuel usage daily with separate fuel meters to measure the volumetric flow rate of each fuel. In addition, you must operate your stationary RICE in a manner which reasonably minimizes HAP emissions.

(d) If you are operating a new or reconstructed emergency 4SLB stationary RICE with a site rating of greater than or equal to 250 and less than or equal to 500 brake HP located at a major source of HAP emissions, you must install a non-resettable hour meter prior to the startup of the engine.

(e) If you own or operate any of the following stationary RICE, you must operate and maintain the stationary RICE and after-treatment control device (if any) according to the manufacturer's emission-related written instructions or develop your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions:

(1) An existing stationary RICE with a site rating of less than 100 HP located at a major source of HAP emissions;

(2) An existing emergency or black start stationary RICE with a site rating of less than or equal to 500 HP located at a major source of HAP emissions;

(3) An existing emergency or black start stationary RICE located at an area source of HAP emissions;

(4) An existing non-emergency, non-black start stationary CI RICE with a site rating less than or equal to 300 HP located at an area source of HAP emissions;

(5) An existing non-emergency, non-black start 2SLB stationary RICE located at an area source of HAP emissions;

(6) An existing non-emergency, non-black start stationary RICE located at an area source of HAP emissions which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis.

(7) An existing non-emergency, non-black start 4SLB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(8) An existing non-emergency, non-black start 4SRB stationary RICE with a site rating less than or equal to 500 HP located at an area source of HAP emissions;

(9) An existing, non-emergency, non-black start 4SLB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year; and

(10) An existing, non-emergency, non-black start 4SRB stationary RICE with a site rating greater than 500 HP located at an area source of HAP emissions that is operated 24 hours or less per calendar year.

(f) If you own or operate an existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions or an existing emergency stationary RICE located at an area source of HAP emissions, you must install a non-resettable hour meter if one is not already installed.

(g) If you own or operate an existing non-emergency, non-black start CI engine greater than or equal to 300 HP that is not equipped with a closed crankcase ventilation system, you must comply with either paragraph (g)(1) or paragraph (2) of this section. Owners and operators must follow the manufacturer's specified maintenance requirements for operating and maintaining the open or closed crankcase ventilation systems and replacing the crankcase filters, or can request the Administrator to approve different maintenance requirements that are as protective as manufacturer requirements. Existing CI engines located at area sources in areas of Alaska that meet either §63.6603(b)(1) or §63.6603(b)(2) do not have to meet the requirements of this paragraph (g). Existing CI engines located on offshore vessels that meet §63.6603(c) do not have to meet the requirements of this paragraph (g).

(1) Install a closed crankcase ventilation system that prevents crankcase emissions from being emitted to the atmosphere, or

(2) Install an open crankcase filtration emission control system that reduces emissions from the crankcase by filtering the exhaust stream to remove oil mist, particulates and metals.

(h) If you operate a new, reconstructed, or existing stationary engine, you must minimize the engine's time spent at idle during startup and minimize the engine's startup time to a period needed for appropriate and safe loading of the engine, not to exceed 30 minutes, after which time the emission standards applicable to all times other than startup in Tables 1a, 2a, 2c, and 2d to this subpart apply.

(i) If you own or operate a stationary CI engine that is subject to the work, operation or management practices in items 1 or 2 of Table 2c to this subpart or in items 1 or 4 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Base Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Base Number is less than 30 percent of the Total Base Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

(j) If you own or operate a stationary SI engine that is subject to the work, operation or management practices in items 6, 7, or 8 of Table 2c to this subpart or in items 5, 6, 7, 9, or 11 of Table 2d to this subpart, you have the option of utilizing an oil analysis program in order to extend the specified oil change requirement in Tables 2c and 2d to this subpart. The oil analysis must be performed at the same frequency specified for changing the oil in Table 2c or 2d to this subpart. The analysis program must at a minimum analyze the following three parameters: Total Acid Number, viscosity, and percent water content. The condemning limits for these parameters are as follows: Total Acid Number increases by more than 3.0 milligrams of potassium hydroxide (KOH) per gram from Total Acid Number of the oil when new; viscosity of the oil has changed by more than 20 percent from the viscosity of the oil when new; or percent water content (by volume) is greater than 0.5. If all of these condemning limits are not exceeded, the engine owner or operator is not required to change the oil. If any of the limits are exceeded, the engine owner or operator must change the oil within 2 business days of receiving the results of the analysis; if the engine is not in operation when the results of the analysis are received, the engine owner or operator must change the oil within 2 business days or before commencing operation, whichever is later. The owner or operator must keep records of the parameters that are analyzed as part of the program, the results of the analysis, and the oil changes for the engine. The analysis program must be part of the maintenance plan for the engine.

[69 FR 33506, June 15, 2004, as amended at 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51589, Aug. 20, 2010; 76 FR 12866, Mar. 9, 2011; 78 FR 6703, Jan. 30, 2013]

§63.6630 How do I demonstrate initial compliance with the emission limitations, operating limitations, and other requirements?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) You must demonstrate initial compliance with each emission limitation, operating limitation, and other requirement that applies to you according to Table 5 of this subpart.

(b) During the initial performance test, you must establish each operating limitation in Tables 1b and 2b of this subpart that applies to you.

(c) You must submit the Notification of Compliance Status containing the results of the initial compliance demonstration according to the requirements in §63.6645.

(d) Non-emergency 4SRB stationary RICE complying with the requirement to reduce formaldehyde emissions by 76 percent or more can demonstrate initial compliance with the formaldehyde emission limit by testing for THC instead of formaldehyde. The testing must be conducted according to the requirements in Table 4 of this subpart. The average reduction of emissions of THC determined from the performance test must be equal to or greater than 30 percent.

(e) The initial compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least three test runs.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

[69 FR 33506, June 15, 2004, as amended at 78 FR 6704, Jan. 30, 2013]

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.6635 How do I monitor and collect data to demonstrate continuous compliance?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) If you must comply with emission and operating limitations, you must monitor and collect data according to this section.

(b) Except for monitor malfunctions, associated repairs, required performance evaluations, and required quality assurance or control activities, you must monitor continuously at all times that the stationary RICE is operating. A monitoring malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring to provide valid data. Monitoring failures that are caused in part by poor maintenance or careless operation are not malfunctions.

(c) You may not use data recorded during monitoring malfunctions, associated repairs, and required quality assurance or control activities in data averages and calculations used to report emission or operating levels. You must, however, use all the valid data collected during all other periods.

[69 FR 33506, June 15, 2004, as amended at 76 FR 12867, Mar. 9, 2011]

§63.6640 How do I demonstrate continuous compliance with the emission limitations, operating limitations, and other requirements?

(a) You must demonstrate continuous compliance with each emission limitation, operating limitation, and other requirements in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you according to methods specified in Table 6 to this subpart.

(b) You must report each instance in which you did not meet each emission limitation or operating limitation in Tables 1a and 1b, Tables 2a and 2b, Table 2c, and Table 2d to this subpart that apply to you. These instances are deviations from the emission and operating limitations in this subpart. These deviations must be reported according to the requirements in §63.6650. If you change your catalyst, you must reestablish the values of the operating parameters measured during the initial performance test. When you reestablish the values of your operating parameters, you must also conduct a performance test to demonstrate that you are meeting the required emission limitation applicable to your stationary RICE.

(c) The annual compliance demonstration required for existing non-emergency 4SLB and 4SRB stationary RICE with a site rating of more than 500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year must be conducted according to the following requirements:

(1) The compliance demonstration must consist of at least one test run.

(2) Each test run must be of at least 15 minute duration, except that each test conducted using the method in appendix A to this subpart must consist of at least one measurement cycle and include at least 2 minutes of test data phase measurement.

(3) If you are demonstrating compliance with the CO concentration or CO percent reduction requirement, you must measure CO emissions using one of the CO measurement methods specified in Table 4 of this subpart, or using appendix A to this subpart.

(4) If you are demonstrating compliance with the THC percent reduction requirement, you must measure THC emissions using Method 25A, reported as propane, of 40 CFR part 60, appendix A.

(5) You must measure O_2 using one of the O_2 measurement methods specified in Table 4 of this subpart. Measurements to determine O_2 concentration must be made at the same time as the measurements for CO or THC concentration.

(6) If you are demonstrating compliance with the CO or THC percent reduction requirement, you must measure CO or THC emissions and O_2 emissions simultaneously at the inlet and outlet of the control device.

(7) If the results of the annual compliance demonstration show that the emissions exceed the levels specified in Table 6 of this subpart, the stationary RICE must be shut down as soon as safely possible, and appropriate corrective action must be taken (e.g., repairs, catalyst cleaning, catalyst replacement). The stationary RICE must be retested within 7 days of being restarted and the emissions must meet the levels specified in Table 6 of this subpart. If the retest shows that the emissions continue to exceed the specified levels, the stationary RICE must again be shut down as soon as safely possible, and the stationary RICE may not operate, except for purposes of startup and testing, until the owner/operator demonstrates through testing that the emissions do not exceed the levels specified in Table 6 of this subpart.

(d) For new, reconstructed, and rebuilt stationary RICE, 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. Rebuilt stationary RICE means a stationary RICE that has been rebuilt as that term is defined in 40 CFR 94.11(a).

(e) You must also report each instance in which you did not meet the requirements in Table 8 to this subpart that apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do

not need to comply with the requirements in Table 8 to this subpart: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing emergency stationary RICE, an existing limited use stationary RICE, or an existing stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in Table 8 to this subpart, except for the initial notification requirements: a new or reconstructed stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new or reconstructed emergency stationary RICE, or a new or reconstructed limited use stationary RICE.

(f) If you own or operate an emergency stationary RICE, you must operate the emergency stationary RICE according to the requirements in paragraphs (f)(1) through (4) of this section. In order for the engine to be considered an emergency stationary RICE under this subpart, any operation other than emergency operation, maintenance and testing, emergency demand response, *and operation in non-emergency situations for 50 hours per year, as described in paragraphs (f)(1) through (4) of this section, is prohibited. If you do not operate the engine according to the requirements in paragraphs (f)(1) through (4) of this section, the engine will not be considered an emergency engine under this subpart and must meet all requirements for non-emergency engines.*

(1) There is no time limit on the use of emergency stationary RICE in emergency situations.

(2) You may operate your emergency stationary RICE for any combination of the purposes specified in paragraphs (f)(2)(i) through (iii) of this section for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraphs (f)(3) and *(4) of this section counts as part of the 100 hours per calendar year allowed by this paragraph (f)(2).*

(i) Emergency stationary RICE may be operated for maintenance checks and readiness testing, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, *or the insurance company associated with the engine. The owner or operator may petition the Administrator for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.*

(ii) Emergency stationary RICE may be operated for emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

(iii) Emergency stationary RICE may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

(3) Emergency stationary RICE located at major sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided in paragraph (f)(2) of this section. The 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or 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.

(4) Emergency stationary RICE located at area sources of HAP may be operated for up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response *provided in paragraph (f)(2) of this section.* Except as provided in paragraphs (f)(4)(i) and (ii) of this section, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

(i) Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system.

(ii) The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:

(A) The engine is dispatched by the local balancing authority or local transmission and distribution system operator.

(B) The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region.

(C) The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines.

(D) The power is provided only to the facility itself or to support the local transmission and distribution system.

(E) The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner or operator.

The INL is subject to §63.6640(f)(1),(2)(i)&(4) of this subpart because it operates existing institutional emergency stationary RICE located at an area sources of HAP emissions in accordance with §63.6585(f).

The INL is not subject to the remaining portions subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3) and is an area source of hazardous air pollutants.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3606, Jan. 18, 2008; 75 FR 9676, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6704, Jan. 30, 2013]

NOTIFICATIONS, REPORTS, AND RECORDS

§63.6645 What notifications must I submit and when?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) You must submit all of the notifications in §§63.7(b) and (c), 63.8(e), (f)(4) and (f)(6), 63.9(b) through (e), and (g) and (h) that apply to you by the dates specified if you own or operate any of the following;

(1) An existing stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions.

(2) An existing stationary RICE located at an area source of HAP emissions.

(3) A stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions.

(4) A new or reconstructed 4SLB stationary RICE with a site rating of greater than or equal to 250 HP located at a major source of HAP emissions.

(5) This requirement does not apply if you own or operate an existing stationary RICE less than 100 HP, an existing stationary emergency RICE, or an existing stationary RICE that is not subject to any numerical emission standards.

(b) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart, you must submit an Initial Notification not later than December 13, 2004.

(c) If you start up your new or reconstructed stationary RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions on or after August 16, 2004, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(d) As specified in §63.9(b)(2), if you start up your stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions before the effective date of this subpart and you are required to submit an initial notification, you must submit an Initial Notification not later than July 16, 2008.

(e) If you start up your new or reconstructed stationary RICE with a site rating of equal to or less than 500 brake HP located at a major source of HAP emissions on or after March 18, 2008 and you are required to submit an initial notification, you must submit an Initial Notification not later than 120 days after you become subject to this subpart.

(f) If you are required to submit an Initial Notification but are otherwise not affected by the requirements of this subpart, in accordance with §63.6590(b), your notification should include the information in §63.9(b)(2)(i) through (v), and a statement that your stationary RICE has no additional requirements and explain the basis of the exclusion (for example, that it operates exclusively as an emergency stationary RICE if it has a site rating of more than 500 brake HP located at a major source of HAP emissions).

(g) If you are required to conduct a performance test, you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance test is scheduled to begin as required in §63.7(b)(1).

(h) If you are required to conduct a performance test or other initial compliance demonstration as specified in Tables 4 and 5 to this subpart, you must submit a Notification of Compliance Status according to §63.9(h)(2)(ii).

(1) For each initial compliance demonstration required in Table 5 to this subpart that does not include a performance test, you must submit the Notification of Compliance Status before the close of business on the 30th day following the completion of the initial compliance demonstration.

(2) For each initial compliance demonstration required in Table 5 to this subpart that includes a performance test conducted according to the requirements in Table 3 to this subpart, you must submit the Notification of Compliance Status, including the performance test results, before the close of business on the 60th day following the completion of the performance test according to §63.10(d)(2).

(i) If you own or operate an existing non-emergency CI RICE with a site rating of more than 300 HP located at an area source of HAP emissions that is certified to the Tier 1 or Tier 2 emission standards in Table 1 of 40 CFR 89.112 and subject to an enforceable state or local standard requiring engine replacement and you intend to meet management practices rather than emission limits, as specified in §63.6603(d), you must submit a notification by March 3, 2013, stating that you intend to use the provision in §63.6603(d) and identifying the state or local regulation that the engine is subject to.

[73 FR 3606, Jan. 18, 2008, as amended at 75 FR 9677, Mar. 3, 2010; 75 FR 51591, Aug. 20, 2010; 78 FR 6705, Jan. 30, 2013]

§63.6650 What reports must I submit and when?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) You must submit each report in Table 7 of this subpart that applies to you.

(b) Unless the Administrator has approved a different schedule for submission of reports under §63.10(a), you must submit each report by the date in Table 7 of this subpart and according to the requirements in paragraphs (b)(1) through (b)(9) of this section.

(1) For semiannual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on June 30 or December 31, whichever date is the first date following the end of the first calendar half after the compliance date that is specified for your source in §63.6595.

(2) For semiannual Compliance reports, the first Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date follows the end of the first calendar half after the compliance date that is specified for your affected source in §63.6595.

(3) For semiannual Compliance reports, each subsequent Compliance report must cover the semiannual reporting period from January 1 through June 30 or the semiannual reporting period from July 1 through December 31.

(4) For semiannual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than July 31 or January 31, whichever date is the first date following the end of the semiannual reporting period.

(5) For each stationary RICE that is subject to permitting regulations pursuant to 40 CFR part 70 or 71, and if the permitting authority has established dates for submitting semiannual reports pursuant to 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6 (a)(3)(iii)(A), you may submit the first and subsequent Compliance reports according to the dates the permitting authority has established instead of according to the dates in paragraphs (b)(1) through (b)(4) of this section.

(6) For annual Compliance reports, the first Compliance report must cover the period beginning on the compliance date that is specified for your affected source in §63.6595 and ending on December 31.

(7) For annual Compliance reports, the first Compliance report must be postmarked or delivered no later than January 31 following the end of the first calendar year after the compliance date that is specified for your affected source in §63.6595.

(8) For annual Compliance reports, each subsequent Compliance report must cover the annual reporting period from January 1 through December 31.

(9) For annual Compliance reports, each subsequent Compliance report must be postmarked or delivered no later than January 31.

(c) The Compliance report must contain the information in paragraphs (c)(1) through (6) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with that official's name, title, and signature, certifying the accuracy of the content of the report.

(3) Date of report and beginning and ending dates of the reporting period.

(4) If you had a malfunction during the reporting period, the compliance report must include the number, duration, and a brief description for each type of malfunction which occurred during the reporting period and which caused or may have caused any applicable emission limitation to be exceeded. The report must also include a description of actions taken by an owner or operator during a malfunction of an affected source to minimize emissions in accordance with §63.6605(b), including actions taken to correct a malfunction.

(5) If there are no deviations from any emission or operating limitations that apply to you, a statement that there were no deviations from the emission or operating limitations during the reporting period.

(6) If there were no periods during which the continuous monitoring system (CMS), including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were no periods during which the CMS was out-of-control during the reporting period.

(d) For each deviation from an emission or operating limitation that occurs for a stationary RICE where you are not using a CMS to comply with the emission or operating limitations in this subpart, the Compliance report must contain the information in paragraphs (c)(1) through (4) of this section and the information in paragraphs (d)(1) and (2) of this section.

(1) The total operating time of the stationary RICE at which the deviation occurred during the reporting period.

(2) Information on the number, duration, and cause of deviations (including unknown cause, if applicable), as applicable, and the corrective action taken.

(e) For each deviation from an emission or operating limitation occurring for a stationary RICE where you are using a CMS to comply with the emission and operating limitations in this subpart, you must include information in paragraphs (c)(1) through (4) and (e)(1) through (12) of this section.

(1) The date and time that each malfunction started and stopped.

(2) The date, time, and duration that each CMS was inoperative, except for zero (low-level) and high-level checks.

(3) The date, time, and duration that each CMS was out-of-control, including the information in §63.8(c)(8).

(4) The date and time that each deviation started and stopped, and whether each deviation occurred during a period of malfunction or during another period.

(5) A summary of the total duration of the deviation during the reporting period, and the total duration as a percent of the total source operating time during that reporting period.

(6) A breakdown of the total duration of the deviations during the reporting period into those that are due to control equipment problems, process problems, other known causes, and other unknown causes.

(7) A summary of the total duration of CMS downtime during the reporting period, and the total duration of CMS downtime as a percent of the total operating time of the stationary RICE at which the CMS downtime occurred during that reporting period.

(8) An identification of each parameter and pollutant (CO or formaldehyde) that was monitored at the stationary RICE.

(9) A brief description of the stationary RICE.

(10) A brief description of the CMS.

(11) The date of the latest CMS certification or audit.

(12) A description of any changes in CMS, processes, or controls since the last reporting period.

(f) Each affected source that has obtained a title V operating permit pursuant to 40 CFR part 70 or 71 must report all deviations as defined in this subpart in the semiannual monitoring report required by 40 CFR 70.6 (a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A). If an affected source submits a Compliance report pursuant to Table 7 of this subpart along with, or as part of, the semiannual monitoring report required by 40 CFR 70.6(a)(3)(iii)(A) or 40 CFR 71.6(a)(3)(iii)(A), and the Compliance report includes all required information concerning deviations from any emission or operating limitation in this subpart, submission of the Compliance report shall be deemed to satisfy any obligation to report the same deviations in the semiannual monitoring report. However, submission of a Compliance report shall not otherwise affect any obligation the affected source may have to report deviations from permit requirements to the permit authority.

(g) If you are operating as a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must submit an annual report according to Table 7 of this subpart by the date specified unless the Administrator has approved a different schedule, according to the information described in paragraphs (b)(1) through (b)(5) of this section. You must report the data specified in (g)(1) through (g)(3) of this section.

(1) Fuel flow rate of each fuel and the heating values that were used in your calculations. You must also demonstrate that the percentage of heat input provided by landfill gas or digester gas is equivalent to 10 percent or more of the total fuel consumption on an annual basis.

(2) The operating limits provided in your federally enforceable permit, and any deviations from these limits.

(3) Any problems or errors suspected with the meters.

(h) If you own or operate an emergency stationary RICE with a site rating of more than 100 brake HP that operates or is contractually obligated to be available for more than 15 hours per calendar year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operates for the purpose specified in §63.6640(f)(4)(ii), you must submit an annual report according to the requirements in paragraphs (h)(1) through (3) of this section.

(1) The report must contain the following information:

(i) Company name and address where the engine is located.

(ii) Date of the report and beginning and ending dates of the reporting period.

(iii) Engine site rating and model year.

(iv) Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place.

(v) Hours operated for the purposes specified in §63.6640(f)(2)(ii) and (iii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vi) Number of hours the engine is contractually obligated to be available for the purposes specified in §63.6640(f)(2)(ii) and (iii).

(vii) Hours spent for operation for the purpose specified in §63.6640(f)(4)(ii), including the date, start time, and end time for engine operation for the purposes specified in §63.6640(f)(4)(ii). The report must also identify the entity that dispatched the engine and the situation that necessitated the dispatch of the engine.

(viii) If there were no deviations from the fuel requirements in §63.6604 that apply to the engine (if any), a statement that there were no deviations from the fuel requirements during the reporting period.

(ix) If there were deviations from the fuel requirements in §63.6604 that apply to the engine (if any), information on the number, duration, and cause of deviations, and the corrective action taken.

(2) The first annual report must cover the calendar year 2015 and must be submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

(3) The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (*www.epa.gov/cdx*). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written report must be submitted to the Administrator at the appropriate address listed in §63.13.

[69 FR 33506, June 15, 2004, as amended at 75 FR 9677, Mar. 3, 2010; 78 FR 6705, Jan. 30, 2013]

§63.6655 What records must I keep?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) If you must comply with the emission and operating limitations, you must keep the records described in paragraphs (a)(1) through (a)(5), (b)(1) through (b)(3) and (c) of this section.

(1) A copy of each notification and report that you submitted to comply with this subpart, including all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted, according to the requirement in §63.10(b)(2)(xiv).

(2) Records of the occurrence and duration of each malfunction of operation (*i.e.,* process equipment) or the air pollution control and monitoring equipment.

(3) Records of performance tests and performance evaluations as required in §63.10(b)(2)(viii).

(4) Records of all required maintenance performed on the air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with §63.6605(b), including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation.

(b) For each CEMS or CPMS, you must keep the records listed in paragraphs (b)(1) through (3) of this section.

(1) Records described in §63.10(b)(2)(vi) through (xi).

(2) Previous (*i.e.,* superseded) versions of the performance evaluation plan as required in §63.8(d)(3).

(3) Requests for alternatives to the relative accuracy test for CEMS or CPMS as required in §63.8(f)(6)(i), if applicable.

(c) If you are operating a new or reconstructed stationary RICE which fires landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, you must keep the records of your daily fuel usage monitors.

(d) You must keep the records required in Table 6 of this subpart to show continuous compliance with each emission or operating limitation that applies to you.

(e) You must keep records of the maintenance conducted on the stationary RICE in order to demonstrate that you operated and maintained the stationary RICE and after-treatment control device (if any) according to your own maintenance plan if you own or operate any of the following stationary RICE;

(1) An existing stationary RICE with a site rating of less than 100 brake HP located at a major source of HAP emissions.

