Statement of Basis

Permit to Construct No. P-2015.0023
Project ID 61525

U S Dept. of Energy - INL
Scoville, Idaho

Facility ID 023-00001

Final

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Permit Writer

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.

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ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
AMWTP	Advanced Mixed Waste Treatment Project
AP-42	EPA's Compilation of Emission Factors
ARP	Accelerated Retrieval Project
ASTM	American Society for Testing and Materials
ATR	Advanced Test Reactor
BACT	Best Available Control Technology
BAE	baseline actual emissions
BEA	Battelle Energy Alliance, LLC
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CITRC	Critical Infrastructure Test Range Complex
CMS	continuous monitoring systems
CPP	Chemical Processing Plant (now known as INTEC)
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
CRR	Carbon Reduction Reformer
DEQ	Department of Environmental Quality
DMR	Denitration and Mineralization Reformer
DOE	Department of Energy
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HEPA	high efficiency particulate air
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines

ICP	Idaho Cleanup Project
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
iwg	inches of water gauge
IWTU	Integrated Waste Treatment Unit
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MFC	Materials and Fuels Complex
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NRF	Naval Reactors Facility
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
OU	Operable Unit
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
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
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RCRA	Resource Conservation and Recovery Act
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
Rules	*Rules for the Control of Air Pollution in Idaho*
RWMC	Radioactive Waste Management Complex
SBW	sodium-bearing waste
SDA	Subsurface Disposal Area
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold

SMC	Specific Manufacturing Capability
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAN	Test Area North
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
TSA-RE	Transuranic Storage Area Retrieval Enclosure
ULSD	ultra-low sulfur diesel
U.S.C.	United States Code
VOC	volatile organic compounds
WMF	Waste Management Facility
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

The INL is a multipurpose national laboratory. It consists of nine distinct operational areas within an 890-square-mile area owned by the U.S. Government in southeastern Idaho. The operational areas include the following:

- Materials and Fuels Complex (MFC)
- Central Facilities Area (CFA)
- Idaho Nuclear Technology and Engineering Center (INTEC)
- Critical Infrastructure Test Range Complex (CITRC)
- Naval Reactors Facility (NRF)
- Test Area North (TAN)
- Advanced Test Reactor Complex (ATR Complex)
- Radioactive Waste Management Complex (RWMC)
- Advanced Mixed Waste Treatment Project (AMWTP)

Operational Area 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 and ATR. The Engineering Test Reactor has been inactive since January 1982. Deactivation and decommissioning the Engineering Test Reactor 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.

The ATR Complex has three permitted stationary internal combustion engines (ICE) that are non-radiological sources of air pollution. On April 30, 2015, these units (670-M-42, 670-M-43, and 674-M-6) began operation as emergency stationary ICE in accordance with IDAPA 58.01.01.222.01.d; and 40 CFR Part 63 Subpart ZZZZ – "National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines." Other historically 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, vehicle 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 modeling protocol and baseline actual emissions (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 historically 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

INTEC is located in the southwestern portion of INL. INTEC covers approximately 250 acres and contains over 150 buildings.

The current purpose of INTEC is to receive and store DOE assigned nuclear fuels; prepare liquid sodium bearing waste (SBW) and solid high level waste for disposition in a permanent repository; develop technologies for disposing spent nuclear fuel, SBW, and high level waste; develop and apply technologies to minimize waste generation; and manage radioactive and hazardous wastes.

Major operating facilities at INTEC include both storage and treatment facilities. Spent nuclear fuel is stored in pools and dry storage. Calcine (dry granular waste) is stored in bins and liquid SBW is stored in underground storage tanks. This material results from decommissioning contaminated facilities. Mixed waste and low level waste are handled and stored in the hazardous and radioactive mixed waste staging area and the Hazardous Chemical and Radioactive Waste facility. Non-radiological exempted sources of air pollution at INTEC in the calculation of BAE 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).

Support facilities, such as utilities, maintenance, administrative, and engineering, are also located at INTEC.

Chemical Processing Plant (CPP) 606 includes four boilers 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 on each boiler 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.

The Integrated Waste Treatment Unit (IWTU) is designed to treat liquid SBW and newly generated liquid waste to produce a solid treatment product for ultimate disposal. SBW and newly generated liquid waste are transferred to the Waste Feed Tank and fed to the first steam reformer, the Denitration and Mineralization Reformer (DMR). The DMR, operating in a chemically reducing mode, evaporates liquids, volatilizes trace organics, converts nitrates to nitrogen gas and a small quantity of NOx, 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 and $CO_2$to react with the coal to produce energy in the bed.