(2) An existing stationary emergency RICE.

(3) An existing stationary RICE located at an area source of HAP emissions subject to management practices as shown in Table 2d to this subpart.

(f) If you own or operate any of the stationary RICE in paragraphs (f)(1) through (2) of this section, you must keep records of the hours of operation of the engine that is recorded through the non-resettable hour meter. The owner or operator must document how many hours are spent for emergency operation, including what classified the operation as emergency and how many hours are spent for non-emergency operation. If the engine is used for the purposes specified in §63.6640(f)(2)(ii) or (iii) or §63.6640(f)(4)(ii), the owner or operator must keep records of the notification of the emergency situation, and the date, start time, and end time of engine operation for these purposes.

(1) An existing emergency stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions that does not meet the standards applicable to non-emergency engines.

(2) An existing emergency stationary RICE located at an area source of HAP emissions that does not meet the standards applicable to non-emergency engines.[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 78 FR 6706, Jan. 30, 2013]

§63.6660 In what form and how long must I keep my records?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) Your records must be in a form suitable and readily available for expeditious review according to §63.10(b)(1).

(b) As specified in §63.10(b)(1), you must keep each record for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record.

(c) You must keep each record readily accessible in hard copy or electronic form for at least 5 years after the date of each occurrence, measurement, maintenance, corrective action, report, or record, according to §63.10(b)(1).

[69 FR 33506, June 15, 2004, as amended at 75 FR 9678, Mar. 3, 2010]

OTHER REQUIREMENTS AND INFORMATION

§63.6665 What parts of the General Provisions apply to me?

The INL is not subject to this subpart because the INL operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you. If you own or operate a new or reconstructed stationary RICE with a site rating of less than or equal to 500 brake HP located at a major source of HAP emissions (except new or reconstructed 4SLB engines greater than or equal to 250 and less than or equal to 500 brake HP), a new or reconstructed stationary RICE located at an area source of HAP emissions, or any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with any of the requirements of the General Provisions specified in Table 8: An existing 2SLB stationary RICE, an existing 4SLB stationary RICE, an existing stationary RICE that combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, an existing emergency stationary RICE, or an existing limited use stationary RICE. If you own or operate any of the following RICE with a site rating of more than 500 brake HP located at a major source of HAP emissions, you do not need to comply with the requirements in the General Provisions specified in Table 8 except for the initial notification requirements: A new stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, a new emergency stationary RICE, or a new limited use stationary RICE.

[75 FR 9678, Mar. 3, 2010]

§63.6670 Who implements and enforces this subpart?

The INL is not subject to this subpart because the INL is not a listed implementation or enforcement agency and operates existing institutional emergency stationary RICE in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

(a) This subpart is implemented and enforced by the U.S. EPA, or a delegated authority such as your State, local, or tribal agency. If the U.S. EPA Administrator has delegated authority to your State, local, or tribal agency, then that agency (as well as the U.S. EPA) has the authority to implement and enforce this subpart. You should contact your U.S. EPA Regional Office to find out whether this subpart is delegated to your State, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a State, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraph (c) of this section are retained by the Administrator of the U.S. EPA and are not transferred to the State, local, or tribal agency.

(c) The authorities that will not be delegated to State, local, or tribal agencies are:

(1) Approval of alternatives to the non-opacity emission limitations and operating limitations in §63.6600 under §63.6(g).

(2) Approval of major alternatives to test methods under §63.7(e)(2)(ii) and (f) and as defined in §63.90.

(3) Approval of major alternatives to monitoring under §63.8(f) and as defined in §63.90.

(4) Approval of major alternatives to recordkeeping and reporting under §63.10(f) and as defined in §63.90.

(5) Approval of a performance test which was conducted prior to the effective date of the rule, as specified in §63.6610(b).

§63.6675 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act (CAA); in 40 CFR 63.2, the General Provisions of this part; and in this section as follows:

Alaska Railbelt Grid means the service areas of the six regulated public utilities that extend from Fairbanks to Anchorage and the Kenai Peninsula. These utilities are Golden Valley Electric Association; Chugach Electric Association; Matanuska Electric Association; Homer Electric Association; Anchorage Municipal Light & Power; and the City of Seward Electric System.

Area source means any stationary source of HAP that is not a major source as defined in part 63.

Associated equipment as used in this subpart and as referred to in section 112(n)(4) of the CAA, means equipment associated with an oil or natural gas exploration or production well, and includes all equipment from the well bore to the point of custody transfer, except glycol dehydration units, storage vessels with potential for flash emissions, combustion turbines, and stationary RICE.

Backup power for renewable energy means an engine that provides backup power to a facility that generates electricity from renewable energy resources, as that term is defined in Alaska Statute 42.45.045(l)(5) (incorporated by reference, see §63.14).

Black start engine means an engine whose only purpose is to start up a combustion turbine.

CAA means the Clean Air Act (42 U.S.C. 7401 et seq., as amended by Public Law 101-549, 104 Stat. 2399).

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

Compression ignition means relating to a type of stationary internal combustion engine that is not a spark ignition engine.

Custody transfer means the transfer of hydrocarbon liquids or natural gas: After processing and/or treatment in the producing operations, or from storage vessels or automatic transfer facilities or other such equipment, including product loading racks, to pipelines or any other forms of transportation. For the purposes of this subpart, the point at which such liquids or natural gas enters a natural gas processing plant is a point of custody transfer.

Deviation means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(1) Fails to meet any requirement or obligation established by this subpart, including but not limited to any emission limitation or operating limitation;

(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or

(3) Fails to meet any emission limitation or operating limitation in this subpart during malfunction, regardless or whether or not such failure is permitted by this subpart.

(4) Fails to satisfy the general duty to minimize emissions established by §63.6(e)(1)(i).

Diesel engine means any stationary RICE in which a high boiling point liquid fuel injected into the combustion chamber ignites when the air charge has been compressed to a temperature sufficiently high for auto-ignition. This process is also known as compression ignition.

Diesel fuel means any liquid obtained from the distillation of petroleum with a boiling point of approximately 150 to 360 degrees Celsius. One commonly used form is fuel oil number 2. Diesel fuel also includes any non-distillate fuel with comparable physical and chemical properties (e.g. biodiesel) that is suitable for use in compression ignition engines.

Digester gas means any gaseous by-product of wastewater treatment typically formed through the anaerobic decomposition of organic waste materials and composed principally of methane and CO_2.

Dual-fuel engine means any stationary RICE in which a liquid fuel (typically diesel fuel) is used for compression ignition and gaseous fuel (typically natural gas) is used as the primary fuel.

Emergency stationary RICE means any stationary reciprocating internal combustion engine that meets all of the criteria in paragraphs (1) through (3) of this definition. All emergency stationary RICE must comply with the requirements specified in §63.6640(f) in order to be considered emergency stationary RICE. If the engine does not comply with the requirements specified in §63.6640(f), then it is not considered to be an emergency stationary RICE under this subpart.

(1) The stationary RICE is operated to provide electrical power or mechanical work during an emergency situation. Examples include stationary RICE used to produce power for critical networks or equipment (including power supplied to portions of a facility) when electric power from the local utility (or the normal power source, if the facility runs on its own power production) is interrupted, or stationary RICE used to pump water in the case of fire or flood, etc.

(2) The stationary RICE is operated under limited circumstances for situations not included in paragraph (1) of this definition, as specified in §63.6640(f).

(3) The stationary RICE operates as part of a financial arrangement with another entity in situations not included in paragraph (1) of this definition only as allowed in §63.6640(f)(2)(ii) or (iii) and §63.6640(f)(4)(i) or (ii).

Engine startup means 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, including the catalyst, reaches steady state or normal operation.

Four-stroke engine means any type of engine which completes the power cycle in two crankshaft revolutions, with intake and compression strokes in the first revolution and power and exhaust strokes in the second revolution.

Gaseous fuel means a material used for combustion which is in the gaseous state at standard atmospheric temperature and pressure conditions.

Gasoline means any fuel sold in any State for use in motor vehicles and motor vehicle engines, or nonroad or stationary engines, and commonly or commercially known or sold as gasoline.

Glycol dehydration unit means a device in which a liquid glycol (including, but not limited to, ethylene glycol, diethylene glycol, or triethylene glycol) absorbent directly contacts a natural gas stream and absorbs water in a contact tower or absorption column (absorber). The glycol contacts and absorbs

water vapor and other gas stream constituents from the natural gas and becomes “rich” glycol. This glycol is then regenerated in the glycol dehydration unit reboiler. The “lean” glycol is then recycled.

Hazardous air pollutants (HAP) means any air pollutants listed in or pursuant to section 112(b) of the CAA.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

ISO standard day conditions means 288 degrees Kelvin (15 degrees Celsius), 60 percent relative humidity and 101.3 kilopascals pressure.

Landfill gas means a gaseous by-product of the land application of municipal refuse typically formed through the anaerobic decomposition of waste materials and composed principally of methane and CO_2.

Lean burn engine means any two-stroke or four-stroke spark ignited engine that does not meet the definition of a rich burn engine.

Limited use stationary RICE means any stationary RICE that operates less than 100 hours per year.

Liquefied petroleum gas means any liquefied hydrocarbon gas obtained as a by-product in petroleum refining of natural gas production.

Liquid fuel means any fuel in liquid form at standard temperature and pressure, including but not limited to diesel, residual/crude oil, kerosene/naphtha (jet fuel), and gasoline.

Major Source, as used in this subpart, shall have the same meaning as in §63.2, except that:

(1) Emissions from any oil or gas exploration or production well (with its associated equipment (as defined in this section)) and emissions from any pipeline compressor station or pump station shall not be aggregated with emissions from other similar units, to determine whether such emission points or stations are major sources, even when emission points are in a contiguous area or under common control;

(2) For oil and gas production facilities, emissions from processes, operations, or equipment that are not part of the same oil and gas production facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated;

(3) For production field facilities, only HAP emissions from glycol dehydration units, storage vessel with the potential for flash emissions, combustion turbines and reciprocating internal combustion engines shall be aggregated for a major source determination; and

(4) Emissions from processes, operations, and equipment that are not part of the same natural gas transmission and storage facility, as defined in §63.1271 of subpart HHH of this part, shall not be aggregated.

Malfunction means any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions.

Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the Earth's surface, of which the principal constituent is methane. Natural gas may be field or pipeline quality.

Non-selective catalytic reduction (NSCR) means an add-on catalytic nitrogen oxides (NO_X) control device for rich burn engines that, in a two-step reaction, promotes the conversion of excess oxygen, NO_X, CO, and volatile organic compounds (VOC) into CO_2, nitrogen, and water.

Oil and gas production facility as used in this subpart means any grouping of equipment where hydrocarbon liquids are processed, upgraded (*i.e.,* remove impurities or other constituents to meet

contract specifications), or stored prior to the point of custody transfer; or where natural gas is processed, upgraded, or stored prior to entering the natural gas transmission and storage source category. For purposes of a major source determination, facility (including a building, structure, or installation) means oil and natural gas production and processing equipment that is located within the boundaries of an individual surface site as defined in this section. Equipment that is part of a facility will typically be located within close proximity to other equipment located at the same facility. Pieces of production equipment or groupings of equipment located on different oil and gas leases, mineral fee tracts, lease tracts, subsurface or surface unit areas, surface fee tracts, surface lease tracts, or separate surface sites, whether or not connected by a road, waterway, power line or pipeline, shall not be considered part of the same facility. Examples of facilities in the oil and natural gas production source category include, but are not limited to, well sites, satellite tank batteries, central tank batteries, a compressor station that transports natural gas to a natural gas processing plant, and natural gas processing plants.

Oxidation catalyst means an add-on catalytic control device that controls CO and VOC by oxidation.

Peaking unit or engine means any standby engine intended for use during periods of high demand that are not emergencies.

Percent load means the fractional power of an engine compared to its maximum manufacturer's design capacity at engine site conditions. Percent load may range between 0 percent to above 100 percent.

Potential to emit means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable. For oil and natural gas production facilities subject to subpart HH of this part, the potential to emit provisions in §63.760(a) may be used. For natural gas transmission and storage facilities subject to subpart HHH of this part, the maximum annual facility gas throughput for storage facilities may be determined according to §63.1270(a)(1) and the maximum annual throughput for transmission facilities may be determined according to §63.1270(a)(2).

Production field facility means those oil and gas production facilities located prior to the point of custody transfer.

Production well means any hole drilled in the earth from which crude oil, condensate, or field natural gas is extracted.

Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Remote stationary RICE means stationary RICE meeting any of the following criteria:

(1) Stationary RICE located in an offshore area that is beyond the line of ordinary low water along that portion of the coast of the United States that is in direct contact with the open seas and beyond the line marking the seaward limit of inland waters.

(2) Stationary RICE located on a pipeline segment that meets both of the criteria in paragraphs (2)(i) and (ii) of this definition.

(i) A pipeline segment with 10 or fewer buildings intended for human occupancy and no buildings with four or more stories within 220 yards (200 meters) on either side of the centerline of any continuous 1-mile (1.6 kilometers) length of pipeline. Each separate dwelling unit in a multiple dwelling unit building is counted as a separate building intended for human occupancy.

(ii) The pipeline segment does not lie within 100 yards (91 meters) of either a building or a small, well-defined outside area (such as a playground, recreation area, outdoor theater, or other place of public assembly) that is occupied by 20 or more persons on at least 5 days a week for 10 weeks in any 12-month period. The days and weeks need not be consecutive. The building or area is considered occupied for a full day if it is occupied for any portion of the day.

(iii) For purposes of this paragraph (2), the term pipeline segment means all parts of those physical facilities through which gas moves in transportation, including but not limited to pipe, valves, and other appurtenance attached to pipe, compressor units, metering stations, regulator stations, delivery stations, holders, and fabricated assemblies. Stationary RICE located within 50 yards (46 meters) of the pipeline segment providing power for equipment on a pipeline segment are part of the pipeline segment. Transportation of gas means the gathering, transmission, or distribution of gas by pipeline, or the storage of gas. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

(3) Stationary RICE that are not located on gas pipelines and that have 5 or fewer buildings intended for human occupancy and no buildings with four or more stories within a 0.25 mile radius around the engine. A building is intended for human occupancy if its primary use is for a purpose involving the presence of humans.

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

Responsible official means responsible official as defined in 40 CFR 70.2.

Rich burn engine means any four-stroke spark ignited engine where the manufacturer's recommended operating air/fuel ratio divided by the stoichiometric air/fuel ratio at full load conditions is less than or equal to 1.1. Engines originally manufactured as rich burn engines, but modified prior to December 19, 2002 with passive emission control technology for NO_X (such as pre-combustion chambers) will be considered lean burn engines. Also, existing engines where there are no manufacturer's recommendations regarding air/fuel ratio will be considered a rich burn engine if the excess oxygen content of the exhaust at full load conditions is less than or equal to 2 percent.

Site-rated HP means the maximum manufacturer's design capacity at engine site conditions.

Spark ignition means relating to either: A gasoline-fueled engine; or any other type of engine with a spark plug (or other sparking device) and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation. Dual-fuel engines in which a liquid fuel (typically diesel fuel) is used for CI and gaseous fuel (typically natural gas) is used as the primary fuel at an annual average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are spark ignition engines.

Stationary reciprocating internal combustion engine (RICE) means any reciprocating internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differ from mobile RICE in that a stationary RICE is not a non-road engine as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.

Stationary RICE test cell/stand means an engine test cell/stand, as defined in subpart PPPPP of this part, that tests stationary RICE.

Stoichiometric means the theoretical air-to-fuel ratio required for complete combustion.

Storage vessel with the potential for flash emissions means any storage vessel that contains a hydrocarbon liquid with a stock tank gas-to-oil ratio equal to or greater than 0.31 cubic meters per liter and an American Petroleum Institute gravity equal to or greater than 40 degrees and an actual annual average hydrocarbon liquid throughput equal to or greater than 79,500 liters per day. Flash emissions occur when dissolved hydrocarbons in the fluid evolve from solution when the fluid pressure is reduced.

Subpart means 40 CFR part 63, subpart ZZZZ.

Surface site means any combination of one or more graded pad sites, gravel pad sites, foundations, platforms, or the immediate physical location upon which equipment is physically affixed.

Two-stroke engine means a type of engine which completes the power cycle in single crankshaft revolution by combining the intake and compression operations into one stroke and the power and

exhaust operations into a second stroke. This system requires auxiliary scavenging and inherently runs lean of stoichiometric.

The INL has read and understands these definitions and used them in providing this regulatory analysis. For this regulatory analysis, §63.6675 definitions underlined are for those definitions that specifically apply to INL operations and stationary RICE.

[69 FR 33506, June 15, 2004, as amended at 71 FR 20467, Apr. 20, 2006; 73 FR 3607, Jan. 18, 2008; 75 FR 9679, Mar. 3, 2010; 75 FR 51592, Aug. 20, 2010; 76 FR 12867, Mar. 9, 2011; 78 FR 6706, Jan. 30, 2013]

Table 1a to Subpart ZZZZ of Part 63—Emission Limitations for Existing, New, and Reconstructed Spark Ignition, 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

The INL is not subject to the requirements of Table 1a because it is an area source of HAP emissions.

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations at 100 percent load plus or minus 10 percent for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 4SRB stationary RICE	a. Reduce formaldehyde emissions by 76 percent or more. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may reduce formaldehyde emissions by 75 percent or more until June 15, 2007 or	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 non-startup emission limitations apply.[1]
	b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2	

[1] Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9679, Mar. 3, 2010, as amended at 75 FR 51592, Aug. 20, 2010]

Table 1b to Subpart ZZZZ of Part 63—Operating Limitations for Existing, New, and Reconstructed SI 4SRB Stationary RICE >500 HP Located at a Major Source of HAP Emissions

***The INL is not subject to the requirements of Table 1b** because it is an area source of HAP emissions.*

As stated in §§63.6600, 63.6603, 63.6630 and 63.6640, you must comply with the following operating limitations for existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following operating limitation, except during periods of startup . . .
1. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus

formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and using NSCR; or existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and using NSCR;	10 percent from the pressure drop across the catalyst measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 750 °F and less than or equal to 1250 °F.[1]
2. existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to reduce formaldehyde emissions by 76 percent or more (or by 75 percent or more, if applicable) and not using NSCR; or	Comply with any operating limitations approved by the Administrator.
existing, new and reconstructed 4SRB stationary RICE >500 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2 and not using NSCR.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6706, Jan. 30, 2013]

Table 2a to Subpart ZZZZ of Part 63—Emission Limitations for New and Reconstructed 2SLB and Compression Ignition Stationary RICE >500 HP and New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions

The INL is not subject to the requirements of Table 2a because it is an area source of HAP emissions.

As stated in §§63.6600 and 63.6640, you must comply with the following emission limitations for new and reconstructed lean burn and new and reconstructed compression ignition stationary RICE at 100 percent load plus or minus 10 percent:

For each . . .	You must meet the following emission limitation, except during periods of startup . . .	During periods of startup you must . . .
1. 2SLB stationary RICE	a. Reduce CO emissions by 58 percent or more; or b. Limit concentration of formaldehyde in the stationary RICE exhaust to 12 ppmvd or less at 15 percent O_2. If you commenced construction or reconstruction between December 19, 2002 and June 15, 2004, you may limit concentration of formaldehyde to 17 ppmvd or less at 15 percent O_2 until June 15, 2007	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 non-startup emission limitations apply.[1]

2. 4SLB stationary RICE	a. Reduce CO emissions by 93 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 14 ppmvd or less at 15 percent O_2	
3. CI stationary RICE	a. Reduce CO emissions by 70 percent or more; or	
	b. Limit concentration of formaldehyde in the stationary RICE exhaust to 580 ppbvd or less at 15 percent O_2	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[75 FR 9680, Mar. 3, 2010]

Table 2b to Subpart ZZZZ of Part 63—Operating Limitations for New and Reconstructed 2SLB and CI Stationary RICE >500 HP Located at a Major Source of HAP Emissions, New and Reconstructed 4SLB Stationary RICE ≥250 HP Located at a Major Source of HAP Emissions, Existing CI Stationary RICE >500 HP

The INL is not subject to the requirements of Table 2b because it is an area source of HAP emissions.

As stated in §§63.6600, 63.6601, 63.6603, 63.6630, and 63.6640, you must comply with the following operating limitations for new and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions; new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions; and existing CI stationary RICE >500 HP:

For each . . .	**You must meet the following operating limitation, except during periods of startup . . .**
1. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and using an oxidation catalyst; and New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and using an oxidation catalyst.	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water at 100 percent load plus or minus 10 percent from the pressure drop across the catalyst that was measured during the initial performance test; and b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
2. Existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO	a. maintain your catalyst so that the pressure drop across the catalyst does not change by more than 2 inches of water from the pressure

in the stationary RICE exhaust and using an oxidation catalyst	drop across the catalyst that was measured during the initial performance test; and
	b. maintain the temperature of your stationary RICE exhaust so that the catalyst inlet temperature is greater than or equal to 450 °F and less than or equal to 1350 °F.[1]
3. New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to reduce CO emissions and not using an oxidation catalyst; and	Comply with any operating limitations approved by the Administrator.
New and reconstructed 2SLB and CI stationary RICE >500 HP located at a major source of HAP emissions and new and reconstructed 4SLB stationary RICE ≥250 HP located at a major source of HAP emissions complying with the requirement to limit the concentration of formaldehyde in the stationary RICE exhaust and not using an oxidation catalyst; and	
existing CI stationary RICE >500 HP complying with the requirement to limit or reduce the concentration of CO in the stationary RICE exhaust and not using an oxidation catalyst.	

[1]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.8(f) for a different temperature range.

[78 FR 6707, Jan. 30, 2013]

Table 2c to Subpart ZZZZ of Part 63—Requirements for Existing Compression Ignition Stationary RICE Located at a Major Source of HAP Emissions and Existing Spark Ignition Stationary RICE ≤500 HP Located at a Major Source of HAP Emissions

The INL is not subject to the requirements of Table 2c because it is an area source of HAP emissions.

As stated in §§63.6600, 63.6602, and 63.6640, you must comply with the following requirements for existing compression ignition stationary RICE located at a major source of HAP emissions and existing spark ignition stationary RICE ≤500 HP located at a major source of HAP emissions:

For each . . .	You must meet the following requirement, except during periods of startup . . .	During periods of startup you must . . .
1. Emergency stationary CI RICE and black start stationary CI RICE[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or	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

	annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	which time the non-startup emission limitations apply.[3]
2. Non-Emergency, non-black start stationary CI RICE <100 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first.[2] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
3. Non-Emergency, non-black start CI stationary RICE 100≤HP≤300 HP	Limit concentration of CO in the stationary RICE exhaust to 230 ppmvd or less at 15 percent O_2.	
4. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
5. Non-Emergency, non-black start stationary CI RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd or less at 15 percent O_2; or b. Reduce CO emissions by 70 percent or more.	
6. Emergency stationary SI RICE and black start stationary SI RICE.[1]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of	

	operation or annually, whichever comes first, and replace as necessary.[3]	
7. Non-Emergency, non-black start stationary SI RICE <100 HP that are not 2SLB stationary RICE	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
8. Non-Emergency, non-black start 2SLB stationary SI RICE <100 HP	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[2] b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary;	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.[3]	
9. Non-emergency, non-black start 2SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 225 ppmvd or less at 15 percent O_2.	
10. Non-emergency, non-black start 4SLB stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE exhaust to 47 ppmvd or less at 15 percent O_2.	
11. Non-emergency, non-black start 4SRB stationary RICE 100≤HP≤500	Limit concentration of formaldehyde in the stationary RICE exhaust to 10.3 ppmvd or less at 15 percent O_2.	
12. Non-emergency, non-black start stationary RICE 100≤HP≤500	Limit concentration of CO in the stationary RICE	

which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	exhaust to 177 ppmvd or less at 15 percent O_2.	