The solid product from the DMR is pneumatically transferred to the Product Receiver/Cooler before being drained from the process.

The process gas from the DMR—consisting mostly of steam, nitrogen, carbon dioxide, and hydrogen, with small amounts of carbon monoxide (CO), NOx, short chained organics, and acidic gases—is then filtered through the high temperature Process Gas Filter. This filtration removes the finely divided product solids and carbon fines that elutriate out of the DMR along with the process gas stream. The filtered gas stream is then introduced into the bottom of the second steam reformer, the Carbon Reduction Reformer (CRR). A measured quantity of oxygen/air is also introduced at three locations within the CRR fluidized bed through a set of distributors located at the same level and above the fluidizing process gas input distributors. CRR, operating in a reducing mode in the bottom of

the fluidized bed, reduces a significant portion of the residual NOx in the process gas to nitrogen. CRR operates in an oxidizing mode in the upper section of and above the fluidized bed that oxidizes the hydrogen, CO, and organics in the gas stream to carbon dioxide and water. Carbon is required to maintain CRR in the desired operating temperature range.

The CRR process gas stream, now almost entirely nitrogen, oxygen, water vapor, and carbon dioxide, is cooled in the Offgas Cooler, filtered in the Offgas Filter, passed through high efficiency particulate air (HEPA) filters and a granular activated carbon bed to remove mercury. The final offgas is monitored by a Continuous Emissions Monitoring System, combined with HEPA filtered building ventilation, and discharged to the stack.

BEA Managed

BEA tests various decontamination technologies in building CPP 653 for the U.S. Environmental Protection Agency (EPA). The research will be used to determine clean up protocol to be used after an urban radiological dispersion device ("dirty bomb") event. The processes will use radionuclides such as Cs 137, Co 60, and Sr 90 in less than 1 mCi amounts.

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 BEA. MFC does not have any significant non-radiological sources of air pollution.

BEA Managed

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 Bechtel Marine Propulsion Corporation. 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 grandfathered boilers are included in the dispersion modeling protocol and BAE calculation. The boilers have a design operating capacity of 52.4 MMBtu/hr each and are equipped with oxygen trim systems. In addition to the existing boilers, NRF has installed a new 29.3 MMBtu/hr boiler. This boiler is a replacement for a boiler identical to the 52.4 MMBtu/hr boilers discussed above. The third boiler has been deemed irreparable and has been removed from service.

Radioactive Waste Management Complex

Since the 1950s, DOE has used RWMC to manage, store, and dispose of waste contaminated with radioactive and hazardous elements generated in national defense and research programs. RWMC comprises 177 acres and includes four main areas, which are all operated by the ICP: the operations area, the administration area, the Subsurface Disposal Area (SDA), and the Transuranic Storage Area (including the Advanced Mixed Waste Treatment Project [AMWTP]).

AMWTP

AMWTP operates under two PTCs: 023-00001 and P-2011.0109. PTC 023-00001, for the Advanced Mixed Waste Treatment Facility, includes three propane boilers with a capacity of 12.55 MMBtu/hr each and one potable water heater with a capacity of 2.0 MMBtu/hr. PTC P-2011.0109, for the Transuranic Storage Area Retrieval Enclosure (TSA-RE), includes mobile equipment, two propane fired portable heaters (150,000 Btu/hr and 75,000 Btu/hr), three propane fired make-up air units (1.2 MMBtu/hr each), and a 500-kw emergency diesel generator. Mobile equipment is not normally subject to stationary source regulations; however, since the emissions from the equipment pass through a stationary stack, they are subject to permitting requirements under IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho.

ICP

SDA, a 97 acre landfill located inside RWMC, has been used for disposal of low level, hazardous, and transuranic wastes. SDA contains pits and trenches that have been used for disposal of radioactive and hazardous waste for more than 50 years. Most of the transuranic waste buried in SDA was generated during nuclear weapons production activities at the Rocky Flats Plant and was packaged in drums and boxes prior to being shipped to Idaho.

Radioactive organic waste (i.e., mixed waste by today's standards) from the Rocky Flats Plant in Colorado was buried in SDA from 1954 to 1970, releasing volatile organic compounds (VOCs) to the environment. These VOCs are primarily in the form of organic vapors. Carbon tetrachloride (CCl4) and other VOCs emanating from the soil surface have been detected through the use of 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). Since 1987, CCl4 has been detected in the aquifer in concentrations slightly exceeding its maximum contaminant level of 0.005 mg/L (40 CFR 141) in the vicinity of RWMC.

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

Currently, the system is comprised of 15 extraction wells, 56 vapor monitoring wells with a total of 158 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.

CERCLA regulated Accelerated Retrieval Project (ARP) is exhuming targeted buried waste from SDA. Exhumation is conducted in retrieval enclosures. CERCLA-regulated activities have emergency stationary ICE, non-emergency high pressure breathing air compressors, and ICE mobile source emissions from enclosures. The Waste Management Facility (WMF) 1617 (ARP V) and WMR-1621 (PRP-VII) enclosures are currently RCRA permitted treatment, storage, and disposal facilities. A non-emergency stationary ICE, 28 hp, diesel-driven, high pressure, breathing air compressor is located at WMF 1617.

The historically PTC-exempted mobile source emissions from the WMF 1617 ARP V enclosure are included in the modeling protocol.

Two historically unpermitted 1.2 MMBtu/hr propane boilers and one 1.2 MMBtu/hr propane water heater are located at WMF 637. Additionally, a small historically unpermitted propane water heater for the fire water tank is located at WMF 743. RWMC also has emergency stationary ICE.

Test Area North

Idaho Cleanup Project (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.

BEA Managed

SMC is a state of the art research and manufacturing complex operated by BEA. 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. Another small boiler with a 60 hp (2 MMBtu/hr) rating, also located in TAN 679, has been disconnected from its fuel source and is no longer in service. This boiler is not included in the INL demonstration of compliance for NAAQS. The large boilers are each equipped with oxygen trim sensors to increase combustion efficiency. Combustion gases from each large 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

Appendix C includes a detailed permit history for this facility.

Besides this Facility Emissions Cap (FEC) permit, there are three other PTCs that are not being modified and will remain active after this permitting action. The permits that will remain affective are:

- PTC P-2011.0124 issued December 30, 2011 for the INTEC Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System
- PTC P-2008.0199 issued August 31, 2009 for the INTEC Integrated Waste Treatment Unit (IWTU)
- PTC P-010509 issued September 9, 2002 for the TRA Evaporation Pond

Note, emissions from these permitted operations are still regulated as part of the facility emissions cap (FEC) permit.

Application Scope

The facility has requested that a FEC be issued in accordance of the provisions of IDAPA 58.01.01.175.

The facility has also requested that the following permits to construct be incorporated into the FEC permit and then be terminated.

- PTC No. 011-00022, issued February 20, 2003 for the Utility Paint Spray Booth
- PTC No. P-2012.0053, issued September 18, 2012 for four boilers at CPP
- PTC No. P-2011.0092, issued October 18, 2011 for the Specific Manufacturing Capability (SMC)
- PTC P-2011.0109 issued July 31, 2013 for the Transuranic Storage Area -Retrieval Enclosure (TSA-RE)
- 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 Materials and Fuels Complex (MFC) Irradiated Materials Characterization Laboratory (IMCL)
- PTC P-2011.0077 issued April 8, 2011 for FMF processing gloveboxes, hoods and ventilation system

The facility has proposed to operate a 29.3 MMBtu/hr diesel fired boiler at the NRF with criteria air pollutant emissions greater than the below regulatory concern (BRC) exemption thresholds under which the boiler was initially installed June 27, 2017. This is the only modified emission unit at the facility. This boiler replaces an existing 52.4 MMBtu/hr diesel fired boiler.

This permit serves to cancel Permit to Construct No. P-000534, issued May 18, 2004 that allows for non-emergency use of large diesel generator engines at the Advanced Test Reactor (ATR) Complex (Units 674-M-6, 670-M-42 and 670-M-43). Consistent with the requirements of Consent Order Case No. E-2012.0012, dated March 27, 2013 the units shall now only operate as emergency stationary RICE as specified in Section 8 of this permit.

Along with this permitting action, DEQ is canceling the following permits which are for emissions units that are no longer active at the facility.

- PTC P-9600128 issued December 28, 1996 for the ICPP Pilot Plants: 10-cm, 15-cm, and 30-cm Calciners; High Bay Facility Mixing Tanks
- PTC No. 0340-0001 issued April 5, 1988 for the ZURN Temporary Steam Boiler
- PTC No. 0340-0001 issued October 24, 1989 for the TAN NaK Processing System

Concurrent with issuance of this permit, DEQ will cancel the existing Tier I Operating Permit that has been issued to the facility as requested by the applicant. This permitting action limits facility-wide emissions below Tier I Operating Permit thresholds and the facility is not otherwise subject to Tier I permitting requirements. See the *Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)* Section of this Statement of Basis for a detailed discussion of why the Tier I operating permit may be canceled.