[1]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 practice requirements on the schedule required in Table 2c of this subpart, or if performing the work practice on the required schedule would otherwise pose an unacceptable risk under federal, state, or local law, the work practice can be delayed until the emergency is over or the unacceptable risk under federal, state, or local law has abated. The work 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 work practice on the schedule required and the federal, state or local law under which the risk was deemed unacceptable.

[2]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2c of this subpart.

[3]Sources can petition the Administrator pursuant to the requirements of 40 CFR 63.6(g) for alternative work practices.

[78 FR 6708, Jan. 30, 2013, as amended at 78 FR 14457, Mar. 6, 2013]

Table 2d to Subpart ZZZZ of Part 63—Requirements for Existing Stationary RICE Located at Area Sources of HAP Emissions

The INL is not subject the requirements of Table 2d in accordance with §63.6585(f)(3).

As stated in §§63.6603 and 63.6640, you must comply with the following requirements for existing stationary RICE located at area sources of HAP emissions:

For each . . .	**You must meet the following requirement, except during periods of startup . . .**	**During periods of startup you must . . .**
1. Non-Emergency, non-black start CI stationary RICE ≤300 HP	a. Change oil and filter every 1,000 hours of operation or annually, whichever comes first;[1] b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	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 non-startup emission limitations apply.
2. Non-Emergency, non-black start CI stationary RICE 300<HP≤500	a. Limit concentration of CO in the stationary RICE exhaust to 49	

	ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
3. Non-Emergency, non-black start CI stationary RICE >500 HP	a. Limit concentration of CO in the stationary RICE exhaust to 23 ppmvd at 15 percent O_2; or	
	b. Reduce CO emissions by 70 percent or more.	
4. Emergency stationary CI RICE and black start stationary CI RICE.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1]	
	b. Inspect air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	
5. Emergency stationary SI RICE; black start stationary SI RICE; non-emergency, non-black start 4SLB stationary RICE >500 HP that operate 24 hours or less per calendar year; non-emergency, non-black start 4SRB stationary RICE >500 HP that operate 24 hours or less per calendar year.[2]	a. Change oil and filter every 500 hours of operation or annually, whichever comes first;[1];	
	b. Inspect spark plugs every 1,000 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.	

6. Non-emergency, non-black start 2SLB stationary RICE	a. Change oil and filter every 4,320 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 4,320 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 4,320 hours of operation or annually, whichever comes first, and replace as necessary.	
7. Non-emergency, non-black start 4SLB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
8. Non-emergency, non-black start 4SLB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first,	

	and replace as necessary.	
9. Non-emergency, non-black start 4SLB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install an oxidation catalyst to reduce HAP emissions from the stationary RICE.	
10. Non-emergency, non-black start 4SRB stationary RICE ≤500 HP	a. Change oil and filter every 1,440 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	
11. Non-emergency, non-black start 4SRB remote stationary RICE >500 HP	a. Change oil and filter every 2,160 hours of operation or annually, whichever comes first;[1]	
	b. Inspect spark plugs every 2,160 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 2,160 hours of operation or annually, whichever comes first, and replace as necessary.	
12. Non-emergency, non-black start 4SRB stationary RICE >500 HP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Install NSCR to reduce HAP emissions from the stationary RICE.	
13. Non-emergency, non-black start stationary RICE which combusts landfill or digester gas equivalent to 10 percent or	a. Change oil and filter every 1,440 hours of operation or annually,	

more of the gross heat input on an annual basis	whichever comes first;[1] b. Inspect spark plugs every 1,440 hours of operation or annually, whichever comes first, and replace as necessary; and	
	c. Inspect all hoses and belts every 1,440 hours of operation or annually, whichever comes first, and replace as necessary.	

[1]Sources have the option to utilize an oil analysis program as described in §63.6625(i) or (j) in order to extend the specified oil change requirement in Table 2d of this subpart.

[2]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 Table 2d of this subpart, 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.

[78 FR 6709, Jan. 30, 2013]

Table 3 to Subpart ZZZZ of Part 63—Subsequent Performance Tests

The INL is not subject to the requirements of Table 3 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §§63.6615 and 63.6620, you must comply with the following subsequent performance test requirements:

For each . . .	**Complying with the requirement to . . .**	**You must . . .**
1. New or reconstructed 2SLB stationary RICE >500 HP located at major sources; new or reconstructed 4SLB stationary RICE ≥250 HP located at major sources; and new or reconstructed CI stationary RICE >500 HP located at major sources	Reduce CO emissions and not using a CEMS	Conduct subsequent performance tests semiannually.[1]
2. 4SRB stationary RICE ≥5,000 HP located at major sources	Reduce formaldehyde emissions	Conduct subsequent performance tests semiannually.[1]
3. Stationary RICE >500 HP located at major sources and new or reconstructed 4SLB stationary RICE 250≤HP≤500 located at major sources	Limit the concentration of formaldehyde in the stationary RICE exhaust	Conduct subsequent performance tests semiannually.[1]

4. Existing non-emergency, non-black start CI stationary RICE >500 HP that are not limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 3 years, whichever comes first.
5. Existing non-emergency, non-black start CI stationary RICE >500 HP that are limited use stationary RICE	Limit or reduce CO emissions and not using a CEMS	Conduct subsequent performance tests every 8,760 hours or 5 years, whichever comes first.

[1]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6711, Jan. 30, 2013]

Table 4 to Subpart ZZZZ of Part 63—Requirements for Performance Tests

The INL is not subject to the requirements of Table 4 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §§63.6610, 63.6611, 63.6620, and 63.6640, you must comply with the following requirements for performance tests for stationary RICE:

For each . . .	Complying with the requirement to . . .	You must . . .	Using . . .	According to the following requirements . . .
1. 2SLB, 4SLB, and CI stationary RICE	a. reduce CO emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and		(a) For CO and O_2 measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A-1, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A-4.

		ii. Measure the O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[ac] (heated probe not necessary)	(b) Measurements to determine O_2 must be made at the same time as the measurements for CO concentration.
		iii. Measure the CO at the inlet and the outlet of the control device	(1) ASTM D6522-00 (Reapproved 2005)[abc] (heated probe not necessary) or Method 10 of 40 CFR part 60, appendix A-4	(c) The CO concentration must be at 15 percent O_2, dry basis.
2. 4SRB stationary RICE	a. reduce formaldehyde emissions	i. Select the sampling port location and the number/location of traverse points at the inlet and outlet of the control device; and		(a) For formaldehyde, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A.
		ii. Measure O_2 at the inlet and outlet of the control device; and	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved 2005)[a] (heated probe not necessary)	(a) Measurements to determine O_2 concentration must be made at the same time as the measurements for formaldehyde or THC concentration.
		iii. Measure moisture content at the inlet and outlet of the control device; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or THC concentration.

		iv. If demonstrating compliance with the formaldehyde percent reduction requirement, measure formaldehyde at the inlet and the outlet of the control device	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. If demonstrating compliance with the THC percent reduction requirement, measure THC at the inlet and the outlet of the control device	(1) Method 25A, reported as propane, of 40 CFR part 60, appendix A-7	(a) THC concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
3. Stationary RICE	a. limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. Select the sampling port location and the number/location of traverse points at the exhaust of the stationary RICE; and		(a) For formaldehyde, CO, O_2, and moisture measurement, ducts ≤6 inches in diameter may be sampled at a single point located at the duct centroid and ducts >6 and ≤12 inches in diameter may be sampled at 3 traverse points located at 16.7, 50.0, and 83.3% of the measurement line (`3-point long line'). If the duct is >12 inches in diameter *and* the sampling port location meets the two and half-diameter criterion of Section 11.1.1 of Method 1 of 40 CFR part 60, appendix A, the duct may be sampled at `3-point long line'; otherwise, conduct the stratification testing and select sampling points according to Section 8.1.2 of Method 7E of 40 CFR part 60, appendix A. If using a control device, the sampling site must be located at the outlet of the control device.
		ii. Determine the O_2 concentration of the stationary RICE exhaust at the	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or ASTM Method D6522-00 (Reapproved	(a) Measurements to determine O_2 concentration must be made at the same time and location as the measurements for

		sampling port location; and	2005)[a] (heated probe not necessary)	formaldehyde or CO concentration.
		iii. Measure moisture content of the station-ary RICE exhaust at the sampling port location; and	(1) Method 4 of 40 CFR part 60, appendix A-3, or Method 320 of 40 CFR part 63, appendix A, or ASTM D 6348-03[a]	(a) Measurements to determine moisture content must be made at the same time and location as the measurements for formaldehyde or CO concentration.
		iv. Measure formaldehyde at the exhaust of the stationary RICE; or	(1) Method 320 or 323 of 40 CFR part 63, appendix A; or ASTM D6348-03[a], provided in ASTM D6348-03 Annex A5 (Analyte Spiking Technique), the percent R must be greater than or equal to 70 and less than or equal to 130	(a) Formaldehyde concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.
		v. measure CO at the exhaust of the stationary RICE	(1) Method 10 of 40 CFR part 60, appendix A-4, ASTM Method D6522-00 (2005)[ac], Method 320 of 40 CFR part 63, appendix A, or ASTM D6348-03[a]	(a) CO concentration must be at 15 percent O_2, dry basis. Results of this test consist of the average of the three 1-hour or longer runs.

[a]You may also use Methods 3A and 10 as options to ASTM-D6522-00 (2005). You may obtain a copy of ASTM-D6522-00 (2005) from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[b]You may obtain a copy of ASTM-D6348-03 from at least one of the following addresses: American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959, or University Microfilms International, 300 North Zeeb Road, Ann Arbor, MI 48106.

[79 FR 11290, Feb. 27, 2014]

Table 5 to Subpart ZZZZ of Part 63—Initial Compliance With Emission Limitations, Operating Limitations, and Other Requirements

The INL is not subject to the requirements of Table 5 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §§63.6612, 63.6625 and 63.6630, you must initially comply with the emission and operating limitations as required by the following:

For each . . .	Complying with the requirement to . . .	You have demonstrated initial compliance if . . .

1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and using oxidation catalyst, and using a CPMS	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
2. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, using oxidation catalyst, and using a CPMS	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions and not using oxidation catalyst	i. The average reduction of emissions of CO determined from the initial performance test achieves the required CO percent reduction; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and iii. You have recorded the approved operating parameters (if any) during the initial performance test.
4. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and not using oxidation catalyst	i. The average CO concentration determined from the initial performance test is less than or equal to the CO emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and

		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
5. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Reduce CO emissions, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at both the inlet and outlet of the oxidation catalyst according to the requirements in §63.6625(a); and ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average reduction of CO calculated using §63.6620 equals or exceeds the required percent reduction. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average percent reduction achieved during the 4-hour period.
6. Non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP located at an area source of HAP	a. Limit the concentration of CO, and using a CEMS	i. You have installed a CEMS to continuously monitor CO and either O_2 or CO_2 at the outlet of the oxidation catalyst according to the requirements in §63.6625(a); and
		ii. You have conducted a performance evaluation of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B; and
		iii. The average concentration of CO calculated using §63.6620 is less than or equal to the CO emission limitation. The initial test comprises the first 4-hour period after successful validation of the CEMS. Compliance is based on the average concentration measured during the 4-hour period.
7. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction, or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and

		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
8. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. The average reduction of emissions of formaldehyde determined from the initial performance test is equal to or greater than the required formaldehyde percent reduction or the average reduction of emissions of THC determined from the initial performance test is equal to or greater than 30 percent; and
		ii. You have installed a CPMS to continuously monitor operating parameters approved by the Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
9. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b); and
		iii. You have recorded the catalyst pressure drop and catalyst inlet temperature during the initial performance test.
10. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP, and existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. The average formaldehyde concentration, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde emission limitation; and ii. You have installed a CPMS to continuously monitor operating parameters approved by the

		Administrator (if any) according to the requirements in §63.6625(b); and
		iii. You have recorded the approved operating parameters (if any) during the initial performance test.
11. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Reduce CO emissions	i. The average reduction of emissions of CO or formaldehyde, as applicable determined from the initial performance test is equal to or greater than the required CO or formaldehyde, as applicable, percent reduction.
12. Existing non-emergency stationary RICE 100≤HP≤500 located at a major source of HAP, and existing non-emergency stationary CI RICE 300<HP≤500 located at an area source of HAP	a. Limit the concentration of formaldehyde or CO in the stationary RICE exhaust	i. The average formaldehyde or CO concentration, as applicable, corrected to 15 percent O_2, dry basis, from the three test runs is less than or equal to the formaldehyde or CO emission limitation, as applicable.
13. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if the catalyst inlet temperature exceeds 1350 °F.
14. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. You have conducted an initial compliance demonstration as specified in §63.6630(e) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more;
		ii. You have installed a CPMS to continuously monitor catalyst inlet temperature according to the requirements in §63.6625(b), or you have installed equipment to automatically shut down the engine if

		the catalyst inlet temperature exceeds 1250 °F.

[78 FR 6712, Jan. 30, 2013]

Table 6 to Subpart ZZZZ of Part 63—Continuous Compliance With Emission Limitations, and Other Requirements

The INL is not subject to the requirements of Table 6 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §63.6640, you must continuously comply with the emissions and operating limitations and work or management practices as required by the following:

For each . . .	Complying with the requirement to . . .	You must demonstrate continuous compliance by . . .
1. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
2. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, and new or reconstructed non-emergency CI stationary RICE >500 HP located at a major source of HAP	a. Reduce CO emissions and not using an oxidation catalyst, and using a CPMS	i. Conducting semiannual performance tests for CO to demonstrate that the required CO percent reduction is achieved[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters

		established during the performance test.
3. New or reconstructed non-emergency 2SLB stationary RICE >500 HP located at a major source of HAP, new or reconstructed non-emergency 4SLB stationary RICE ≥250 HP located at a major source of HAP, new or reconstructed non-emergency stationary CI RICE >500 HP located at a major source of HAP, and existing non-emergency stationary CI RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a CEMS	i. Collecting the monitoring data according to §63.6625(a), reducing the measurements to 1-hour averages, calculating the percent reduction or concentration of CO emissions according to §63.6620; and ii. Demonstrating that the catalyst achieves the required percent reduction of CO emissions over the 4-hour averaging period, or that the emission remain at or below the CO concentration limit; and
		iii. Conducting an annual RATA of your CEMS using PS 3 and 4A of 40 CFR part 60, appendix B, as well as daily and periodic data quality checks in accordance with 40 CFR part 60, appendix F, procedure 1.
4. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and using NSCR	i. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		iv. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
5. Non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP	a. Reduce formaldehyde emissions and not using NSCR	i. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		ii. Reducing these data to 4-hour rolling averages; and
		iii. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters

		established during the performance test.
6. Non-emergency 4SRB stationary RICE with a brake HP ≥5,000 located at a major source of HAP	a. Reduce formaldehyde emissions	Conducting semiannual performance tests for formaldehyde to demonstrate that the required formaldehyde percent reduction is achieved, or to demonstrate that the average reduction of emissions of THC determined from the performance test is equal to or greater than 30 percent.[a]
7. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the operating limitation established during the performance test.
8. New or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	a. Limit the concentration of formaldehyde in the stationary RICE exhaust and not using oxidation catalyst or NSCR	i. Conducting semiannual performance tests for formaldehyde to demonstrate that your emissions remain at or below the formaldehyde concentration limit[a]; and ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.

9. Existing emergency and black start stationary RICE ≤500 HP located at a major source of HAP, existing non-emergency stationary RICE <100 HP located at a major source of HAP, existing emergency and black start stationary RICE located at an area source of HAP, existing non-emergency stationary CI RICE ≤300 HP located at an area source of HAP, existing non-emergency 2SLB stationary RICE located at an area source of HAP, existing non-emergency stationary SI RICE located at an area source of HAP which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis, existing non-emergency 4SLB and 4SRB stationary RICE ≤500 HP located at an area source of HAP, existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that operate 24 hours or less per calendar year, and existing non-emergency 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are remote stationary RICE	a. Work or Management practices	i. Operating and maintaining the stationary RICE according to the manufacturer's emission-related operation and maintenance instructions; or ii. Develop and follow your own maintenance plan which must provide to the extent practicable for the maintenance and operation of the engine in a manner consistent with good air pollution control practice for minimizing emissions.
10. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the

		operating limitation established during the performance test.
11. Existing stationary CI RICE >500 HP that are not limited use stationary RICE	a. Reduce CO emissions, or limit the concentration of CO in the stationary RICE exhaust, and not using oxidation catalyst	i. Conducting performance tests every 8,760 hours or 3 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
12. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the catalyst inlet temperature data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the catalyst inlet temperature; and
		v. Measuring the pressure drop across the catalyst once per month and demonstrating that the pressure drop across the catalyst is within the

		operating limitation established during the performance test.
13. Existing limited use CI stationary RICE >500 HP	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and not using an oxidation catalyst	i. Conducting performance tests every 8,760 hours or 5 years, whichever comes first, for CO or formaldehyde, as appropriate, to demonstrate that the required CO or formaldehyde, as appropriate, percent reduction is achieved or that your emissions remain at or below the CO or formaldehyde concentration limit; and
		ii. Collecting the approved operating parameter (if any) data according to §63.6625(b); and
		iii. Reducing these data to 4-hour rolling averages; and
		iv. Maintaining the 4-hour rolling averages within the operating limitations for the operating parameters established during the performance test.
14. Existing non-emergency 4SLB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install an oxidation catalyst	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 93 percent or more, or the average CO concentration is less than or equal to 47 ppmvd at 15 percent O_2; and either ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than 450 °F and less than or equal to 1350 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1350 °F.
15. Existing non-emergency 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that are operated more than 24 hours per calendar year	a. Install NSCR	i. Conducting annual compliance demonstrations as specified in §63.6640(c) to show that the average reduction of emissions of CO is 75 percent or more, the average CO concentration is less than or equal to 270 ppmvd at 15 percent O_2, or the average reduction of emissions of THC is 30 percent or more; and either

		ii. Collecting the catalyst inlet temperature data according to §63.6625(b), reducing these data to 4-hour rolling averages; and maintaining the 4-hour rolling averages within the limitation of greater than or equal to 750 °F and less than or equal to 1250 °F for the catalyst inlet temperature; or iii. Immediately shutting down the engine if the catalyst inlet temperature exceeds 1250 °F.

[a]After you have demonstrated compliance for two consecutive tests, you may reduce the frequency of subsequent performance tests to annually. If the results of any subsequent annual performance test indicate the stationary RICE is not in compliance with the CO or formaldehyde emission limitation, or you deviate from any of your operating limitations, you must resume semiannual performance tests.

[78 FR 6715, Jan. 30, 2013]

Table 7 to Subpart ZZZZ of Part 63—Requirements for Reports

The INL is not subject to the requirements of Table 7 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §63.6650, you must comply with the following requirements for reports:

For each . . .	You must submit a . . .	The report must contain . . .	You must submit the report . . .
1. Existing non-emergency, non-black start stationary RICE 100≤HP≤500 located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >500 HP located at a major source of HAP; existing non-emergency 4SRB stationary RICE >500 HP located at a major source of HAP; existing non-emergency, non-black start stationary CI RICE >300 HP located at an area source of HAP; new or reconstructed non-emergency stationary RICE >500 HP located at a major source of HAP; and new or reconstructed non-emergency 4SLB stationary RICE 250≤HP≤500 located at a major source of HAP	Compliance report	a. If there are no deviations from any emission limitations or operating limitations that apply to you, a statement that there were no deviations from the emission limitations or operating limitations during the reporting period. If there were no periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), a statement that there were not periods during which the CMS was out-of-control during the reporting period; or	i. Semiannually according to the requirements in §63.6650(b)(1)-(5) for engines that are not limited use stationary RICE subject to numerical emission limitations; and ii. Annually according to the requirements in §63.6650(b)(6)-(9) for engines that are limited use stationary RICE subject to numerical emission limitations.
		b. If you had a deviation from any emission limitation or operating limitation during the reporting period, the information	i. Semiannually according to the requirements in §63.6650(b).

		in §63.6650(d). If there were periods during which the CMS, including CEMS and CPMS, was out-of-control, as specified in §63.8(c)(7), the information in §63.6650(e); or	
		c. If you had a malfunction during the reporting period, the information in §63.6650(c)(4).	i. Semiannually according to the requirements in §63.6650(b).
2. New or reconstructed non-emergency stationary RICE that combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis	Report	a. The fuel flow rate of each fuel and the heating values that were used in your calculations, and you must demonstrate that the percentage of heat input provided by landfill gas or digester gas, is equivalent to 10 percent or more of the gross heat input on an annual basis; and	i. Annually, according to the requirements in §63.6650.
		b. The operating limits provided in your federally enforceable permit, and any deviations from these limits; and	i. See item 2.a.i.
		c. Any problems or errors suspected with the meters.	i. See item 2.a.i.
3. Existing non-emergency, non-black start 4SLB and 4SRB stationary RICE >500 HP located at an area source of HAP that are not remote stationary RICE and that operate more than 24 hours per calendar year	Compliance report	a. The results of the annual compliance demonstration, if conducted during the reporting period.	i. Semiannually according to the requirements in §63.6650(b)(1)-(5).
4. Emergency stationary RICE that operate or are contractually obligated to be available for more than 15 hours per year for the purposes specified in §63.6640(f)(2)(ii) and (iii) or that operate for the purposes specified in §63.6640(f)(4)(ii)	Report	a. The information in §63.6650(h)(1)	i. annually according to the requirements in §63.6650(h)(2)-(3).

[78 FR 6719, Jan. 30, 2013]

Table 8 to Subpart ZZZZ of Part 63—Applicability of General Provisions to Subpart ZZZZ.

The INL is not subject to the requirements of Table 8 in accordance with §63.6585(f)(3); and new or potentially reconstruct stationary RICE in accordance with §63.6590(c)(1).

As stated in §63.6665, you must comply with the following applicable general provisions.

General provisions citation	Subject of citation	Applies to subpart	Explanation
§63.1	General applicability of the General Provisions	Yes.	
§63.2	Definitions	Yes	Additional terms defined in §63.6675.
§63.3	Units and abbreviations	Yes.	
§63.4	Prohibited activities and circumvention	Yes.	
§63.5	Construction and reconstruction	Yes.	
§63.6(a)	Applicability	Yes.	
§63.6(b)(1)-(4)	Compliance dates for new and reconstructed sources	Yes.	
§63.6(b)(5)	Notification	Yes.	
§63.6(b)(6)	[Reserved]		
§63.6(b)(7)	Compliance dates for new and reconstructed area sources that become major sources	Yes.	
§63.6(c)(1)-(2)	Compliance dates for existing sources	Yes.	
§63.6(c)(3)-(4)	[Reserved]		
§63.6(c)(5)	Compliance dates for existing area sources that become major sources	Yes.	
§63.6(d)	[Reserved]		
§63.6(e)	Operation and maintenance	No.	
§63.6(f)(1)	Applicability of standards	No.	
§63.6(f)(2)	Methods for determining compliance	Yes.	
§63.6(f)(3)	Finding of compliance	Yes.	
§63.6(g)(1)-(3)	Use of alternate standard	Yes.	
§63.6(h)	Opacity and visible emission standards	No	Subpart ZZZZ does not contain opacity or visible emission standards.
§63.6(i)	Compliance extension procedures and criteria	Yes.	

§63.6(j)	Presidential compliance exemption	Yes.	
§63.7(a)(1)-(2)	Performance test dates	Yes	Subpart ZZZZ contains performance test dates at §§63.6610, 63.6611, and 63.6612.
§63.7(a)(3)	CAA section 114 authority	Yes.	
§63.7(b)(1)	Notification of performance test	Yes	Except that §63.7(b)(1) only applies as specified in §63.6645.
§63.7(b)(2)	Notification of rescheduling	Yes	Except that §63.7(b)(2) only applies as specified in §63.6645.
§63.7(c)	Quality assurance/test plan	Yes	Except that §63.7(c) only applies as specified in §63.6645.
§63.7(d)	Testing facilities	Yes.	
§63.7(e)(1)	Conditions for conducting performance tests	No.	Subpart ZZZZ specifies conditions for conducting performance tests at §63.6620.
§63.7(e)(2)	Conduct of performance tests and reduction of data	Yes	Subpart ZZZZ specifies test methods at §63.6620.
§63.7(e)(3)	Test run duration	Yes.	
§63.7(e)(4)	Administrator may require other testing under section 114 of the CAA	Yes.	
§63.7(f)	Alternative test method provisions	Yes.	
§63.7(g)	Performance test data analysis, recordkeeping, and reporting	Yes.	
§63.7(h)	Waiver of tests	Yes.	
§63.8(a)(1)	Applicability of monitoring requirements	Yes	Subpart ZZZZ contains specific requirements for monitoring at §63.6625.
§63.8(a)(2)	Performance specifications	Yes.	
§63.8(a)(3)	[Reserved]		
§63.8(a)(4)	Monitoring for control devices	No.	
§63.8(b)(1)	Monitoring	Yes.	
§63.8(b)(2)-(3)	Multiple effluents and multiple monitoring systems	Yes.	
§63.8(c)(1)	Monitoring system operation and maintenance	Yes.	
§63.8(c)(1)(i)	Routine and predictable SSM	No	

§63.8(c)(1)(ii)	SSM not in Startup Shutdown Malfunction Plan	Yes.	
§63.8(c)(1)(iii)	Compliance with operation and maintenance requirements	No	
§63.8(c)(2)-(3)	Monitoring system installation	Yes.	
§63.8(c)(4)	Continuous monitoring system (CMS) requirements	Yes	Except that subpart ZZZZ does not require Continuous Opacity Monitoring System (COMS).
§63.8(c)(5)	COMS minimum procedures	No	Subpart ZZZZ does not require COMS.
§63.8(c)(6)-(8)	CMS requirements	Yes	Except that subpart ZZZZ does not require COMS.
§63.8(d)	CMS quality control	Yes.	
§63.8(e)	CMS performance evaluation	Yes	Except for §63.8(e)(5)(ii), which applies to COMS.
		Except that §63.8(e) only applies as specified in §63.6645.	
§63.8(f)(1)-(5)	Alternative monitoring method	Yes	Except that §63.8(f)(4) only applies as specified in §63.6645.
§63.8(f)(6)	Alternative to relative accuracy test	Yes	Except that §63.8(f)(6) only applies as specified in §63.6645.
§63.8(g)	Data reduction	Yes	Except that provisions for COMS are not applicable. Averaging periods for demonstrating compliance are specified at §§63.6635 and 63.6640.
§63.9(a)	Applicability and State delegation of notification requirements	Yes.	
§63.9(b)(1)-(5)	Initial notifications	Yes	Except that §63.9(b)(3) is reserved.
		Except that §63.9(b) only applies as specified in §63.6645.	
§63.9(c)	Request for compliance extension	Yes	Except that §63.9(c) only applies as specified in §63.6645.
§63.9(d)	Notification of special compliance requirements for new sources	Yes	Except that §63.9(d) only applies as specified in §63.6645.
§63.9(e)	Notification of performance test	Yes	Except that §63.9(e) only applies as specified in §63.6645.

§63.9(f)	Notification of visible emission (VE)/opacity test	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(1)	Notification of performance evaluation	Yes	Except that §63.9(g) only applies as specified in §63.6645.
§63.9(g)(2)	Notification of use of COMS data	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.9(g)(3)	Notification that criterion for alternative to RATA is exceeded	Yes	If alternative is in use.
		Except that §63.9(g) only applies as specified in §63.6645.	
§63.9(h)(1)-(6)	Notification of compliance status	Yes	Except that notifications for sources using a CEMS are due 30 days after completion of performance evaluations. §63.9(h)(4) is reserved.
			Except that §63.9(h) only applies as specified in §63.6645.
§63.9(i)	Adjustment of submittal deadlines	Yes.	
§63.9(j)	Change in previous information	Yes.	
§63.10(a)	Administrative provisions for recordkeeping/reporting	Yes.	
§63.10(b)(1)	Record retention	Yes	Except that the most recent 2 years of data do not have to be retained on site.
§63.10(b)(2)(i)-(v)	Records related to SSM	No.	
§63.10(b)(2)(vi)-(xi)	Records	Yes.	
§63.10(b)(2)(xii)	Record when under waiver	Yes.	
§63.10(b)(2)(xiii)	Records when using alternative to RATA	Yes	For CO standard if using RATA alternative.
§63.10(b)(2)(xiv)	Records of supporting documentation	Yes.	
§63.10(b)(3)	Records of applicability determination	Yes.	
§63.10(c)	Additional records for sources using CEMS	Yes	Except that §63.10(c)(2)-(4) and (9) are reserved.
§63.10(d)(1)	General reporting requirements	Yes.	
§63.10(d)(2)	Report of performance test results	Yes.	

§63.10(d)(3)	Reporting opacity or VE observations	No	Subpart ZZZZ does not contain opacity or VE standards.
§63.10(d)(4)	Progress reports	Yes.	
§63.10(d)(5)	Startup, shutdown, and malfunction reports	No.	
§63.10(e)(1) and (2)(i)	Additional CMS Reports	Yes.	
§63.10(e)(2)(ii)	COMS-related report	No	Subpart ZZZZ does not require COMS.
§63.10(e)(3)	Excess emission and parameter exceedances reports	Yes.	Except that §63.10(e)(3)(i) (C) is reserved.
§63.10(e)(4)	Reporting COMS data	No	Subpart ZZZZ does not require COMS.
§63.10(f)	Waiver for recordkeeping/reporting	Yes.	
§63.11	Flares	No.	
§63.12	State authority and delegations	Yes.	
§63.13	Addresses	Yes.	
§63.14	Incorporation by reference	Yes.	
§63.15	Availability of information	Yes.	

[75 FR 9688, Mar. 3, 2010, as amended at 78 FR 6720, Jan. 30, 2013]

Appendix A to Subpart ZZZZ of Part 63—Protocol for Using an Electrochemical Analyzer to Determine Oxygen and Carbon Monoxide Concentrations From Certain Engines

Appendix A is not applicable to the INL.

ATTACHMENT FRA-6

40 CFR Part 63 Subpart JJJJJJ Regulatory Review

E-CFR DATA IS CURRENT AS OF JULY 8,2019

40 CFR Part 63 Subpart JJJJJJ Regulatory Analysis

TITLE 40--PROTECTION OF ENVIRONMENT

CHAPTER I--ENVIRONMENTAL PROTECTION AGENCY

SUBCHAPTER C—AIR PROGRAMS

PART 63--NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES

Subpart JJJJJJ—National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

SOURCE: 76 FR 15591, Mar. 21, 2011, unless otherwise noted.

WHAT THIS SUBPART COVERS

§63.11193 Am I subject to this subpart?

You are subject to this subpart if you own or operate an industrial, commercial, or *institutional boiler as defined in §63.11237 that is located at, or is part of, an area source of hazardous air pollutants (HAP), as defined in §63.2, except as specified in §63.11195.*

Idaho National Laboratory (INL) will be subject to this part because INL is applying for a permit to construct with synthetic minor limits on emissions to become an area source and owns and operates institutional boilers.

§63.11194 What is the affected source of this subpart?

(a) This subpart applies to each new, reconstructed, or *existing affected source as defined in paragraphs (a)(1) and (2) of this section.*

(1) The affected source of this subpart is the collection of all existing industrial, commercial, and *institutional boilers within a subcategory, as listed in §63.11200 and defined in §63.11237, located at an area source.*

(2) The affected source of this subpart is each new or reconstructed industrial, commercial, or *institutional boiler within a subcategory, as listed in §63.11200 and as defined in §63.11237, located at an area source.*

(b) An affected source is an existing source if you commenced construction or reconstruction of the affected source on or before June 4, 2010.

(c) An affected source is a new source if you commenced construction of the affected source after June 4, 2010, and the boiler meets the applicability criteria at the time you commence construction.

(d) An affected source is a reconstructed source if the boiler meets the reconstruction criteria as defined in §63.2, you commenced reconstruction after June 4, 2010, and the boiler meets the applicability criteria at the time you commence reconstruction.

(e) An existing dual-fuel fired boiler meeting the definition of gas-fired boiler, as defined in §63.11237, that meets the applicability requirements of this subpart after June 4, 2010 due to a fuel

switch from gaseous fuel to solid fossil fuel, biomass, or liquid fuel is considered to be an existing source under this subpart as long as the boiler was designed to accommodate the alternate fuel.

(f) If you are an owner or operator of an area source subject to this subpart, you are exempt from the obligation to obtain a permit under 40 CFR part 70 or part 71 as a result of this subpart. You may, however, be required to obtain a title V permit due to another reason or reasons. *See* 40 CFR 70.3(a) and (b) or 71.3(a) and (b). *Notwithstanding the exemption from title V permitting for area sources under this subpart, you must continue to comply with the provisions of this subpart.*

INL operates existing affected sources that meet the applicable criteria under §63.11194 (a)(1),(b),(f).

NRF operates two boilers that meet the applicable criteria under §63.11194 (a)(2),(c),(f).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7506, Feb. 1, 2013]

§63.11195 Are any boilers not subject to this subpart?

The types of boilers listed in paragraphs (a) through (k) of this section are not subject to this subpart and to any requirements in this subpart.

(a) Any boiler specifically listed as, or included in the definition of, an affected source in another standard(s) under this part.

(b) Any boiler specifically listed as an affected source in another standard(s) established under section 129 of the Clean Air Act.

(c) A boiler required to have a permit under section 3005 of the Solid Waste Disposal Act or covered by subpart EEE of this part (e.g., hazardous waste boilers).

(d) A boiler that is used specifically for research and development. This exemption does not include boilers that solely or primarily provide steam (or heat) to a process or for heating at a research and development facility. This exemption does not prohibit the use of the steam (or heat) generated from the boiler during research and development, however, the boiler must be concurrently and primarily engaged in research and development for the exemption to apply.

(e) A gas-fired boiler as defined in this subpart.

(f) A hot water heater as defined in this subpart.

(g) Any boiler that is used as a control device to comply with another subpart of this part, or part 60, part 61, or part 65 of this chapter provided that at least 50 percent of the average annual heat input during any 3 consecutive calendar years to the boiler is provided by regulated gas streams that are subject to another standard.

(h) Temporary boilers as defined in this subpart.

(i) Residential boilers as defined in this subpart.

(j) Electric boilers as defined in this subpart.

(k) An electric utility steam generating unit (EGU) as defined in this subpart.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7506, Feb. 1, 2013; 81 FR 63125, Sept. 14, 2016]

INL operates sources that meets the applicable criteria under §63.11195 (e) and (f) that are not subject to this subpart.

§63.11196 What are my compliance dates?

(a) If you own or operate an existing affected boiler, you must achieve compliance with the applicable provisions in this subpart as specified in paragraphs (a)(1) through (3) of this section.

(1) If the existing affected boiler is subject to a work practice or management practice standard of a tune-up, you must achieve compliance with the work practice or management practice standard no later than March 21, 2014.

(2) If the existing affected boiler is subject to emission limits, you must achieve compliance with the emission limits no later than March 21, 2014.

(3) If the existing affected boiler is subject to the energy assessment requirement, you must achieve compliance with the energy assessment requirement no later than March 21, 2014.

(b) If you start up a new affected source on or before May 20, 2011, you must achieve compliance with the provisions of this subpart no later than May 20, 2011.

(c) If you start up a new affected source after May 20, 2011, you must achieve compliance with the provisions of this subpart upon startup of your affected source.

(d) If you own or operate an industrial, commercial, or institutional boiler and would be subject to this subpart except for the exemption in §63.11195(b) for commercial and industrial solid waste incineration units covered by 40 CFR part 60, subpart CCCC or subpart DDDD, and you cease combusting solid waste, you must be in compliance with this subpart on the effective date of the waste to fuel switch as specified in §60.2145(a)(2) and (3) of subpart CCCC or §60.2710(a)(2) and (3) of subpart DDDD.

INL operates boilers at NRF that are subject to §63.11196.(c).

INL compliance date requirements for existing boilers are cited in §63.11210.(i)(1),(3).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7506, Feb. 1, 2013]

EMISSION LIMITS, WORK PRACTICE STANDARDS, EMISSION REDUCTION MEASURES, AND MANAGEMENT PRACTICES

§63.11200 What are the subcategories of boilers?

The subcategories of boilers, as defined in §63.11237 are:

(a) Coal.

(b) Biomass.

(c) Oil.

(d) Seasonal boilers.

(e) Oil-fired boilers with heat input capacity of equal to or less than 5 million British thermal units (Btu) per hour.

(f) Boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up.

(g) Limited-use boilers.

INL operates existing and new affected sources that meet the applicable criteria under §63.11200(c),(e),(f).

[78 FR 7506, Feb. 1, 2013]

§63.11201 What standards must I meet?

(a) You must comply with each emission limit specified in Table 1 to this subpart that applies to your boiler.

(b) You must comply with each work practice standard, emission reduction measure, and management practice specified in Table 2 to this subpart that applies to your boiler. An energy assessment completed on or after January 1, 2008 that meets or is amended to meet the energy assessment requirements in Table 2 to this subpart satisfies the energy assessment requirement. A facility that operates under an energy management program established through energy management systems compatible with ISO 50001, that includes the affected units, also satisfies the energy assessment requirement.

(c) You must comply with each operating limit specified in Table 3 to this subpart that applies to your boiler.

(d) *These standards apply at all times the affected boiler is operating, except during periods of startup and shutdown as defined in §63.11237, during which time you must comply only with Table 2 to this subpart.*

INL operates existing affected sources that meet the applicable criteria under §63.11201(b),(d).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7506, Feb. 1, 2013]

GENERAL COMPLIANCE REQUIREMENTS

§63.11205 What are my general requirements for complying with this subpart?

(a) At all times you must operate and maintain any affected source, including associated air pollution control equipment and monitoring equipment, *in a manner consistent with safety and good air pollution control practices for minimizing emissions. The general duty to minimize emissions does not require you to make any further efforts to reduce emissions if levels required by this standard have been achieved. Determination of whether such operation and maintenance procedures are being used will be based on information available to the Administrator that may include, but is not limited to, monitoring results, review of operation and maintenance procedures, review of operation and maintenance records, and inspection of the source.*

(b) You must demonstrate compliance with all applicable emission limits using performance stack testing, fuel analysis, or a continuous monitoring system (CMS), including a continuous emission monitoring system (CEMS), a continuous opacity monitoring system (COMS), or a continuous parameter monitoring system (CPMS), where applicable. You may demonstrate compliance with the applicable mercury emission limit using fuel analysis if the emission rate calculated according to §63.11211(c) is less than the applicable emission limit. Otherwise, you must demonstrate compliance using stack testing.

(c) If you demonstrate compliance with any applicable emission limit through performance stack testing and subsequent compliance with operating limits (including the use of CPMS), with a CEMS, or with a COMS, you must develop a site-specific monitoring plan according to the requirements in paragraphs (c)(1) through (3) of this section for the use of any CEMS, COMS, or CPMS. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under §63.8(f).

(1) For each CMS required in this section (including CEMS, COMS, or CPMS), you must develop, and submit to the Administrator for approval upon request, a site-specific monitoring plan that addresses paragraphs (c)(1)(i) through (vi) of this section. You must submit this site-specific monitoring plan, if requested, at least 60 days before your initial performance evaluation of your CMS. This requirement to develop and submit a site-specific monitoring plan does not apply to affected sources with existing CEMS or COMS operated according to the performance specifications under appendix B to part 60 of this chapter and that meet the requirements of §63.11224.

(i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device);

(ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems; and

(iii) Performance evaluation procedures and acceptance criteria (*e.g.,* calibrations).

(iv) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1)(ii), (c)(3), and (c)(4)(ii);

(v) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d); and

(vi) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) (as applicable in Table 8 to this subpart), (e)(1), and (e)(2)(i).

(2) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(3) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

INL operates existing affected sources that meet the applicable criteria under §63.11205(a).

INL does not operate boilers that are required to comply with numerical emission as exempted in §63.11210(e).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7506, Feb. 1, 2013]

INITIAL COMPLIANCE REQUIREMENTS

§63.11210 What are my initial compliance requirements and by what date must I conduct them?

(a) You must demonstrate initial compliance with each emission limit specified in Table 1 to this subpart that applies to you by either conducting performance (stack) tests, as applicable, according to §63.11212 and Table 4 to this subpart or, for mercury, conducting fuel analyses, as applicable, according to §63.11213 and Table 5 to this subpart.

(b) For existing affected boilers that have applicable emission limits, you must demonstrate initial compliance with the applicable emission limits no later than 180 days after the compliance date that is specified in §63.11196 and according to the applicable provisions in §63.7(a)(2), except as provided in paragraph (k) of this section.

(c) For existing affected boilers that have applicable work practice standards, management practices, or emission reduction measures, you must demonstrate initial compliance no later than the compliance date that is specified in §63.11196 and according to the applicable provisions in §63.7(a)(2), except as provided in paragraph (j) of this section.

(d) For new or reconstructed affected boilers that have applicable emission limits, you must demonstrate initial compliance with the applicable emission limits no later than 180 days after March 21, 2011 or within 180 days after startup of the source, whichever is later, according to §63.7(a)(2)(ix).

(e) For new or reconstructed oil-fired boilers that commenced construction or reconstruction on or before September 14, 2016, that combust only oil that contains no more than 0.50 weight percent sulfur or a mixture of 0.50 weight percent sulfur oil with other fuels not subject to a particulate matter (PM) emission limit under this subpart and that do not use a post-combustion technology (except a wet scrubber) to reduce PM or sulfur dioxide emissions, you are not subject to the PM emission limit in Table 1 of this subpart until September 14, 2019, providing you monitor and record on a monthly basis the type of fuel combusted. If you intend to burn a new type of fuel or fuel mixture that does not meet the requirements of this paragraph, you must conduct a performance test within 60 days of burning the new fuel. On and after September 14, 2019, you are subject to the PM emission limit in Table 1 of this subpart and you must demonstrate compliance with the PM emission limit in Table 1 no later than March 12, 2020.

(f) For new or reconstructed boilers that combust only ultra-low-sulfur liquid fuel as defined in §63.11237, you are not subject to the PM emission limit in Table 1 of this subpart providing you monitor and record on a monthly basis the type of fuel combusted. If you intend to burn a fuel other than ultra-low-sulfur liquid fuel or gaseous fuels as defined in §63.11237, you must conduct a performance test within 60 days of burning the new fuel.

(g*) For new* or reconstructed *affected boilers that have applicable work practice standards or management practices, you are not required to complete an initial performance tune-up, but you are required to complete the applicable biennial or 5-year tune-up as specified in §63.11223 no later than 25 months or 61 months, respectively, after the initial startup of the new or reconstructed affected source.*

(h) For affected boilers that ceased burning solid waste consistent with §63.11196(d) and for which your initial compliance date has passed, you must demonstrate compliance within 60 days of the effective date of the waste-to-fuel switch as specified in §60.2145(a)(2) and (3) of subpart CCCC or §60.2710(a)(2) and (3) of subpart DDDD. If you have not conducted your compliance demonstration for this subpart

within the previous 12 months, you must complete all compliance demonstrations for this subpart before you commence or recommence combustion of solid waste.

(i) For affected boilers that switch fuels or make a physical change to the boiler that results in the applicability of a different subcategory within subpart JJJJJJ or the boiler becoming subject to subpart JJJJJJ, you must demonstrate compliance within 180 days of the effective date of the fuel switch or the physical change. Notification of such changes must be submitted according to §63.11225(g).

(j) For boilers located at existing major sources of HAP that limit their potential to emit (e.g., make a physical change or take a permit limit) such that the existing major source becomes an area source, you must comply with the applicable provisions as specified in paragraphs (i)(1) through (3) of this section.

(1) Any such existing boiler at the existing source must demonstrate compliance with subpart JJJJJJ within 180 days of the later of March 21, 2014 or upon the existing major source commencing operation as an area source.

(2) Any new or reconstructed *boiler at the existing source must demonstrate compliance with subpart JJJJJJ* within 180 days of the later of March 21, 2011 or *startup.*

(3) Notification of such changes must be submitted according to §63.11225(g).

(k) For existing affected boilers that have not operated on solid fossil fuel, biomass, or liquid fuel between the effective date of the rule and the compliance date that is specified for your source in §63.11196, you must comply with the applicable provisions as specified in paragraphs (k)(1) through (3) of this section.

(1) You must complete the initial compliance demonstration, if subject to the emission limits in Table 1 to this subpart, as specified in paragraphs (a) and (b) of this section, no later than 180 days after the re-start of the affected boiler on solid fossil fuel, biomass, or liquid fuel and according to the applicable provisions in §63.7(a)(2).

(2) You must complete the initial performance tune-up, if subject to the tune-up requirements in §63.11223, by following the procedures described in §63.11223(b) no later than 30 days after the re-start of the affected boiler on solid fossil fuel, biomass, or liquid fuel.

(3) You must complete the one-time energy assessment, if subject to the energy assessment requirements specified in Table 2 to this subpart, no later than the compliance date specified in §63.11196.

INL operates existing affected sources that meet the applicable criteria under §63.11210(f), (g)(j)(1&3).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7507, Feb. 1, 2013; 81 FR 63125, Sept. 14, 2016]

§63.11211 How do I demonstrate initial compliance with the emission limits?

INL does not operate boilers with numerical emission limits. The new boiler will use monitoring and recording of fuel type to demonstrate compliance with emission limits in accordance with §63.11210(e).

(a) For affected boilers that demonstrate compliance with any of the emission limits of this subpart through performance (stack) testing, your initial compliance requirements include conducting performance

tests according to §63.11212 and Table 4 to this subpart, conducting a fuel analysis for each type of fuel burned in your boiler according to §63.11213 and Table 5 to this subpart, establishing operating limits according to §63.11222, Table 6 to this subpart and paragraph (b) of this section, as applicable, and conducting CMS performance evaluations according to §63.11224. For affected boilers that burn a single type of fuel, you are exempted from the compliance requirements of conducting a fuel analysis for each type of fuel burned in your boiler. For purposes of this subpart, boilers that use a supplemental fuel only for startup, unit shutdown, and transient flame stability purposes still qualify as affected boilers that burn a single type of fuel, and the supplemental fuel is not subject to the fuel analysis requirements under §63.11213 and Table 5 to this subpart.