Application Chronology

May 22, 2015	DEQ received an application.
May 27, 2015	DEQ received an application fee.

June 26, 2015	DEQ determined that the application was incomplete.
October 7, 2015	DEQ received supplemental information from the applicant.
November 4, 2015	DEQ determined that the application was incomplete.
November 16, 2015	DEQ received supplemental information from the applicant.
December 15, 2015	DEQ determined that the application was complete.
December 17, 2015	DEQ provided an opportunity to the public to request a comment period.
December 17, 2015	DEQ received a request for a public comment period.
September 28, 2016	DEQ received supplemental information from the applicant.
November 18, 2016	DEQ received supplemental information from the applicant.
February 28, 2017	DEQ received supplemental information from the applicant.
May 17, 2017	DEQ received an update application.
May 19, 2017	DEQ received supplemental information from the applicant.
August 3, 2017	DEQ received supplemental information from the applicant.
August 23, 2017	DEQ made available the draft permit and statement of basis for peer and regional office review.
August 31, 2017	DEQ made available the draft permit and statement of basis for applicant review.
October 10, 2017	DEQ provided EPA a draft permit for their review.
November 16, 2017	EPA notified DEQ that they were not providing any formal comments on the draft permit.
September 25, 2017	DEQ received the permit processing fee.
11/28 – 12/28, 2017	DEQ provided a public comment period on the proposed action.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

The only changed emission unit at the facility as part of this Facility-wide Emission Cap permitting action is the operation of a 29.3 MMBtu/hr diesel fired boiler at the NRF with the capability to have emissions greater than the below regulatory concern (BRC) exemption thresholds under which the boiler was initially installed in 2016.

Boilers at the facility 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	BTP-400-2000	Y91353	2.0	O_2 Trim	Propane
CFA	Cleaver Brooks	M4S 1500-100	4G016435	1.5	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
CFA	Cleaver Brooks	CB-101-50	L-83922	2.1	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel

Location	Manufacturer	Model	Serial #	Rated Capacity (MMBtu/hr)	Control	Fuel Type
INTEC	Cleaver Brooks	CBLE	NB 10475	36.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10478	36.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10484	36.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
INTEC	Cleaver Brooks	CBLE	NB 10476	36.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
NRF	Henry Vogt	DT-99-95	None	52.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
NRF	Cleaver Brooks	CBR-101-700-250ST	T5086-1-1	29.3	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
NRF	Henry Vogt	DT-99-95	None	52.4	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
SMC	Cleaver Brooks	(100)600-150	L-81365	25	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel
SMC	Cleaver Brooks	(100)600-150	OLO44437	25	O_2 Trim, Ultra Low Sulfur Fuel	#2 Diesel

Internal combustion engines at the facility at the time of permit issuance are listed in Table 2.

Table 2 INTERNAL COMBUSTION ENGINES AND CONTROL INFORMATION

Location	Manufacturer	Model	Hp	Fuel Type	Control
AMWTP	Ford/Onan	10758	225	Propane	None
AMWTP	Cummins	DFAC-5000893	380	Distillate	Ultra Low Sulfur Fuel
AMWTP	Cummins/Onan	QSX15-G9	755	Distillate	Ultra Low Sulfur Fuel
AMWTP	Cummins/Onan	VTA-28-05	900	Distillate	Ultra Low Sulfur Fuel
AMWTP	Caterpillar	3412	745	Distillate	Ultra Low Sulfur Fuel
AMWTP	John Deere	4045 HF285	115	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Cummins	6CTA8.3C	250	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Detroit Diesel-Allison	71237300	558	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Clarke John Deere	Clarke JU6HUFAD98 John Deere 6068HFC48A	315	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Enterprise	DSQ-38	2118	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Enterprise	DSQ-38	2118	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Caterpillar	3516	2132	Distillate	Ultra Low Sulfur Fuel
ATR Complex	John Deere	6076AF010	250	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Clarke Detroit Diesel Allison	DDFP-06FA 8175F	368	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Clarke Detroit Diesel Allison	DDFP-06FA 8175F	368	Distillate	Ultra Low Sulfur Fuel
ATR Complex	Caterpillar	3516B TA	2593	Distillate	Ultra Low Sulfur Fuel
CFA	White Engines, Inc	D-4800X198	166	Distillate	Ultra Low Sulfur Fuel
CFA	Cummins	QSL9-G2,NR3	345	Distillate	Ultra Low Sulfur Fuel
CFA	Caterpillar	3208 DIT	196	Distillate	Ultra Low Sulfur Fuel
CFA	Caterpillar	3208 DIT	196	Distillate	Ultra Low Sulfur Fuel
CFA	Cummins	G855	220	Liquefied Natural Gas	
CFA	Caterpillar	3208 DIT	196	Distillate	Ultra Low Sulfur Fuel
CFA	General Motors	SG050	61	Propane	None
CFA	Mitsubishi	4G64	55	Propane	None
CFA	Cummins	NT855 F-1	310	Distillate	Ultra Low Sulfur Fuel
CFA	Cummins	NT855 F-1	310	Distillate	Ultra Low Sulfur Fuel
CFA	John Deere	4239DF	66	Distillate	Ultra Low Sulfur Fuel
CFA	Cummins	4B-3.9	61	Distillate	Ultra Low Sulfur Fuel
INTEC	Caterpillar	3406BDIT	370	Distillate	Ultra Low Sulfur Fuel
INTEC	Cummins	NT-855-F3	340	Distillate	Ultra Low Sulfur Fuel
INTEC	Caterpillar	3406BDIT	370	Distillate	Ultra Low Sulfur Fuel