(b) You must establish parameter operating limits according to paragraphs (b)(1) through (4) of this section.

(1) For a wet scrubber, you must establish the minimum scrubber liquid flow rate and minimum scrubber pressure drop as defined in §63.11237, as your operating limits during the three-run performance stack test. If you use a wet scrubber and you conduct separate performance stack tests for PM and mercury emissions, you must establish one set of minimum scrubber liquid flow rate and pressure drop operating limits. If you conduct multiple performance stack tests, you must set the minimum scrubber liquid flow rate and pressure drop operating limits at the highest minimum values established during the performance stack tests.

(2) For an electrostatic precipitator operated with a wet scrubber, you must establish the minimum total secondary electric power (secondary voltage and secondary current), as defined in §63.11237, as your operating limits during the three-run performance stack test.

(3) For activated carbon injection, you must establish the minimum activated carbon injection rate, as defined in §63.11237, as your operating limit during the three-run performance stack test.

(4) The operating limit for boilers with fabric filters that demonstrate continuous compliance through bag leak detection systems is that a bag leak detection system be installed according to the requirements in §63.11224, and that each fabric filter must be operated such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during a 6-month period.

(c) If you elect to demonstrate compliance with an applicable mercury emission limit through fuel analysis, you must conduct fuel analyses according to §63.11213 and Table 5 to this subpart and follow the procedures in paragraphs (c)(1) through (3) of this section.

(1) If you burn more than one fuel type, you must determine the fuel type, or mixture, you could burn in your boiler that would result in the maximum emission rates of mercury.

(2) You must determine the 90th percentile confidence level fuel mercury concentration of the composite samples analyzed for each fuel type using Equation 1 of this section.

$$P_{90} = \text{mean} + (SD * t) \quad \text{(Eq. 1)}$$

Where:

P_{90} = 90th percentile confidence level mercury concentration, in pounds per million Btu.

mean = Arithmetic average of the fuel mercury concentration in the fuel samples analyzed according to §63.11213, in units of pounds per million Btu.

SD = Standard deviation of the mercury concentration in the fuel samples analyzed according to §63.11213, in units of pounds per million Btu.

t = t distribution critical value for 90th percentile (0.1) probability for the appropriate degrees of freedom (number of samples minus one) as obtained from a Distribution Critical Value Table.

(3) To demonstrate compliance with the applicable mercury emission limit, the emission rate that you calculate for your boiler using Equation 1 of this section must be less than the applicable mercury emission limit.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7508, Feb. 1, 2013]

§63.11212 What stack tests and procedures must I use for the performance tests?

INL is not required to perform stack tests.

(a) You must conduct all performance tests according to §63.7(c), (d), (f), and (h). You must also develop a site-specific test plan according to the requirements in §63.7(c).

(b) You must conduct each stack test according to the requirements in Table 4 to this subpart. Boilers that use a CEMS for carbon monoxide (CO) are exempt from the initial CO performance testing in Table 4 to this subpart and the oxygen concentration operating limit requirement specified in Table 3 to this subpart.

(c) You must conduct performance stack tests at the representative operating load conditions while burning the type of fuel or mixture of fuels that have the highest emissions potential for each regulated pollutant, and you must demonstrate initial compliance and establish your operating limits based on these performance stack tests. For subcategories with more than one emission limit, these requirements could result in the need to conduct more than one performance stack test. Following each performance stack test and until the next performance stack test, you must comply with the operating limit for operating load conditions specified in Table 3 to this subpart.

(d) You must conduct a minimum of three separate test runs for each performance stack test required in this section, as specified in §63.7(e)(3) and in accordance with the provisions in Table 4 to this subpart.

(e) To determine compliance with the emission limits, you must use the F-Factor methodology and equations in sections 12.2 and 12.3 of EPA Method 19 of appendix A-7 to part 60 of this chapter to convert the measured PM concentrations and the measured mercury concentrations that result from the performance test to pounds per million Btu heat input emission rates.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7508, Feb. 1, 2013]

§63.11213 What fuel analyses and procedures must I use for the performance tests?

INL is not required to perform fuel analysis.

(a) You must conduct fuel analyses according to the procedures in paragraphs (b) and (c) of this section and Table 5 to this subpart, as applicable. You are not required to conduct fuel analyses for fuels used for only startup, unit shutdown, and transient flame stability purposes. You are required to conduct fuel analyses only for fuels and units that are subject to emission limits for mercury in Table 1 of this subpart.

(b) At a minimum, you must obtain three composite fuel samples for each fuel type according to the procedures in Table 5 to this subpart. Each composite sample must consist of a minimum of three samples collected at approximately equal intervals during a test run period.

(c) Determine the concentration of mercury in the fuel in units of pounds per million Btu of each composite sample for each fuel type according to the procedures in Table 5 to this subpart.

§63.11214 How do I demonstrate initial compliance with the work practice standard, emission reduction measures, and management practice?

(a) If you own or operate an existing or new coal-fired boiler with a heat input capacity of less than 10 million Btu per hour, you must conduct a performance tune-up according to §63.11210(c) or (g), as applicable, and §63.11223(b). If you own or operate an existing coal-fired boiler with a heat input capacity of less than 10 million Btu per hour, you must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted an initial tune-up of the boiler.

(b) If you own or operate an existing or new biomass-fired boiler or *an existing or new oil-fired boiler, you must conduct a performance tune-up according to §63.11210(c) or (g), as applicable, and §63.11223(b). If you own or operate an existing biomass-fired boiler or existing oil-fired boiler, you must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted an initial tune-up of the boiler.*

(c) If you own or operate an existing affected boiler with a heat input capacity of 10 million Btu per hour or greater, you must submit a signed certification in the Notification of Compliance Status report that an energy assessment of the boiler and its energy use systems was completed according to Table 2 to this subpart and that the assessment is an accurate depiction of your facility at the time of the assessment or that the maximum number of on-site technical hours specified in the definition of energy assessment applicable to the facility has been expended.

(d) If you own or operate a boiler subject to emission limits in Table 1 of this subpart, you must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. You must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.

INL operates existing affected sources that meet the applicable criteria under §63.11214(b or b&c).

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7508, Feb. 1, 2013; 81 FR 63126, Sept. 14, 2016]

CONTINUOUS COMPLIANCE REQUIREMENTS

§63.11220 When must I conduct subsequent performance tests or fuel analyses?

INL is not required to perform fuel analysis.

(a) If your boiler has a heat input capacity of 10 million Btu per hour or greater, you must conduct all applicable performance (stack) tests according to §63.11212 on a triennial basis, except as specified in paragraphs (b) through (e) of this section. Triennial performance tests must be completed no more than 37 months after the previous performance test.

(b) For new or reconstructed boilers that commenced construction or reconstruction on or before September 14, 2016, when demonstrating initial compliance with the PM emission limit, if your boiler's performance test results show that your PM emissions are equal to or less than half of the PM emission limit, you do not need to conduct further performance tests for PM until September 14, 2021, but must continue to comply with all applicable operating limits and monitoring requirements and must comply with the provisions as specified in paragraphs (b)(1) through (4) of this section.

(1) A performance test for PM must be conducted by September 14, 2021.

(2) If your performance test results show that your PM emissions are equal to or less than half of the PM emission limit, you may choose to conduct performance tests for PM every fifth year. Each such performance test must be conducted no more than 61 months after the previous performance test.

(3) If you intend to burn a new type of fuel other than ultra-low-sulfur liquid fuel or gaseous fuels as defined in §63.11237, you must conduct a performance test within 60 days of burning the new fuel type.

(4) If your performance test results show that your PM emissions are greater than half of the PM emission limit, you must conduct subsequent performance tests on a triennial basis as specified in paragraph (a) of this section.

(c) For new or reconstructed boilers that commenced construction or reconstruction after September 14, 2016, when demonstrating initial compliance with the PM emission limit, if your boiler's performance test results show that your PM emissions are equal to or less than half of the PM emission limit, you may choose to conduct performance tests for PM every fifth year, but must continue to comply with all applicable operating limits and monitoring requirements and must comply with the provisions as specified in paragraphs (c)(1) through (3) of this section.

(1) Each such performance test must be conducted no more than 61 months after the previous performance test.

(2) If you intend to burn a new type of fuel other than ultra-low-sulfur liquid fuel or gaseous fuels as defined in §63.11237, you must conduct a performance test within 60 days of burning the new fuel type.

(3) If your performance test results show that your PM emissions are greater than half of the PM emission limit, you must conduct subsequent performance tests on a triennial basis as specified in paragraph (a) of this section.

(d) If you demonstrate compliance with the mercury emission limit based on fuel analysis, you must conduct a fuel analysis according to §63.11213 for each type of fuel burned as specified in paragraphs (d)(1) through (3) of this section. If you plan to burn a new type of fuel or fuel mixture, you must conduct a fuel analysis before burning the new type of fuel or mixture in your boiler. You must recalculate the mercury emission rate using Equation 1 of §63.11211. The recalculated mercury emission rate must be less than the applicable emission limit.

(1) For existing boilers and new or reconstructed boilers that commenced construction or reconstruction on or before September 14, 2016, when demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are measured to be equal to or less than half of the mercury emission limit, you do not need to conduct further fuel analysis sampling until September 14, 2017, but must continue to comply with all applicable operating limits and monitoring

requirements and must comply with the provisions as specified in paragraphs (d)(1)(i) and (ii) of this section.

(i) Fuel analysis sampling for mercury must be conducted by September 14, 2017.

(ii) If your fuel analysis results show that the mercury constituents in the fuel or fuel mixture are equal to or less than half of the mercury emission limit, you may choose to conduct fuel analysis sampling for mercury every 12 months.

(2) For new or reconstructed boilers that commenced construction or reconstruction after September 14, 2016, when demonstrating initial compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are measured to be equal to or less than half of the mercury emission limit, you may choose to conduct fuel analysis sampling for mercury every 12 months, but must continue to comply with all applicable operating limits and monitoring requirements.

(3) When demonstrating compliance with the mercury emission limit, if the mercury constituents in the fuel or fuel mixture are greater than half of the mercury emission limit, you must conduct quarterly sampling.

(e) For existing affected boilers that have not operated on solid fossil fuel, biomass, or liquid fuel since the previous compliance demonstration and more than 3 years have passed since the previous compliance demonstration, you must complete your subsequent compliance demonstration no later than 180 days after the re-start of the affected boiler on solid fossil fuel, biomass, or liquid fuel.

[81 FR 63127, Sept. 14, 2016]

§63.11221 Is there a minimum amount of monitoring data I must obtain?

INL is not required to collect monitoring data.

(a) You must monitor and collect data according to this section and the site-specific monitoring plan required by §63.11205(c).

(b) You must operate the monitoring system and collect data at all required intervals at all times the affected source is operating and compliance is required, except for periods of monitoring system malfunctions or out-of-control periods (see §63.8(c)(7) of this part), repairs associated with monitoring system malfunctions or out-of-control periods, and required monitoring system quality assurance or quality control activities including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in your site-specific monitoring plan. A monitoring system malfunction is any sudden, infrequent, not reasonably preventable failure of the monitoring system to provide valid data. Monitoring system failures that are caused in part by poor maintenance or careless operation are not malfunctions. You are required to complete monitoring system repairs in response to monitoring system malfunctions or out-of-control periods and to return the monitoring system to operation as expeditiously as practicable.

(c) You may not use data collected during periods of startup and shutdown, monitoring system malfunctions or out-of-control periods, repairs associated with monitoring system malfunctions or out-of-control periods, or required monitoring system quality assurance or quality control activities in calculations used to report emissions or operating levels. Any such periods must be reported according to the requirements in §63.11225. You must use all the data collected during all other periods in assessing the operation of the control device and associated control system.

(d) Except for periods of monitoring system malfunctions or monitoring system out-of-control periods, repairs associated with monitoring system malfunctions or monitoring system out-of-control periods, and required monitoring system quality assurance or quality control activities (including, as applicable, calibration checks, required zero and span adjustments, and scheduled CMS maintenance as defined in your site-specific monitoring plan), failure to collect required data is a deviation of the monitoring requirements.

[78 FR 7508, Feb. 1, 2013, as amended at 81 FR 63127, Sept. 14, 2016]

§63.11222 How do I demonstrate continuous compliance with the emission limits?

INL is not required to demonstrate compliance with emission limits for existing boilers. New boilers are not subject to numerical emission limits and will demonstrate compliance by monitoring and recordkeeping of fuel type in accordance with §63.11210(f).

(a) You must demonstrate continuous compliance with each emission limit and operating limit in Tables 1 and 3 to this subpart that applies to you according to the methods specified in Table 7 to this subpart and to paragraphs (a)(1) through (4) of this section.

(1) Following the date on which the initial compliance demonstration is completed or is required to be completed under §§63.7 and 63.11196, whichever date comes first, you must continuously monitor the operating parameters. Operation above the established maximum, below the established minimum, or outside the allowable range of the operating limits specified in paragraph (a) of this section constitutes a deviation from your operating limits established under this subpart, except during performance tests conducted to determine compliance with the emission and operating limits or to establish new operating limits. Operating limits are confirmed or reestablished during performance tests.

(2) If you have an applicable mercury or PM emission limit, you must keep records of the type and amount of all fuels burned in each boiler during the reporting period. If you have an applicable mercury emission limit, you must demonstrate that all fuel types and mixtures of fuels burned would result in lower emissions of mercury than the applicable emission limit (if you demonstrate compliance through fuel analysis), or result in lower fuel input of mercury than the maximum values calculated during the last performance stack test (if you demonstrate compliance through performance stack testing).

(3) If you have an applicable mercury emission limit and you plan to burn a new type of fuel, you must determine the mercury concentration for any new fuel type in units of pounds per million Btu, using the procedures in Equation 1 of §63.11211 based on supplier data or your own fuel analysis, and meet the requirements in paragraphs (a)(3)(i) or (ii) of this section.

(i) The recalculated mercury emission rate must be less than the applicable emission limit.

(ii) If the mercury concentration is higher than mercury fuel input during the previous performance test, then you must conduct a new performance test within 60 days of burning the new fuel type or fuel mixture according to the procedures in §63.11212 to demonstrate that the mercury emissions do not exceed the emission limit.

(4) If your unit is controlled with a fabric filter, and you demonstrate continuous compliance using a bag leak detection system, you must initiate corrective action within 1 hour of a bag leak detection system alarm and operate and maintain the fabric filter system such that the alarm does not sound more than 5 percent of the operating time during a 6-month period. You must also keep records of the date, time, and duration of each alarm, the time corrective action was initiated and completed, and a brief description of the cause of the alarm and the corrective action taken. You must also record the percent of the operating time during each 6-month period that the alarm sounds. In calculating this operating time percentage, if inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted.

If corrective action is required, each alarm is counted as a minimum of 1 hour. If you take longer than 1 hour to initiate corrective action, the alarm time is counted as the actual amount of time taken to initiate corrective action.

(b) You must report each instance in which you did not meet each emission limit and operating limit in Tables 1 and 3 to this subpart that apply to you. These instances are deviations from the emission limits in this subpart. These deviations must be reported according to the requirements in §63.11225.

21, 2011, as amended at 81 FR 63127, Sept. 14, 2016]

§63.11223 How do I demonstrate continuous compliance with the work practice and management practice standards?

(a) For affected sources subject to the work practice standard or the management practices of a tune-up, you must conduct a performance tune-up according to paragraph (b) of this section and keep records as required in §63.11225(c) to demonstrate continuous compliance. You must conduct the tune-up while burning the type of fuel (or fuels in the case of boilers that routinely burn two types of fuels at the same time) that provided the majority of the heat input to the boiler over the 12 months prior to the tune-up.

(b) Except as specified in paragraphs (c) through (f) of this section, you must conduct a tune-up of the boiler biennially *to demonstrate continuous compliance as specified in paragraphs (b)(1) through (7) of this section.* Each biennial tune-up must be conducted no more than 25 months after the previous tune-up. For a new or reconstructed boiler, the first biennial tune-up must be no later than 25 months after the initial startup of the new or reconstructed boiler.

(1) As applicable, inspect the burner, and clean or replace any components of the burner as necessary (you may delay the burner inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the burner inspection until the first outage, not to exceed 36 months from the previous inspection.

(2) Inspect the flame pattern, as applicable, and adjust the burner as necessary to optimize the flame pattern. The adjustment should be consistent with the manufacturer's specifications, if available.

(3) Inspect the system controlling the air-to-fuel ratio, as applicable, and ensure that it is correctly calibrated and functioning properly (you may delay the inspection until the next scheduled unit shutdown, not to exceed 36 months from the previous inspection). Units that produce electricity for sale may delay the inspection until the first outage, not to exceed 36 months from the previous inspection.

(4) Optimize total emissions of CO. This optimization should be consistent with the manufacturer's specifications, if available, and with any nitrogen oxide requirement to which the unit is subject.

(5) Measure the concentrations in the effluent stream of CO in parts per million, by volume, and oxygen in volume percent, before and after the adjustments are made (measurements may be either on a dry or wet basis, as long as it is the same basis before and after the adjustments are made). Measurements may be taken using a portable CO analyzer.

(6) Maintain on-site and submit, if requested by the Administrator, a report containing the information in paragraphs (b)(6)(i) through (iii) of this section.

(i) The concentrations of CO in the effluent stream in parts per million, by volume, and oxygen in volume percent, measured at high fire or typical operating load, before and after the tune-up of the boiler.

(ii) A description of any corrective actions taken as a part of the tune-up of the boiler.

(iii) The type and amount of fuel used over the 12 months prior to the tune-up of the boiler, but only if the unit was physically and legally capable of using more than one type of fuel during that period. Units sharing a fuel meter may estimate the fuel use by each unit.

(7) If the unit is not operating on the required date for a tune-up, the tune-up must be conducted within 30 days of startup.

(c) Boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up must conduct a tune-up of the boiler every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed boiler with an oxygen trim system, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months. If an oxygen trim system is utilized on a unit without emission standards to reduce the tune-up frequency to once every 5 years, set the oxygen level no lower than the oxygen concentration measured during the most recent tune-up.

(d) Seasonal boilers must conduct a tune-up every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed seasonal boiler, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months. Seasonal boilers are not subject to the emission limits in Table 1 to this subpart or the operating limits in Table 3 to this subpart.

(e) Oil-fired boilers with a heat input capacity of equal to or less than 5 million Btu per hour must conduct a tune-up every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed oil-fired boiler with a heat input capacity of equal to or less than 5 million Btu per hour, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months.

(f) Limited-use boilers must conduct a tune-up every 5 years as specified in paragraphs (b)(1) through (7) of this section. Each 5-year tune-up must be conducted no more than 61 months after the previous tune-up. For a new or reconstructed limited-use boiler, the first 5-year tune-up must be no later than 61 months after the initial startup. You may delay the burner inspection specified in paragraph (b)(1) of this section and inspection of the system controlling the air-to-fuel ratio specified in paragraph (b)(3) of this section until the next scheduled unit shutdown, but you must inspect each burner and system controlling the air-to-fuel ratio at least once every 72 months. Limited-use boilers are not subject to the emission limits in Table 1 to this subpart, the energy assessment requirements in Table 2 to this subpart, or the operating limits in Table 3 to this subpart.

(g) If you own or operate a boiler subject to emission limits in Table 1 of this subpart, you must minimize the boiler's startup and shutdown periods following the manufacturer's recommended procedures, if available. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available. You must submit a signed statement in the Notification of Compliance Status report that indicates that you conducted startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available.

INL operates affected sources that meet the applicable criteria under §63.11223(a-c or a-c&e)

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7509, Feb. 1, 2013; 81 FR 63127, Sept. 14, 2016]

§63.11224 What are my monitoring, installation, operation, and maintenance requirements?

INL is not subject to this requirement.

(a) If your boiler is subject to a CO emission limit in Table 1 to this subpart, you must either install, operate, and maintain a CEMS for CO and oxygen according to the procedures in paragraphs (a)(1) through (6) of this section, or install, calibrate, operate, and maintain an oxygen analyzer system, as defined in §63.11237, according to the manufacturer's recommendations and paragraphs (a)(7) and (d) of this section, as applicable, by the compliance date specified in §63.11196. Where a certified CO CEMS is used, the CO level shall be monitored at the outlet of the boiler, after any add-on controls or flue gas recirculation system and before release to the atmosphere. Boilers that use a CO CEMS are exempt from the initial CO performance testing and oxygen concentration operating limit requirements specified in §63.11211(a) of this subpart. Oxygen monitors and oxygen trim systems must be installed to monitor oxygen in the boiler flue gas, boiler firebox, or other appropriate intermediate location.

(1) Each CO CEMS must be installed, operated, and maintained according to the applicable procedures under Performance Specification 4, 4A, or 4B at 40 CFR part 60, appendix B, and each oxygen CEMS must be installed, operated, and maintained according to Performance Specification 3 at 40 CFR part 60, appendix B. Both the CO and oxygen CEMS must also be installed, operated, and maintained according to the site-specific monitoring plan developed according to paragraph (c) of this section.

(2) You must conduct a performance evaluation of each CEMS according to the requirements in §63.8(e) and according to Performance Specifications 3 and 4, 4A, or 4B at 40 CFR part 60, appendix B.

(3) Each CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) every 15 minutes. You must have CEMS data values from a minimum of four successive cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CEMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data.

(4) The CEMS data must be reduced as specified in §63.8(g)(2).

(5) You must calculate hourly averages, corrected to 3 percent oxygen, from each hour of CO CEMS data in parts per million CO concentrations and determine the 10-day rolling average of all recorded readings, except as provided in §63.11221(c). Calculate a 10-day rolling average from all of the hourly averages collected for the 10-day operating period using Equation 2 of this section.

$$\text{10-day average} = \frac{\Sigma_{i=1}^{n} Hpvi}{n} \qquad \text{(Eq. 2)}$$

Where:

Hpvi = the hourly parameter value for hour i

n = the number of valid hourly parameter values collected over 10 boiler operating days

(6) For purposes of collecting CO data, you must operate the CO CEMS as specified in §63.11221(b). For purposes of calculating data averages, you must use all the data collected during all periods in assessing compliance, except that you must exclude certain data as specified in §63.11221(c). Periods when CO data are unavailable may constitute monitoring deviations as specified in §63.11221(d).

(7) You must operate the oxygen analyzer system at or above the minimum oxygen level that is established as the operating limit according to Table 6 to this subpart when firing the fuel or fuel mixture utilized during the most recent CO performance stack test. Operation of oxygen trim systems to meet these requirements shall not be done in a manner which compromises furnace safety.

(b) If you are using a control device to comply with the emission limits specified in Table 1 to this subpart, you must maintain each operating limit in Table 3 to this subpart that applies to your boiler as specified in Table 7 to this subpart. If you use a control device not covered in Table 3 to this subpart, or you wish to establish and monitor an alternative operating limit and alternative monitoring parameters, you must apply to the United States Environmental Protection Agency (EPA) Administrator for approval of alternative monitoring under §63.8(f).

(c) If you demonstrate compliance with any applicable emission limit through stack testing and subsequent compliance with operating limits, you must develop a site-specific monitoring plan according to the requirements in paragraphs (c)(1) through (4) of this section. This requirement also applies to you if you petition the EPA Administrator for alternative monitoring parameters under §63.8(f).

(1) For each CMS required in this section, you must develop, and submit to the EPA Administrator for approval upon request, a site-specific monitoring plan that addresses paragraphs (c)(1)(i) through (iii) of this section. You must submit this site-specific monitoring plan (if requested) at least 60 days before your initial performance evaluation of your CMS.

(i) Installation of the CMS sampling probe or other interface at a measurement location relative to each affected unit such that the measurement is representative of control of the exhaust emissions (*e.g.,* on or downstream of the last control device).

(ii) Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction systems.

(iii) Performance evaluation procedures and acceptance criteria (*e.g.,* calibrations).

(2) In your site-specific monitoring plan, you must also address paragraphs (c)(2)(i) through (iii) of this section.

(i) Ongoing operation and maintenance procedures in accordance with the general requirements of §63.8(c)(1), (3), and (4)(ii).

(ii) Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d).

(iii) Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c), (e)(1), and (e)(2)(i).

(3) You must conduct a performance evaluation of each CMS in accordance with your site-specific monitoring plan.

(4) You must operate and maintain the CMS in continuous operation according to the site-specific monitoring plan.

(d) If you have an operating limit that requires the use of a CMS, you must install, operate, and maintain each CPMS according to the procedures in paragraphs (d)(1) through (4) of this section.

(1) The CPMS must complete a minimum of one cycle of operation every 15 minutes. You must have data values from a minimum of four successive cycles of operation representing each of the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed, to have a valid hour of data.

(2) You must calculate hourly arithmetic averages from each hour of CPMS data in units of the operating limit and determine the 30-day rolling average of all recorded readings, except as provided in §63.11221(c). Calculate a 30-day rolling average from all of the hourly averages collected for the 30-day operating period using Equation 3 of this section.

$$\text{30-day average} = \frac{\Sigma_{i=1}^{n} Hpvi}{n} \quad \text{(Eq. 3)}$$

Where:

Hpvi = the hourly parameter value for hour i

n = the number of valid hourly parameter values collected over 30 boiler operating days

(3) For purposes of collecting data, you must operate the CPMS as specified in §63.11221(b). For purposes of calculating data averages, you must use all the data collected during all periods in assessing compliance, except that you must exclude certain data as specified in §63.11221(c). Periods when CPMS data are unavailable may constitute monitoring deviations as specified in §63.11221(d).

(4) Record the results of each inspection, calibration, and validation check.

(e) If you have an applicable opacity operating limit under this rule, you must install, operate, certify and maintain each COMS according to the procedures in paragraphs (e)(1) through (8) of this section by the compliance date specified in §63.11196.

(1) Each COMS must be installed, operated, and maintained according to Performance Specification 1 of 40 CFR part 60, appendix B.

(2) You must conduct a performance evaluation of each COMS according to the requirements in §63.8 and according to Performance Specification 1 of 40 CFR part 60, appendix B.

(3) As specified in §63.8(c)(4)(i), each COMS must complete a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(4) The COMS data must be reduced as specified in §63.8(g)(2).

(5) You must include in your site-specific monitoring plan procedures and acceptance criteria for operating and maintaining each COMS according to the requirements in §63.8(d). At a minimum, the

monitoring plan must include a daily calibration drift assessment, a quarterly performance audit, and an annual zero alignment audit of each COMS.

(6) You must operate and maintain each COMS according to the requirements in the monitoring plan and the requirements of §63.8(e). You must identify periods the COMS is out of control including any periods that the COMS fails to pass a daily calibration drift assessment, a quarterly performance audit, or an annual zero alignment audit.

(7) You must calculate and record 6-minute averages from the opacity monitoring data and determine and record the daily block average of recorded readings, except as provided in §63.11221(c).

(8) For purposes of collecting opacity data, you must operate the COMS as specified in §63.11221(b). For purposes of calculating data averages, you must use all the data collected during all periods in assessing compliance, except that you must exclude certain data as specified in §63.11221(c). Periods when COMS data are unavailable may constitute monitoring deviations as specified in §63.11221(d).

(f) If you use a fabric filter bag leak detection system to comply with the requirements of this subpart, you must install, calibrate, maintain, and continuously operate the bag leak detection system as specified in paragraphs (f)(1) through (8) of this section.

(1) You must install and operate a bag leak detection system for each exhaust stack of the fabric filter.

(2) Each bag leak detection system must be installed, operated, calibrated, and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with EPA-454/R-98-015 (incorporated by reference, see §63.14).

(3) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter or less.

(4) The bag leak detection system sensor must provide output of relative or absolute particulate matter loadings.

(5) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensor.

(6) The bag leak detection system must be equipped with an audible or visual alarm system that will activate automatically when an increase in relative particulate matter emissions over a preset level is detected. The alarm must be located where it is easily heard or seen by plant operating personnel.

(7) For positive pressure fabric filter systems that do not duct all compartments or cells to a common stack, a bag leak detection system must be installed in each baghouse compartment or cell.

(8) Where multiple bag leak detectors are required, the system's instrumentation and alarm may be shared among detectors.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7510, Feb. 1, 2013]

§63.11225 What are my notification, reporting, and recordkeeping requirements?

(a) You must submit the notifications specified in paragraphs (a)(1) through (5) of this section to the administrator.

(1) You must submit all of the notifications in §§63.7(b); 63.8(e) and (f); and 63.9(b) through (e), (g), and (h) that apply to you by the dates specified in those sections except as specified in paragraphs (a)(2) and (4) of this section.

(2) An Initial Notification must be submitted no later than January 20, 2014 or within 120 days after the source becomes subject to the standard.

(3) If you are required to conduct a performance stack test you must submit a Notification of Intent to conduct a performance test at least 60 days before the performance stack test is scheduled to begin.

(4) You must submit the Notification of Compliance Status no later than 120 days after the applicable compliance date specified in §63.11196 unless you own or operate a new boiler subject only to a requirement to conduct a biennial or 5-year tune-up or you must conduct a performance stack test. *If you own or operate a new boiler subject to a requirement to conduct a tune-up, you are not required to prepare and submit a Notification of Compliance Status for the tune-up.* If you must conduct a performance stack test, you must submit the Notification of Compliance Status within 60 days of completing the performance stack test. *You must submit the Notification of Compliance Status in accordance with paragraphs (a)(4)(i) and (vi) of this section. The Notification of Compliance Status must include the information and certification(s) of compliance in paragraphs (a)(4)(i) through (v) of this section, as applicable, and signed by a responsible official.*

(i) You must submit the information required in §63.9(h)(2), except the information listed in §63.9(h)(2)(i)(B), (D), (E), and (F). If you conduct any performance tests or CMS performance evaluations, you must submit that data as specified in paragraph (e) of this section. If you conduct any opacity or visible emission observations, or other monitoring procedures or methods, you must submit that data to the Administrator at the appropriate address listed in §63.13.

(ii) "This facility complies with the requirements in §63.11214 to conduct an initial tune-up of the boiler."

(iii) "This facility has had an energy assessment performed according to §63.11214(c)."

(iv) For units that install bag leak detection systems: "This facility complies with the requirements in §63.11224(f)."

(v) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit."

(vi) The notification must be submitted electronically using the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time that the report is due, the written Notification of Compliance Status must be submitted to the Administrator at the appropriate address listed in §63.13.

(5) If you are using data from a previously conducted emission test to serve as documentation of conformance with the emission standards and operating limits of this subpart, you must include in the Notification of Compliance Status the date of the test and a summary of the results, not a complete test report, relative to this subpart.

(b) You must prepare, by March 1 of each year, and submit to the delegated authority upon request, an annual compliance certification report for the previous calendar year containing the information specified in paragraphs (b)(1) through (4) of this section. You must submit the report by March 15 if you had any instance described by paragraph (b)(3) of this section. For boilers that are subject only to a

requirement to conduct a biennial or 5-year tune-up according to §63.11223(a) and not subject to emission limits or operating limits, you may prepare only a biennial or 5-year compliance report as specified in paragraphs (b)(1) and (2) of this section.

(1) Company name and address.

(2) Statement by a responsible official, with the official's name, title, phone number, email address, and signature, certifying the truth, accuracy and completeness of the notification and a statement of whether the source has complied with all the relevant standards and other requirements of this subpart. Your notification must include the following certification(s) of compliance, as applicable, and signed by a responsible official:

(i) "This facility complies with the requirements in §63.11223 to conduct a biennial or 5-year tune-up, as applicable, of each boiler."

(ii) For units that do not qualify for a statutory exemption as provided in section 129(g)(1) of the Clean Air Act: "No secondary materials that are solid waste were combusted in any affected unit."

(iii) "This facility complies with the requirement in §§63.11214(d) and 63.11223(g) to minimize the boiler's time spent during startup and shutdown and to conduct startups and shutdowns according to the manufacturer's recommended procedures or procedures specified for a boiler of similar design if manufacturer's recommended procedures are not available."

(3) If the source experiences any deviations from the applicable requirements during the reporting period, include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

(4) The total fuel use by each affected boiler subject to an emission limit, for each calendar month within the reporting period, including, but not limited to, a description of the fuel, whether the fuel has received a non-waste determination by you or EPA through a petition process to be a non-waste under §241.3(c), whether the fuel(s) were processed from discarded non-hazardous secondary materials within the meaning of §241.3, and the total fuel usage amount with units of measure.

(c) You must maintain the records specified in paragraphs (c)(1) through (7) of this section.

(1) As required in §63.10(b)(2)(xiv), you must keep a copy of each notification and report that you submitted to comply with this subpart and all documentation supporting any Initial Notification or Notification of Compliance Status that you submitted.

(2) You must keep records to document conformance with the work practices, emission reduction measures, and management practices required by §63.11214 and §63.11223 as specified in paragraphs (c)(2)(i) through (vi) of this section.

(i) Records must identify each boiler, the date of tune-up, the procedures followed for tune-up, and the manufacturer's specifications to which the boiler was tuned.

(ii) For operating units that combust non-hazardous secondary materials that have been determined not to be solid waste pursuant to §241.3(b)(1) of this chapter, you must keep a record which documents how the secondary material meets each of the legitimacy criteria under §241.3(d)(1). If you combust a fuel that has been processed from a discarded non-hazardous secondary material pursuant to §241.3(b)(4) of this chapter, you must keep records as to how the operations that produced the fuel satisfies the definition of processing in §241.2 and each of the legitimacy criteria in §241.3(d)(1) of this chapter. If the fuel received a non-waste determination pursuant to the petition process submitted under

§241.3(c) of this chapter, you must keep a record that documents how the fuel satisfies the requirements of the petition process. For operating units that combust non-hazardous secondary materials as fuel per §241.4, you must keep records documenting that the material is a listed non-waste under §241.4(a).

(iii) For each boiler required to conduct an energy assessment, you must keep a copy of the energy assessment report.

(iv) For each boiler subject to an emission limit in Table 1 to this subpart, you must keep records of monthly fuel use by each boiler, including the type(s) of fuel and amount(s) used. *For each new oil-fired boiler that meets the requirements of §63.11210*(e) *or (f), you must keep records, on a monthly basis, of the type of fuel combusted.*

(v) For each boiler that meets the definition of seasonal boiler, you must keep records of days of operation per year.

(vi) For each boiler that meets the definition of limited-use boiler, you must keep a copy of the federally enforceable permit that limits the annual capacity factor to less than or equal to 10 percent and records of fuel use for the days the boiler is operating.

(3) For sources that demonstrate compliance through fuel analysis, a copy of all calculations and supporting documentation that were done to demonstrate compliance with the mercury emission limits. Supporting documentation should include results of any fuel analyses. You can use the results from one fuel analysis for multiple boilers provided they are all burning the same fuel type.

(4) Records of the occurrence and duration of each malfunction of the boiler, or of the associated air pollution control and monitoring equipment.

(5) Records of actions taken during periods of malfunction to minimize emissions in accordance with the general duty to minimize emissions in §63.11205(a), including corrective actions to restore the malfunctioning boiler, air pollution control, or monitoring equipment to its normal or usual manner of operation.

(6) You must keep the records of all inspection and monitoring data required by §§63.11221 and 63.11222, and the information identified in paragraphs (c)(6)(i) through (vi) of this section for each required inspection or monitoring.

(i) The date, place, and time of the monitoring event.

(ii) Person conducting the monitoring.

(iii) Technique or method used.

(iv) Operating conditions during the activity.

(v) Results, including the date, time, and duration of the period from the time the monitoring indicated a problem to the time that monitoring indicated proper operation.

(vi) Maintenance or corrective action taken (if applicable).

(7) If you use a bag leak detection system, you must keep the records specified in paragraphs (c)(7)(i) through (iii) of this section.

(i) Records of the bag leak detection system output.

(ii) Records of bag leak detection system adjustments, including the date and time of the adjustment, the initial bag leak detection system settings, and the final bag leak detection system settings.

(iii) The date and time of all bag leak detection system alarms, and for each valid alarm, the time you initiated corrective action, the corrective action taken, and the date on which corrective action was completed.

(d) Your records must be in a form suitable and readily available for expeditious review. You must keep each record for 5 years following the date of each recorded action. You must keep each record on-site or be accessible from a central location by computer or other means that instantly provide access at the site for at least 2 years after the date of each recorded action. You may keep the records off site for the remaining 3 years.

(e)(1) Within 60 days after the date of completing each performance test (defined in §63.2) required by this subpart you must submit the results of the performance tests, including any associated fuel analyses, following the procedure specified in either paragraph (e)(1)(i) or (ii) of this section.

(i) For data collected using test methods supported by the EPA's Electronic Reporting Tool (ERT) as listed on the EPA's ERT Web site (*https://www3.epa.gov/ttn/chief/ert/ert_info.html*) at the time of the test, you must submit the results of the performance test to the EPA via the Compliance and Emissions Data Reporting Interface (CEDRI). (CEDRI can be accessed through the EPA's Central Data Exchange (CDX) (*https://*cdx.*epa.gov/*).) Performance test data must be submitted in a file format generated through the use of the EPA's ERT or an alternate electronic file format consistent with the extensible markup language (XML) schema listed on the EPA's ERT Web site. If you claim that some of the performance test information being submitted is confidential business information (CBI), you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(ii) For data collected using test methods that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the test, you must submit the results of the performance test to the Administrator at the appropriate address listed in §63.13.

(2) Within 60 days after the date of completing each CEMS performance evaluation (as defined in §63.2), you must submit the results of the performance evaluation following the procedure specified in either paragraph (e)(2)(i) or (ii) of this section.

(i) For performance evaluations of continuous monitoring systems measuring relative accuracy test audit (RATA) pollutants that are supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the evaluation, you must submit the results of the performance evaluation to the EPA via the CEDRI. (CEDRI can be accessed through the EPA's CDX.) Performance evaluation data must be submitted in a file format generated through the use of the EPA's ERT or an alternate file format consistent with

the XML schema listed on the EPA's ERT Web site. If you claim that some of the performance evaluation information being submitted is CBI, you must submit a complete file generated through the use of the EPA's ERT or an alternate electronic file consistent with the XML schema listed on the EPA's ERT Web site, including information claimed to be CBI, on a compact disc, flash drive, or other commonly used electronic storage media to the EPA. The electronic storage media must be clearly marked as CBI and mailed to U.S. EPA/OAQPS/CORE CBI Office, Attention: Group Leader, Measurement Policy Group, MD C404-02, 4930 Old Page Rd., Durham, NC 27703. The same ERT or alternate file with the CBI omitted must be submitted to the EPA via the EPA's CDX as described earlier in this paragraph.

(ii) For any performance evaluations of continuous monitoring systems measuring RATA pollutants that are not supported by the EPA's ERT as listed on the EPA's ERT Web site at the time of the evaluation, you must submit the results of the performance evaluation to the Administrator at the appropriate address listed in §63.13.

(f) If you intend to commence or recommence combustion of solid waste, you must provide 30 days prior notice of the date upon which you will commence or recommence combustion of solid waste. The notification must identify:

(1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that will commence burning solid waste, and the date of the notice.

(2) The currently applicable subcategory under this subpart.

(3) The date on which you became subject to the currently applicable emission limits.

(4) The date upon which you will commence combusting solid waste.

(g) *If* you have switched fuels or made a physical change to the boiler and the fuel switch or change resulted in the applicability of a different subcategory within subpart, in the boiler becoming subject to this subpart, or in the boiler switching out of this subpart due to a fuel change that results in the boiler meeting the definition of gas-fired boiler, as defined in §63.11237, or *you have taken a permit limit that resulted in you* becoming subject to this subpart or no longer *being subject to this subpart, you must provide notice of the date upon which you* switched fuels, made the physical change, or *took a permit limit within 30 days of the change. The notification must identify:*

(1) The name of the owner or operator of the affected source, the location of the source, the boiler(s) that have switched fuels, were physically changed, or *took a permit limit, and the date of the notice.*

(2) The date upon which the fuel switch, physical change, or *permit limit occurred.*

INL operates affected sources that meet the applicable criteria under §63.11225(a) (2)(4)(i-iii,v,vi),(b)(1)(2)(i,ii)(3)(4),(c)(1)(2)(i,iii,iv)(4)(5),(d),(g)(1&2)

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7511, Feb. 1, 2013; 81 FR 63127, Sept. 14, 2016]

§63.11226 [Reserved]

OTHER REQUIREMENTS AND INFORMATION

§63.11235 What parts of the General Provisions apply to me?

Table 8 to this subpart shows which parts of the General Provisions in §§63.1 through 63.15 apply to you.

INL operates affected sources that meet the applicable General Provisions required by §63.11235

§63.11236 Who implements and enforces this subpart?

INL is not subject to §63.11236 because it is not an implementing or enforcing agency for this subpart.

(a) This subpart can be implemented and enforced by EPA or an administrator such as your state, local, or tribal agency. If the EPA Administrator has delegated authority to your state, local, or tribal agency, then that agency has the authority to implement and enforce this subpart. You should contact your EPA Regional Office to find out if implementation and enforcement of this subpart is delegated to your state, local, or tribal agency.

(b) In delegating implementation and enforcement authority of this subpart to a state, local, or tribal agency under 40 CFR part 63, subpart E, the authorities contained in paragraphs (c) of this section are retained by the EPA Administrator and are not transferred to the state, local, or tribal agency.

(c) The authorities that cannot be delegated to state, local, or tribal agencies are specified in paragraphs (c)(1) through (5) of this section.

(1) Approval of an alternative non-opacity emission standard and work practice standards in §63.11223(a).

(2) Approval of alternative opacity emission standard under §63.6(h)(9).

(3) Approval of major change to test methods under §63.7(e)(2)(ii) and (f). A “major change to test method” is defined in §63.90.

(4) Approval of a major change to monitoring under §63.8(f). A “major change to monitoring” is defined in §63.90.

(5) Approval of major change to recordkeeping and reporting under §63.10(f). A “major change to recordkeeping/reporting” is defined in §63.90.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7513, Feb. 1, 2013]

§63.11237 What definitions apply to this subpart?

Terms used in this subpart are defined in the Clean Air Act, in §63.2 (the General Provisions), and in this section as follows:

10-day rolling average means the arithmetic mean of all valid hours of data from 10 successive operating days, except for periods of startup and shutdown and periods when the unit is not operating.

30-day rolling average means the arithmetic mean of all valid hours of data from 30 successive operating days, except for periods of startup and shutdown and periods when the unit is not operating.

Annual capacity factor means the ratio between the actual heat input to a boiler from the fuels burned during a calendar year and the potential heat input to the boiler had it been operated for 8,760 hours during a year at the maximum steady state design heat input capacity.

Annual heat input means the heat input for the 12 months preceding the compliance demonstration.

Bag leak detection system means a group of instruments that are capable of monitoring particulate matter loadings in the exhaust of a fabric filter (*i.e.,* baghouse) in order to detect bag failures. A bag leak detection system includes, but is not limited to, an instrument that operates on electrodynamic, triboelectric, light scattering, light transmittance, or other principle to monitor relative particulate matter loadings.

Biodiesel means a mono-alkyl ester derived from biomass and conforming to ASTM D6751-11b, Standard Specification for Biodiesel Fuel Blend Stock (B100) for Middle Distillate Fuels (incorporated by reference, see §63.14).

Biomass means any biomass-based solid fuel that is not a solid waste. This includes, but is not limited to, wood residue and wood products (e.g., trees, tree stumps, tree limbs, bark, lumber, sawdust, sander dust, chips, scraps, slabs, millings, and shavings); animal manure, including litter and other bedding materials; vegetative agricultural and silvicultural materials, such as logging residues (slash), nut and grain hulls and chaff (*e.g.,* almond, walnut, peanut, rice, and wheat), bagasse, orchard prunings, corn stalks, coffee bean hulls and grounds. This definition of biomass is not intended to suggest that these materials are or are not solid waste.

Biomass subcategory includes any boiler that burns any biomass and is not in the coal subcategory.

Boiler means an enclosed device using controlled flame combustion in which water is heated to recover thermal energy in the form of steam and/or hot water. Controlled flame combustion refers to a steady-state, or near steady-state, process wherein fuel and/or oxidizer feed rates are controlled. A device combusting solid waste, as defined in §241.3 of this chapter, is not a boiler unless the device is exempt from the definition of a solid waste incineration unit as provided in section 129(g)(1) of the Clean Air Act. Waste heat boilers, process heaters, and autoclaves are excluded from the definition of Boiler.

Boiler system means the boiler and associated components, such as, feedwater systems, combustion air systems, fuel systems (including burners), blowdown systems, combustion control systems, steam systems, and condensate return systems, directly connected to and serving the energy use systems.

Calendar year means the period between January 1 and December 31, inclusive, for a given year.

Coal means all solid fuels classifiable as anthracite, bituminous, sub-bituminous, or lignite by the American Society for Testing and Materials in ASTM D388 (incorporated by reference, see §63.14), coal refuse, and petroleum coke. For the purposes of this subpart, this definition of "coal" includes synthetic fuels derived from coal including, but not limited to, solvent-refined coal, coal-oil mixtures, and coal-water mixtures. Coal derived gases are excluded from this definition.

Coal subcategory includes any boiler that burns any solid fossil fuel and no more than 15 percent biomass on an annual heat input basis.

Commercial boiler means a boiler used in commercial establishments such as hotels, restaurants, and laundries to provide electricity, steam, and/or hot water.

Common stack means the exhaust of emissions from two or more affected units through a single flue. Affected units with a common stack may each have separate air pollution control systems located before the common stack, or may have a single air pollution control system located after the exhausts come together in a single flue.

Daily block average means the arithmetic mean of all valid emission concentrations or parameter levels recorded when a unit is operating measured over the 24-hour period from 12 a.m. (midnight) to 12 a.m. (midnight), except for periods of startup and shutdown and periods when the unit is not operating.

Deviation (1) Means any instance in which an affected source subject to this subpart, or an owner or operator of such a source:

(i) Fails to meet any applicable requirement or obligation established by this subpart including, but not limited to, any emission limit, operating limit, or work practice standard; or

(ii) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit.

(2) A deviation is not always a violation.

Distillate oil means fuel oils that contain 0.05 weight percent nitrogen or less and comply with the specifications for fuel oil numbers 1 and 2, as defined by the American Society of Testing and Materials in ASTM D396 (incorporated by reference, see §63.14) or diesel fuel oil numbers 1 and 2, as defined by the American Society for Testing and Materials in ASTM D975 (incorporated by reference, see §63.14), kerosene, and biodiesel as defined by the American Society of Testing and Materials in ASTM D6751-11b (incorporated by reference, see §63.14).

Dry scrubber means an add-on air pollution control system that injects dry alkaline sorbent (dry injection) or sprays an alkaline sorbent (spray dryer) to react with and neutralize acid gas in the exhaust stream forming a dry powder material. Sorbent injection systems used as control devices in fluidized bed boilers and process heaters are included in this definition. A dry scrubber is a dry control system.

Electric boiler means a boiler in which electric heating serves as the source of heat. Electric boilers that burn gaseous or liquid fuel during periods of electrical power curtailment or failure are included in this definition.

Electric utility steam generating unit (EGU) means a fossil fuel-fired combustion unit of more than 25 megawatts that serves a generator that produces electricity for sale. A fossil fuel-fired unit that cogenerates steam and electricity and supplies more than one-third of its potential electric output capacity and more than 25 megawatts electrical output to any utility power distribution system for sale is

considered an electric utility steam generating unit. To be “capable of combusting” fossil fuels, an EGU would need to have these fuels allowed in their operating permits and have the appropriate fuel handling facilities on-site or otherwise available (*e.g.,* coal handling equipment, including coal storage area, belts and conveyers, pulverizers, etc.; oil storage facilities). In addition, fossil fuel-fired EGU means any EGU that fired fossil fuel for more than 10.0 percent of the average annual heat input in any 3 consecutive calendar years or for more than 15.0 percent of the annual heat input during any one calendar year after April 16, 2015.

Electrostatic precipitator (ESP) means an add-on air pollution control device used to capture particulate matter by charging the particles using an electrostatic field, collecting the particles using a grounded collecting surface, and transporting the particles into a hopper. An electrostatic precipitator is usually a dry control system.

Energy assessment means the following for the emission units covered by this subpart:

(1) The energy assessment for facilities with affected boilers with less than 0.3 trillion Btu per year (TBtu/year) heat input capacity will be 8 on-site technical labor hours in length maximum, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s) and any on-site energy use system(s) accounting for at least 50 percent of the affected boiler(s) energy (e.g., steam, hot water, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities, within the limit of performing an 8-hour energy assessment.

(2) The energy assessment for facilities with affected boilers with 0.3 to 1.0 TBtu/year heat input capacity will be 24 on-site technical labor hours in length maximum, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s) and any on-site energy use system(s) accounting for at least 33 percent of the affected boiler(s) energy (e.g., steam, hot water, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities, within the limit of performing a 24-hour energy assessment.

(3) The energy assessment for facilities with affected boilers with greater than 1.0 TBtu/year heat input capacity will be up to 24 on-site technical labor hours in length for the first TBtu/year plus 8 on-site technical labor hours for every additional 1.0 TBtu/year not to exceed 160 on-site technical hours, but may be longer at the discretion of the owner or operator of the affected source. The boiler system(s) and any on-site energy use system(s) accounting for at least 20 percent of the affected boiler(s) energy (e.g., steam, hot water, or electricity) production, as applicable, will be evaluated to identify energy savings opportunities.

(4) The on-site energy use system(s) serving as the basis for the percent of affected boiler(s) energy production, as applicable, in paragraphs (1), (2), and (3) of this definition may be segmented by production area or energy use area as most logical and applicable to the specific facility being assessed (e.g., product X manufacturing area; product Y drying area; Building Z).

Energy management program means a program that includes a set of practices and procedures designed to manage energy use that are demonstrated by the facility's energy policies, a facility energy manager and other staffing responsibilities, energy performance measurement and tracking methods, an energy saving goal, action plans, operating procedures, internal reporting requirements, and periodic review intervals used at the facility. Facilities may establish their program through energy management systems compatible with ISO 50001.

Energy use system (1) Includes the following systems located on the site of the affected boiler that use energy provided by the boiler:

(i) Process heating; compressed air systems; machine drive (motors, pumps, fans); process cooling; facility heating, ventilation, and air conditioning systems; hot water systems; building envelop; and lighting; or

(ii) Other systems that use steam, hot water, process heat, or electricity, provided by the affected boiler.

(2) Energy use systems are only those systems using energy clearly produced by affected boilers.

Equivalent means the following only as this term is used in Table 5 to this subpart:

(1) An equivalent sample collection procedure means a published voluntary consensus standard or practice (VCS) or

EPA method that includes collection of a minimum of three composite fuel samples, with each composite consisting of a minimum of three increments collected at approximately equal intervals over the test period.

(2) An equivalent sample compositing procedure means a published VCS or EPA method to systematically mix and obtain a representative subsample (part) of the composite sample.

(3) An equivalent sample preparation procedure means a published VCS or EPA method that: Clearly states that the standard, practice or method is appropriate for the pollutant and the fuel matrix; or is cited as an appropriate sample preparation standard, practice or method for the pollutant in the chosen VCS or EPA determinative or analytical method.

(4) An equivalent procedure for determining heat content means a published VCS or EPA method to obtain gross calorific (or higher heating) value.

(5) An equivalent procedure for determining fuel moisture content means a published VCS or EPA method to obtain moisture content. If the sample analysis plan calls for determining mercury using an aliquot of the dried sample, then the drying temperature must be modified to prevent vaporizing this metal. On the other hand, if metals analysis is done on an “as received” basis, a separate aliquot can be dried to determine moisture content and the mercury concentration mathematically adjusted to a dry basis.

(6) An equivalent mercury determinative or analytical procedure means a published VCS or EPA method that clearly states that the standard, practice, or method is appropriate for mercury and the fuel matrix and has a published detection limit equal or lower than the methods listed in Table 5 to this subpart for the same purpose.

Fabric filter means an add-on air pollution control device used to capture particulate matter by filtering gas streams through filter media, also known as a baghouse. A fabric filter is a dry control system.

Federally enforceable means all limitations and conditions that are enforceable by the EPA Administrator, including, but not limited to, the requirements of 40 CFR parts 60, 61, 63, and 65, requirements within any applicable state implementation plan, and any permit requirements established under 40 CFR 52.21 or under 40 CFR 51.18 and 40 CFR 51.24.

Fluidized bed boiler means a boiler utilizing a fluidized bed combustion process that is not a pulverized coal boiler.

Fluidized bed combustion means a process where a fuel is burned in a bed of granulated particles, which are maintained in a mobile suspension by the forward flow of air and combustion products.

Fossil fuel means natural gas, oil, coal, and any form of solid, liquid, or gaseous fuel derived from such material.

Fuel type means each category of fuels that share a common name or classification. Examples include, but are not limited to, bituminous coal, sub-bituminous coal, lignite, anthracite, biomass, distillate oil, residual oil. Individual fuel types received from different suppliers are not considered new fuel types.

Gaseous fuels includes, but is not limited to, natural gas, process gas, landfill gas, coal derived gas, refinery gas, hydrogen, and biogas.

Gas-fired boiler includes any boiler that burns gaseous fuels not combined with any solid fuels and burns liquid fuel only during periods of gas curtailment, gas supply interruption, startups, or periodic testing, maintenance, or operator training on liquid fuel. Periodic testing, maintenance, or operator training on liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Heat input means heat derived from combustion of fuel in a boiler and does not include the heat input from preheated combustion air, recirculated flue gases, returned condensate, or exhaust gases from other sources such as gas turbines, internal combustion engines, kilns.

Hot water heater means a closed vessel with a capacity of no more than 120 U.S. gallons in which water is heated by combustion of gaseous, liquid, or biomass fuel and hot water is withdrawn for use external to the vessel. Hot water boilers (i.e., not generating steam) combusting gaseous, liquid, or biomass fuel with a heat input capacity of less than 1.6 million Btu per hour are included in this definition. The 120 U.S. gallon capacity threshold to be considered a hot water heater is independent of the 1.6 million Btu per hour heat input capacity threshold for hot water boilers. Hot water heater also means a tankless unit that provides on-demand hot water.

Hourly average means the arithmetic average of at least four CMS data values representing the four 15-minute periods in an hour, or at least two 15-minute data values during an hour when CMS calibration, quality assurance, or maintenance activities are being performed.

Industrial boiler means a boiler used in manufacturing, processing, mining, and refining or any other industry to provide steam, hot water, and/or electricity.

Institutional boiler means a boiler used in institutional establishments such as, but not limited to, medical centers, nursing homes, research centers, institutions of higher education, elementary and secondary schools, libraries, religious establishments, and governmental buildings to provide electricity, steam, and/or hot water.

Limited-use boiler means any boiler that burns any amount of solid or liquid fuels and has a federally enforceable average annual capacity factor of no more than 10 percent.

Liquid fuel includes, but is not limited to, distillate oil, residual oil, any form of liquid fuel derived from petroleum, used oil meeting the specification in 40 CFR 279.11, liquid biofuels, biodiesel, and vegetable oil.

Load fraction means the actual heat input of a boiler divided by heat input during the performance test that established the minimum sorbent injection rate or minimum activated carbon injection rate, expressed as a fraction (*e.g.,* for 50 percent load the load fraction is 0.5). For boilers that co-fire natural

gas with a solid or liquid fuel, the load fraction is determined by the actual heat input of the solid or liquid fuel divided by heat input of the solid or liquid fuel fired during the performance test (*e.g.,* if the performance test was conducted at 100 percent solid fuel firing, for 100 percent load firing 50 percent solid fuel and 50 percent natural gas, the load fraction is 0.5).

Minimum activated carbon injection rate means load fraction multiplied by the lowest hourly average activated carbon injection rate measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limit.

Minimum oxygen level means the lowest hourly average oxygen level measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable carbon monoxide emission limit.

Minimum scrubber liquid flow rate means the lowest hourly average scrubber liquid flow rate (*e.g.,* to the particulate matter scrubber) measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limit.

Minimum scrubber pressure drop means the lowest hourly average scrubber pressure drop measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limit.

Minimum sorbent injection rate means:

(1) The load fraction multiplied by the lowest hourly average sorbent injection rate for each sorbent measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limits; or

(2) For fluidized bed combustion, the lowest average ratio of sorbent to sulfur measured during the most recent performance test.

Minimum total secondary electric power means the lowest hourly average total secondary electric power determined from the values of secondary voltage and secondary current to the electrostatic precipitator measured according to Table 6 to this subpart during the most recent performance stack test demonstrating compliance with the applicable emission limits.

Natural gas means:

(1) A naturally occurring mixture of hydrocarbon and nonhydrocarbon gases found in geologic formations beneath the earth's surface, of which the principal constituent is methane; or

(2) Liquefied petroleum gas, as defined by the American Society for Testing and Materials in ASTM D1835 (incorporated by reference, see §63.14); or

(3) A mixture of hydrocarbons that maintains a gaseous state at ISO conditions (i.e., a temperature of 288 Kelvin, a relative humidity of 60 percent, and a pressure of 101.3 kilopascals). Additionally, natural gas must either be composed of at least 70 percent methane by volume or have a gross calorific value between 35 and 41 megajoules (MJ) per dry standard cubic meter (950 and 1,100 Btu per dry standard cubic foot); or

(4) Propane or propane-derived synthetic natural gas. Propane means a colorless gas derived from petroleum and natural gas, with the molecular structure C_3H_8.

Oil subcategory includes any boiler that burns any liquid fuel and is not in either the biomass or coal subcategories. Gas-fired boilers that burn liquid fuel only during periods of gas curtailment, gas supply interruptions, startups, or for periodic testing are not included in this definition. Periodic testing on liquid fuel shall not exceed a combined total of 48 hours during any calendar year.

Opacity means the degree to which emissions reduce the transmission of light and obscure the view of an object in the background.

Operating day means a 24-hour period between 12 midnight and the following midnight during which any fuel is combusted at any time in the boiler unit. It is not necessary for fuel to be combusted for the entire 24-hour period.

Oxygen analyzer system means all equipment required to determine the oxygen content of a gas stream and used to monitor oxygen in the boiler flue gas, boiler firebox, or other appropriate intermediate location. This definition includes oxygen trim systems.

Oxygen trim system means a system of monitors that is used to maintain excess air at the desired level in a combustion device. over its operating load range. A typical system consists of a flue gas oxygen and/or carbon monoxide monitor that automatically provides a feedback signal to the combustion air controller or draft controller.

Particulate matter (PM) means any finely divided solid or liquid material, other than uncombined water, as measured by the test methods specified under this subpart, or an approved alternative method.

Performance testing means the collection of data resulting from the execution of a test method used (either by stack testing or fuel analysis) to demonstrate compliance with a relevant emission standard.

Period of gas curtailment or supply interruption means a period of time during which the supply of gaseous fuel to an affected boiler is restricted or halted for reasons beyond the control of the facility. The act of entering into a contractual agreement with a supplier of natural gas established for curtailment purposes does not constitute a reason that is under the control of a facility for the purposes of this definition. An increase in the cost or unit price of natural gas due to normal market fluctuations not during periods of supplier delivery restriction does not constitute a period of natural gas curtailment or supply interruption. On-site gaseous fuel system emergencies or equipment failures qualify as periods of supply interruption when the emergency or failure is beyond the control of the facility.

Process heater means an enclosed device using controlled flame, and the unit's primary purpose is to transfer heat indirectly to a process material (liquid, gas, or solid) or to a heat transfer material (e.g., glycol or a mixture of glycol and water) for use in a process unit, instead of generating steam. Process heaters are devices in which the combustion gases do not come into direct contact with process materials. Process heaters include units that heat water/water mixtures for pool heating, sidewalk heating, cooling tower water heating, power washing, or oil heating.

Qualified energy assessor means:

(1) Someone who has demonstrated capabilities to evaluate energy savings opportunities for steam generation and major energy using systems, including, but not limited to:

(i) Boiler combustion management.

(ii) Boiler thermal energy recovery, including

(A) Conventional feed water economizer,

(B) Conventional combustion air preheater, and

(C) Condensing economizer.

(iii) Boiler blowdown thermal energy recovery.

(iv) Primary energy resource selection, including

(A) Fuel (primary energy source) switching, and

(B) Applied steam energy versus direct-fired energy versus electricity.

(v) Insulation issues.

(vi) Steam trap and steam leak management.

(vii) Condensate recovery.

(viii) Steam end-use management.

(2) Capabilities and knowledge includes, but is not limited to:

(i) Background, experience, and recognized abilities to perform the assessment activities, data analysis, and report preparation.

(ii) Familiarity with operating and maintenance practices for steam or process heating systems.

(iii) Additional potential steam system improvement opportunities including improving steam turbine operations and reducing steam demand.

(iv) Additional process heating system opportunities including effective utilization of waste heat and use of proper process heating methods.

(v) Boiler-steam turbine cogeneration systems.

(vi) Industry specific steam end-use systems.

Regulated gas stream means an offgas stream that is routed to a boiler for the purpose of achieving compliance with a standard under another subpart of this part or part 60, part 61, or part 65 of this chapter.

Residential boiler means a boiler used to provide heat and/or hot water and/or as part of a residential combined heat and power system. This definition includes boilers located at an institutional facility (*e.g.,* university campus, military base, church grounds) or commercial/industrial facility (*e.g.,* farm) used primarily to provide heat and/or hot water for:

(1) A dwelling containing four or fewer families, or

(2) A single unit residence dwelling that has since been converted or subdivided into condominiums or apartments.

Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6, as defined by the American Society of Testing and Materials in ASTM D396-10 (incorporated by reference, see §63.14(b)).

Responsible official means responsible official as defined in §70.2.

Seasonal boiler means a boiler that undergoes a shutdown for a period of at least 7 consecutive months (or 210 consecutive days) each 12-month period due to seasonal conditions, except for periodic testing. Periodic testing shall not exceed a combined total of 15 days during the 7-month shutdown. This definition only applies to boilers that would otherwise be included in the biomass subcategory or the oil subcategory.

Shutdown means the period in which cessation of operation of a boiler is initiated for any purpose. Shutdown begins when the boiler no longer supplies useful thermal energy (such as steam or hot water) for heating, cooling, or process purposes or generates electricity, or when no fuel is being fed to the boiler, whichever is earlier. Shutdown ends when the boiler no longer supplies useful thermal energy (such as steam or hot water) for heating, cooling, or process purposes or generates electricity, and no fuel is being combusted in the boiler.

Solid fossil fuel includes, but is not limited to, coal, coke, petroleum coke, and tire-derived fuel.

Solid fuel means any solid fossil fuel or biomass or bio-based solid fuel.

Startup means:

(1) Either *the first-ever firing of fuel in a boiler for the purpose of supplying* useful thermal energy (such as *steam or* hot water) *for heating and/or producing electricity, or for any other purpose, or the firing of fuel in a boiler after a shutdown event for any purpose. Startup ends when any of the* useful thermal energy (such as *steam or* hot water) *from the boiler is supplied for heating and/or producing electricity, or for any other purpose,* or

(2) The period in which operation of a boiler is initiated for any purpose. Startup begins with either the first-ever firing of fuel in a boiler for the purpose of supplying useful thermal energy (such as steam or hot water) for heating, cooling or process purposes or producing electricity, or the firing of fuel in a boiler for any purpose after a shutdown event. Startup ends 4 hours after when the boiler supplies useful thermal energy (such as steam or hot water) for heating, cooling, or process purposes or generates electricity, whichever is earlier.

Temporary boiler means any gaseous or liquid fuel boiler that is designed to, and is capable of, being carried or moved from one location to another by means of, for example, wheels, skids, carrying handles, dollies, trailers, or platforms. A boiler is not a temporary boiler if any one of the following conditions exists:

(1) The equipment is attached to a foundation.

(2) The boiler or a replacement remains at a location within the facility and performs the same or similar function for more than 12 consecutive months, unless the regulatory agency approves an extension. An extension may be granted by the regulating agency upon petition by the owner or operator of a unit specifying the basis for such a request. Any temporary boiler that replaces a temporary boiler at

a location within the facility and performs the same or similar function will be included in calculating the consecutive time period unless there is a gap in operation of 12 months or more.

(3) The equipment is located at a seasonal facility and operates during the full annual operating period of the seasonal facility, remains at the facility for at least 2 years, and operates at that facility for at least 3 months each year.

(4) The equipment is moved from one location to another within the facility but continues to perform the same or similar function and serve the same electricity, steam, and/or hot water system in an attempt to circumvent the residence time requirements of this definition.

Tune-up means adjustments made to a boiler in accordance with the procedures outlined in §63.11223(b).

Ultra-low-sulfur liquid fuel means a distillate oil that has less than or equal to 15 parts per million (ppm) sulfur.

Useful thermal energy means energy (i.e., steam or hot water) that meets the minimum operating temperature, flow, and/or pressure required by any energy use system that uses energy provided by the affected boiler.

Vegetable oil means oils extracted from vegetation.

Voluntary Consensus Standards (VCS) mean technical standards (e.g., materials specifications, test methods, sampling procedures, business practices) developed or adopted by one or more voluntary consensus bodies. EPA/Office of Air Quality Planning and Standards, by precedent, has only used VCS that are written in English. Examples of VCS bodies are: American Society of Testing and Materials (ASTM 100 Barr Harbor Drive, P.O. Box CB700, West Conshohocken, Pennsylvania 19428-B2959, (800) 262-1373, http://www.astm.org), American Society of Mechanical Engineers (ASME, Three Park Avenue, New York, NY 10016-5990, (800) 843-2763, http://www.asme.org), International Standards Organization (ISO 1, ch. de la Voie-Creuse, Case postale 56, CH-1211 Geneva 20, Switzerland, +41 22 749 01 11, http://www.iso.org/iso/home.htm), Standards Australia (AS Level 10, The Exchange Centre, 20 Bridge Street, Sydney, GPO Box 476, Sydney NSW 2001, + 61 2 9237 6171 http://www.standards.org.au), British Standards Institution (BSI, 389 Chiswick High Road, London, W4 4AL, United Kingdom, +44 (0)20 8996 9001, http://www.bsigroup.com), Canadian Standards Association (CSA 5060 Spectrum Way, Suite 100, Mississauga, Ontario L4W 5N6, Canada, 800-463-6727, http://www.csa.ca), European Committee for Standardization (CEN CENELEC Management Centre Avenue Marnix 17 B-1000 Brussels, Belgium +32 2 550 08 11, http://www.cen.eu/cen), and German Engineering Standards (VDI Guidelines Department, P.O. Box 10 11 39 40002, Duesseldorf, Germany, +49 211 6214-230, http://www.vdi.eu). The types of standards that are not considered VCS are standards developed by: the United States, e.g., California Air Resources Board (CARB) and Texas Commission on Environmental Quality (TCEQ); industry groups, such as American Petroleum Institute (API), Gas Processors Association (GPA), and Gas Research Institute (GRI); and other branches of the U.S. Government, e.g., Department of Defense (DOD) and Department of Transportation (DOT). This does not preclude EPA from using standards developed by groups that are not VCS bodies within their rule. When this occurs, EPA has done searches and reviews for VCS equivalent to these non-EPA methods.

Waste heat boiler means a device that recovers normally unused energy (*i.e.,* hot exhaust gas) and converts it to usable heat. Waste heat boilers are also referred to as heat recovery steam generators. Waste heat boilers are heat exchangers generating steam from incoming hot exhaust gas from an industrial (*e.g.,* thermal oxidizer, kiln, furnace) or power (*e.g.,* combustion turbine, engine) equipment. Duct burners are sometimes used to increase the temperature of the incoming hot exhaust gas.

Wet scrubber means any add-on air pollution control device that mixes an aqueous stream or slurry with the exhaust gases from a boiler to control emissions of particulate matter or to absorb and neutralize acid gases, such as hydrogen chloride. A wet scrubber creates an aqueous stream or slurry as a byproduct of the emissions control process.

Work practice standard means any design, equipment, work practice, or operational standard, or combination thereof, which is promulgated pursuant to section 112(h) of the Clean Air Act.

INL has read and understands these definitions and used them in providing this regulatory analysis. For this regulatory analysis, §60.111237 definitions underlined are for those definitions that specifically apply to INL boiler operations.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7513, Feb. 1, 2013; 81 FR 63128, Sept. 14, 2016]

Table 1 to Subpart JJJJJJ of Part 63—Emission Limits

Existing INL boilers are not subject to the requirements of Table 1 because they are not subject to §63.11201(a).

New INL boilers are not subject to Table 1 because they comply with §63.11210(e).

As stated in §63.11201, you must comply with the following applicable emission limits:

If your boiler is in this subcategory . . .	For the following pollutants . . .	You must achieve less than or equal to the following emission limits, except during periods of startup and shutdown . . .
1. New coal-fired boilers with heat input capacity of 30 million British thermal units per hour (MMBtu/hr) or greater that do not meet the definition of limited-use boiler	a. PM (Filterable) b. Mercury c. CO	3.0E-02 pounds(lb) per million British thermal units (MMBtu) of heat input. 2.2E-05 lb per MMBtu of heat input. 420 parts per million (ppm) by volume on a dry basis corrected to 3 percent oxygen (3-run average or 10-day rolling average).
2. New coal-fired boilers with heat input capacity of between 10 and 30 MMBtu/hr that do not meet the definition of limited-use boiler	a. PM (Filterable) b. Mercury c. CO	4.2E-01 lb per MMBtu of heat input. 2.2E-05 lb per MMBtu of heat input. 420 ppm by volume on a dry basis corrected to 3 percent oxygen (3-run average or 10-day rolling average).
3. New biomass-fired boilers with heat input capacity of 30 MMBtu/hr or greater that do not meet the definition of seasonal boiler or limited-use boiler	PM (Filterable)	3.0E-02 lb per MMBtu of heat input.
4. New biomass fired boilers with heat input capacity of between 10 and 30 MMBtu/hr that do not meet the definition of seasonal boiler or limited-use boiler	PM (Filterable)	7.0E-02 lb per MMBtu of heat input.
5. New oil-fired boilers with heat input capacity of 10 MMBtu/hr or greater that do not meet the definition of seasonal boiler or limited-use boiler	PM (Filterable)	3.0E-02 lb per MMBtu of heat input.

6. Existing coal-fired boilers with heat input capacity of 10 MMBtu/hr or greater that do not meet the definition of limited-use boiler	a. Mercury b. CO	2.2E-05 lb per MMBtu of heat input. 420 ppm by volume on a dry basis corrected to 3 percent oxygen (3-run average or 10-day rolling average).

[78 FR 7517, Feb. 1, 2013, as amended at 81 FR 63130, Sept. 14, 2016]

Table 2 to Subpart JJJJJJ of Part 63—Work Practice Standards, Emission Reduction Measures, and Management Practices

As stated in §63.11201, you must comply with the following applicable work practice standards, emission reduction measures, and management practices:

If your boiler is in this subcategory . . .	**You must meet the following . . .**
1. Existing or new coal-fired, new biomass-fired, or *new oil-fired boilers (units with heat input capacity of 10 MMBtu/hr or greater)*	*Minimize the boiler's startup and shutdown periods and conduct startups and shutdowns according to the manufacturer's recommended procedures. If manufacturer's recommended procedures are not available, you must follow recommended procedures for a unit of similar design for which manufacturer's recommended procedures are available.*
2. Existing coal-fired boilers with heat input capacity of less than 10 MMBtu/hr that do not meet the definition of limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler biennially as specified in §63.11223.
3. New coal-fired boilers with heat input capacity of less than 10 MMBtu/hr that do not meet the definition of limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct a tune-up of the boiler biennially as specified in §63.11223.
4. Existing oil-fired boilers with heat input capacity greater than 5 MMBtu/hr that do not meet the definition of seasonal boiler or limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler biennially as specified in §63.11223.
5. New oil-fired boilers with heat input capacity greater than 5 MMBtu/hr that do not meet the definition of seasonal boiler or limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct a tune-up of the boiler biennially as specified in §63.11223.
6. Existing biomass-fired boilers that do not meet the definition of seasonal boiler or limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler biennially as specified in §63.11223.

7. New biomass-fired boilers that do not meet the definition of seasonal boiler or limited-use boiler, or use an oxygen trim system that maintains an optimum air-to-fuel ratio	Conduct a tune-up of the boiler biennially as specified in §63.11223.
8. Existing seasonal boilers	Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler every 5 years as specified in §63.11223.
9. New seasonal boilers	Conduct a tune-up of the boiler every 5 years as specified in §63.11223.
10. Existing limited-use boilers	Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler every 5 years as specified in §63.11223.
11. New limited-use boilers	Conduct a tune-up of the boiler every 5 years as specified in §63.11223.
12. Existing oil-fired boilers with heat input capacity of equal to or less than 5 MMBtu/hr	*Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler every 5 years as specified in §63.11223.*
13. New oil-fired boilers with heat input capacity of equal to or less than 5 MMBtu/hr	Conduct a tune-up of the boiler every 5 years as specified in §63.11223.
14. Existing coal-fired, biomass-fired, or *oil-fired boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up*	*Conduct an initial tune-up as specified in §63.11214, and conduct a tune-up of the boiler every 5 years as specified in §63.11223.*
15. New coal-fired, biomass-fired, or *oil-fired boilers with an oxygen trim system that maintains an optimum air-to-fuel ratio that would otherwise be subject to a biennial tune-up*	*Conduct a tune-up of the boiler every 5 years as specified in §63.11223.*
16. Existing coal-fired, biomass-fired, or *oil-fired boilers (units with heat input capacity of 10 MMBtu/hr and greater), not including limited-use boilers*	*Must have a one-time energy assessment performed by a qualified energy assessor. An energy assessment completed on or after January 1, 2008, that meets or is amended to meet the energy assessment requirements in this table satisfies the energy assessment requirement. Energy assessor approval and qualification requirements are waived in instances where past or amended energy assessments are used to meet the energy assessment requirements. A facility that operatesoperated under an energy management program developed according to the ENERGY STAR guidelines for energy management or compatible with ISO 50001 for at least 1 year between January 1, 2008, and the compliance date specified in §63.11196 that includes the affected units also satisfies the energy assessment requirement. The energy assessment must include the following with extent of the evaluation for items (1) to (4) appropriate for the on-site technical hours listed in §63.11237:*

	(1) A visual inspection of the boiler system,
	(2) An evaluation of operating characteristics of the affected boiler systems, specifications of energy use systems, operating and maintenance procedures, and unusual operating constraints,
	(3) An inventory of major energy use systems consuming energy from affected boiler(s) and which are under control of the boiler owner or operator,
	(4) A review of available architectural and engineering plans, facility operation and maintenance procedures and logs, and fuel usage,
	(5) A list of major energy conservation measures that are within the facility's control,
	(6) A list of the energy savings potential of the energy conservation measures identified, and
	(7) A comprehensive report detailing the ways to improve efficiency, the cost of specific improvements, benefits, and the time frame for recouping those investments.

[78 FR 7518, Feb. 1, 2013, as amended at 81 FR 63129, Sept. 14, 2016]

INL is subject to the requirements of Table 2 standards and management practices 1, 12, 14, 15, and 16 because it is subject to §63.11214, §63.11223, and §63.11237.

Table 3 to Subpart JJJJJJ of Part 63—Operating Limits for Boilers With Emission Limits

INL is not subject to the requirements of Table 3 because it is not subject to §63.11201(a).

As stated in §63.11201, you must comply with the applicable operating limits:

If you demonstrate compliance with applicable emission limits using . . .	**You must meet these operating limits except during periods of startup and shutdown . . .**
1. Fabric filter control	a. Maintain opacity to less than or equal to 10 percent opacity (daily block average); OR b. Install and operate a bag leak detection system according to §63.11224 and operate the fabric filter such that the bag leak detection system alarm does not sound more than 5 percent of the operating time during each 6-month period.
2. Electrostatic precipitator control	a. Maintain opacity to less than or equal to 10 percent opacity (daily block average); OR b. Maintain the 30-day rolling average total secondary electric power of the electrostatic precipitator at or above the minimum total secondary electric power as defined in §63.11237.

3. Wet scrubber control	Maintain the 30-day rolling average pressure drop across the wet scrubber at or above the minimum scrubber pressure drop as defined in §63.11237 and the 30-day rolling average liquid flow rate at or above the minimum scrubber liquid flow rate as defined in §63.11237.
4. Dry sorbent or activated carbon injection control	Maintain the 30-day rolling average sorbent or activated carbon injection rate at or above the minimum sorbent injection rate or minimum activated carbon injection rate as defined in §63.11237. When your boiler operates at lower loads, multiply your sorbent or activated carbon injection rate by the load fraction (*e.g.,* actual heat input divided by the heat input during the performance stack test; for 50 percent load, multiply the injection rate operating limit by 0.5).
5. Any other add-on air pollution control type.	This option is for boilers that operate dry control systems. Boilers must maintain opacity to less than or equal to 10 percent opacity (daily block average).
6. Fuel analysis	Maintain the fuel type or fuel mixture (annual average) such that the mercury emission rate calculated according to §63.11211(c) are less than the applicable emission limit for mercury.
7. Performance stack testing	For boilers that demonstrate compliance with a performance stack test, maintain the operating load of each unit such that it does not exceed 110 percent of the average operating load recorded during the most recent performance stack test.
8. Oxygen analyzer system	For boilers subject to a CO emission limit that demonstrate compliance with an oxygen analyzer system as specified in §63.11224(a), maintain the 30-day rolling average oxygen level at or above the minimum oxygen level as defined in §63.11237. This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in §63.11224(a)(7).

[78 FR 7519, Feb. 1, 2013]

Table 4 to Subpart JJJJJJ of Part 63—Performance (Stack) Testing Requirements

INL is not subject to the requirements of Table 4 because it is not subject to §63.11212.

As stated in §63.11212, you must comply with the following requirements for performance (stack) test for affected sources:

To conduct a performance test for the following pollutant. . .	**You must. . .**	**Using. . .**
1. Particulate Matter	a. Select sampling ports location and the number of traverse points	Method 1 in appendix A-1 to part 60 of this chapter.
	b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2F, or 2G in appendix A-2 to part 60 of this chapter.

	c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or ASTM D6522-00 (Reapproved 2005),[a] or ANSI/ASME PTC 19.10-1981.[a]
	d. Measure the moisture content of the stack gas	Method 4 in appendix A-3 to part 60 of this chapter.
	e. Measure the particulate matter emission concentration	Method 5 or 17 (positive pressure fabric filters must use Method 5D) in appendix A-3 and A-6 to part 60 of this chapter and a minimum 1 dscm of sample volume per run.
	f. Convert emissions concentration to lb/MMBtu emission rates	Method 19 F-factor methodology in appendix A-7 to part 60 of this chapter.
2. Mercury	a. Select sampling ports location and the number of traverse points	Method 1 in appendix A-1 to part 60 of this chapter.
	b. Determine velocity and volumetric flow-rate of the stack gas	Method 2, 2F, or 2G in appendix A-2 to part 60 of this chapter.
	c. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or ASTM D6522-00 (Reapproved 2005),[a] or ANSI/ASME PTC 19.10-1981.[a]
	d. Measure the moisture content of the stack gas	Method 4 in appendix A-3 to part 60 of this chapter.
	e. Measure the mercury emission concentration	Method 29, 30A, or 30B in appendix A-8 to part 60 of this chapter or Method 101A in appendix B to part 61 of this chapter or ASTM Method D6784-02.[a] Collect a minimum 2 dscm of sample volume with Method 29 of 101A per run. Use a minimum run time of 2 hours with Method 30A.
	f. Convert emissions concentration to lb/MMBtu emission rates	Method 19 F-factor methodology in appendix A-7 to part 60 of this chapter.
3. Carbon Monoxide	a. Select the sampling ports location and the number of traverse points	Method 1 in appendix A-1 to part 60 of this chapter.
	b. Determine oxygen and carbon dioxide concentrations of the stack gas	Method 3A or 3B in appendix A-2 to part 60 of this chapter, or ASTM D6522-00 (Reapproved 2005),[a] or ANSI/ASME PTC 19.10-1981.[a]
	c. Measure the moisture content of the stack gas	Method 4 in appendix A-3 to part 60 of this chapter.

	d. Measure the carbon monoxide emission concentration	Method 10, 10A, or 10B in appendix A-4 to part 60 of this chapter or ASTM D6522-00 (Reapproved 2005)[a] and a minimum 1 hour sampling time per run.

[a]Incorporated by reference, see §63.14.

Table 5 to Subpart JJJJJJ of Part 63—Fuel Analysis Requirements

INL is not subject to the requirements of Table 5 because it is not subject to §63.11213.

As stated in §63.11213, you must comply with the following requirements for fuel analysis testing for affected sources:

To conduct a fuel analysis for the following pollutant . . .	**You must. . .**	**Using . . .**
1. Mercury	a. Collect fuel samples	Procedure in §63.11213(b) or ASTM D2234/D2234M[a] (for coal) or ASTM D6323[a] (for biomass) or equivalent.
	b. Compose fuel samples	Procedure in §63.11213(b) or equivalent.
	c. Prepare composited fuel samples	EPA SW-846-3050B[a] (for solid samples) or EPA SW-846-3020A[a] (for liquid samples) or ASTM D2013/D2013M[a] (for coal) or ASTM D5198[a] (for biomass) or equivalent.
	d. Determine heat content of the fuel type	ASTM D5865[a] (for coal) or ASTM E711[a] (for biomass) or equivalent.
	e. Determine moisture content of the fuel type	ASTM D3173[a] or ASTM E871[a] or equivalent.
	f. Measure mercury concentration in fuel sample	ASTM D6722[a] (for coal) or EPA SW-846-7471B[a] (for solid samples) or EPA SW-846-7470A[a] (for liquid samples) or equivalent.
	g. Convert concentrations into units of lb/MMBtu of heat content	

[a]Incorporated by reference, see §63.14.

Table 6 to Subpart JJJJJJ of Part 63—Establishing Operating Limits

INL is not subject to the requirements of Table 6 because it is not subject to §63.11211.

As stated in §63.11211, you must comply with the following requirements for establishing operating limits:

If you have an applicable emission limit for . . .	**And your operating limits are based on . . .**	**You must . . .**	**Using . . .**	**According to the following requirements**

1. PM or mercury	a. Wet scrubber operating parameters	Establish site-specific minimum scrubber pressure drop and minimum scrubber liquid flow rate operating limits according to §63.11211(b)	Data from the pressure drop and liquid flow rate monitors and the PM or mercury performance stack tests	(a) You must collect pressure drop and liquid flow rate data every 15 minutes during the entire period of the performance stack tests;
				(b) Determine the average pressure drop and liquid flow rate for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run.
	b. Electrostatic precipitator operating parameters	Establish a site-specific minimum total secondary electric power operating limit according to §63.11211(b)	Data from the secondary electric power monitors and the PM or mercury performance stack tests	(a) You must collect secondary electric power data every 15 minutes during the entire period of the performance stack tests;
				(b) Determine the average total secondary electric power for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run.
2. Mercury	Dry sorbent or activated carbon injection rate operating parameters	Establish a site-specific minimum sorbent or activated carbon injection rate operating limit according to §63.11211(b)	Data from the sorbent or activated carbon injection rate monitors and the mercury performance stack tests	(a) You must collect sorbent or activated carbon injection rate data every 15 minutes during the entire period of the performance stack tests;
				(b) Determine the average sorbent or activated carbon injection rate for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run.
				(c) When your unit operates at lower loads, multiply your sorbent or activated carbon

				injection rate by the load fraction, as defined in §63.11237, to determine the required injection rate.
3. CO	Oxygen	Establish a unit-specific limit for minimum oxygen level	Data from the oxygen analyzer system specified in §63.11224(a)	(a) You must collect oxygen data every 15 minutes during the entire period of the performance stack tests;
				(b) Determine the average hourly oxygen concentration for each individual test run in the three-run performance stack test by computing the average of all the 15-minute readings taken during each test run.
4. Any pollutant for which compliance is demonstrated by a performance stack test	Boiler operating load	Establish a unit-specific limit for maximum operating load according to §63.11212(c)	Data from the operating load monitors (fuel feed monitors or steam generation monitors)	(a) You must collect operating load data (fuel feed rate or steam generation data) every 15 minutes during the entire period of the performance test.
				(b) Determine the average operating load by computing the hourly averages using all of the 15-minute readings taken during each performance test.
				(c) Determine the average of the three test run averages during the performance test, and multiply this by 1.1 (110 percent) as your operating limit.

[78 FR 7520, Feb. 1, 2013, as amended at 81 FR 63130, Sept. 14, 2016]

Table 7 to Subpart JJJJJJ of Part 63—Demonstrating Continuous Compliance

INL is not subject to the requirements of Table 7 because it is not subject to §63.11222.

As stated in §63.11222, you must show continuous compliance with the emission limitations for affected sources according to the following:

If you must meet the following operating limits . . .	**You must demonstrate continuous compliance by . . .**
1. Opacity	a. Collecting the opacity monitoring system data according to §63.11224(e) and §63.11221; and
	b. Reducing the opacity monitoring data to 6-minute averages; and
	c. Maintaining opacity to less than or equal to 10 percent (daily block average).
2. Fabric Filter Bag Leak Detection Operation	Installing and operating a bag leak detection system according to §63.11224(f) and operating the fabric filter such that the requirements in §63.11222(a)(4) are met.
3. Wet Scrubber Pressure Drop and Liquid Flow Rate	a. Collecting the pressure drop and liquid flow rate monitoring system data according to §§63.11224 and 63.11221; and
	b. Reducing the data to 30-day rolling averages; and
	c. Maintaining the 30-day rolling average pressure drop and liquid flow rate at or above the minimum pressure drop and minimum liquid flow rate according to §63.11211.
4. Dry Scrubber Sorbent or Activated Carbon Injection Rate	a. Collecting the sorbent or activated carbon injection rate monitoring system data for the dry scrubber according to §§63.11224 and 63.11221; and
	b. Reducing the data to 30-day rolling averages; and
	c. Maintaining the 30-day rolling average sorbent or activated carbon injection rate at or above the minimum sorbent or activated carbon injection rate according to §63.11211.
5. Electrostatic Precipitator Total Secondary Electric Power	a. Collecting the total secondary electric power monitoring system data for the electrostatic precipitator according to §§63.11224 and 63.11221; and
	b. Reducing the data to 30-day rolling averages; and
	c. Maintaining the 30-day rolling average total secondary electric power at or above the minimum total secondary electric power according to §63.11211.
6. Fuel Pollutant Content	a. Only burning the fuel types and fuel mixtures used to demonstrate compliance with the applicable emission limit according to §63.11213 as applicable; and
	b. Keeping monthly records of fuel use according to §§63.11222(a)(2) and 63.11225(b)(4).
7. Oxygen content	a. Continuously monitoring the oxygen content of flue gas according to §63.11224 (This requirement does not apply to units that install an oxygen trim system since these units will set the trim system to the level specified in §63.11224(a)(7)); and
	b. Reducing the data to 30-day rolling averages; and

	c. Maintaining the 30-day rolling average oxygen content at or above the minimum oxygen level established during the most recent CO performance test.
8. CO emissions	a. Continuously monitoring the CO concentration in the combustion exhaust according to §§63.11224 and 63.11221; and
	b. Correcting the data to 3 percent oxygen, and reducing the data to 1-hour averages; and
	c. Reducing the data from the hourly averages to 10-day rolling averages; and
	d. Maintaining the 10-day rolling average CO concentration at or below the applicable emission limit in Table 1 to this subpart.
9. Boiler operating load	a. Collecting operating load data (fuel feed rate or steam generation data) every 15 minutes; and
	b. Reducing the data to 30-day rolling averages; and
	c. Maintaining the 30-day rolling average at or below the operating limit established during the performance test according to §63.11212(c) and Table 6 to this subpart.

[78 FR 7521, Feb. 1, 2013]

Table 8 to Subpart JJJJJJ of Part 63—Applicability of General Provisions to Subpart JJJJJJ

As stated in §63.11235, you must comply with the applicable General Provisions according to the following:

General provisions cite	Subject	Does it apply?
§63.1	*Applicability*	*Yes.*
§63.2	*Definitions*	*Yes. Additional terms defined in §63.11237.*
§63.3	*Units and Abbreviations*	*Yes.*
§63.4	*Prohibited Activities and Circumvention*	*Yes.*
§63.5	Preconstruction Review and Notification Requirements	No
§63.6(a), (b)(1)-(b)(5), (b)(7), *(c),* (f)(2)-(3), (g), (i), (j)	*Compliance with Standards and Maintenance Requirements*	*Yes.*
§63.6(e)(1)(i)	General Duty to minimize emissions	No. See §63.11205 for general duty requirement.
§63.6(e)(1)(ii)	Requirement to correct malfunctions ASAP	No.
§63.6(e)(3)	SSM Plan	No.
§63.6(f)(1)	SSM exemption	No.

§63.6(h)(1)	SSM exemption	No.
§63.6(h)(2) to (9)	*Determining compliance with opacity emission standards*	*Yes.*
§63.7(a), (b), (c), (d) , (e)(2)-(e)(9), (f), (g), and (h)	Performance Testing Requirements	Yes.
§63.7(e)(1)	Performance testing	No. *See* §63.11210.
§63.8(a), (b), (c)(1), (c)(1)(ii), (c)(2) to (c)(9), (d)(1) and (d)(2), (e),(f), and (g)	Monitoring Requirements	Yes.
§63.8(c)(1)(i)	General duty to minimize emissions and CMS operation	No.
§63.8(c)(1)(iii)	Requirement to develop SSM Plan for CMS	No.
§63.8(d)(3)	Written procedures for CMS	Yes, except for the last sentence, which refers to an SSM plan. SSM plans are not required.
§63.9	*Notification Requirements*	*Yes, excluding the information required in §63.9(h)(2)(i)(B), (D), (E) and (F). See §63.11225.*
§63.10(a) and (b)(1)	*Recordkeeping and Reporting Requirements*	*Yes.*
§63.10(b)(2)(i)	Recordkeeping of occurrence and duration of startups or shutdowns	No.
§63.10(b)(2)(ii)	Recordkeeping of malfunctions	No. *See* §63.11225 for recordkeeping of (1) occurrence and duration and (2) actions taken during malfunctions.
§63.10(b)(2)(iii)	Maintenance records	Yes.
§63.10(b)(2)(iv) and (v)	Actions taken to minimize emissions during SSM	No.
§63.10(b)(2)(vi)	Recordkeeping for CMS malfunctions	Yes.
§63.10(b)(2)(vii) to (xiv)	Other CMS requirements	Yes.
§63.10(b)(3)	Recordkeeping requirements for applicability determinations	No.
§63.10(c)(1) to (9)	Recordkeeping for sources with CMS	Yes.
§63.10(c)(10)	Recording nature and cause of malfunctions	No. *See* §63.11225 for malfunction recordkeeping requirements.

§63.10(c)(11)	Recording corrective actions	No. *See* §63.11225 for malfunction recordkeeping requirements.
§63.10(c)(12) and (13)	Recordkeeping for sources with CMS	Yes.
§63.10(c)(15)	Allows use of SSM plan	No.
§63.10(d)(1) and (2)	*General reporting requirements*	*Yes.*
§63.10(d)(3)	Reporting opacity or visible emission observation results	No.
§63.10(d)(4)	Progress reports under an extension of compliance	Yes.
§63.10(d)(5)	SSM reports	No. *See* §63.11225 for malfunction reporting requirements.
§63.10(e)	Additional reporting requirements for sources with CMS	Yes.
§63.10(f)	Waiver of recordkeeping or reporting requirements	Yes.
§63.11	Control Device Requirements	No.
§63.12	State Authority and Delegation	Yes.
§63.13-63.16	*Addresses, Incorporation by Reference, Availability of Information, Performance Track Provisions*	*Yes.*
§63.1(a)(5), (a)(7)-(a)(9), (b)(2), (c)(3)-(4), (d), 63.6(b)(6), (c)(3), (c)(4), (d), (e)(2), (e)(3)(ii), (h)(3), (h)(5)(iv), 63.8(a)(3), 63.9(b)(3), (h)(4), 63.10(c)(2)-(4), (c)(9)	Reserved	No.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7521, Feb. 1, 2013]

The INL is subject to the requirements of Table 8 in accordance with §63.11235 except for:

- ***§63.6(g)(i)(j) because the INL does not have or use alternative numerical emission standards, is requesting a compliance extension, or requesting a Presidential exemption.***
- ***§63.7 because the INL is not subject to §63.11212***
- ***§68.8, §63.10(b)(2)(vi to xiv), §63.10(c)(1-9,12,13) and §63.10(e) because the INL is not subject to §63.11224.***
- ***§63.10(b)(2)(iii) because the INL is not required to use air pollution controls or emission monitoring.***
- ***§63.10(b)(2)(vi-xiv)&(c) because the INL does not use CMS.***
- ***§63.10(d)(4) because the INL does not intend to request an extension of compliance.***

- ***63.10(e) because the INL does not use CMS.***
- ***§63.(10)(f) because the INL does not intend to request a Waiver of recordkeeping or reporting requirements***
- ***§63.12 because EPA has not granted state authority for this subpart.***