Location	Manufacturer	Model	Hp	Fuel Type	Control
INTEC	Cummins	N14-C	460	Distillate	Ultra Low Sulfur Fuel
INTEC	Caterpillar	3516 Quad Turbo	2304	Distillate	Ultra Low Sulfur Fuel
INTEC	Caterpillar	3516 Quad Turbo	2304	Distillate	Ultra Low Sulfur Fuel
INTEC	Caterpillar	3516 Quad Turbo	2304	Distillate	Ultra Low Sulfur Fuel
INTEC	Detroit Diesel	D704LTE	87	Distillate	Ultra Low Sulfur Fuel
RWMC	Cummins	NT-855-F1	255	Distillate	Ultra Low Sulfur Fuel
RWMC	John Deere	JU6H-UF30	140	Distillate	Ultra Low Sulfur Fuel
RWMC	Caterpillar	C9	398	Distillate	Ultra Low Sulfur Fuel
RWMC	Caterpillar	D100-6	157	Distillate	Ultra Low Sulfur Fuel
RWMC	Mitsubishi	S3L2	28	Distillate	Ultra Low Sulfur Fuel
RWMC	Generac	GENR-55201	15	Propane	None
MFC	Caterpillar	125	143	Distillate	Ultra Low Sulfur Fuel
MFC	Cummins	50	86	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	3406	460	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	320	475	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	320	475	Distillate	Ultra Low Sulfur Fuel
MFC	White	HER 30	173	Distillate	Ultra Low Sulfur Fuel
MFC	John Deere	Kohler 130	46	Distillate	Ultra Low Sulfur Fuel
MFC	John Deere	Kohler 30	46	Distillate	Ultra Low Sulfur Fuel
MFC	Cummins	NT-855-65	390	Distillate	Ultra Low Sulfur Fuel
MFC	General Motors	50	77	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	300	450	Distillate	Ultra Low Sulfur Fuel
MFC	Waukesha	VLRPD	741	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	3116	173	Distillate	Ultra Low Sulfur Fuel
MFC	Cummins	100	166	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	60	110	Distillate	Ultra Low Sulfur Fuel
MFC	Waukesha	EM200	525	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	3406	450	Distillate	Ultra Low Sulfur Fuel
MFC	Onan	17.5	27	Distillate	Ultra Low Sulfur Fuel
MFC	Caterpillar	D-150-8	230	Distillate	Ultra Low Sulfur Fuel
NRF	Caterpillar	3512	1,443	Distillate	Ultra Low Sulfur Fuel
NRF	Caterpillar	3512	1,443	Distillate	Ultra Low Sulfur Fuel
NRF	Caterpillar	3512	1,443	Distillate	Ultra Low Sulfur Fuel
NRF	Caterpillar	3512	1,443	Distillate	Ultra Low Sulfur Fuel
SMC	Caterpillar	3408	598	Distillate	Ultra Low Sulfur Fuel
SMC	Caterpillar	3412	890	Distillate	Ultra Low Sulfur Fuel

Table 3 lists emissions units and processes that must be controlled by HEPA filters by this permit. All of these requirements are from previous permits to construct issued to the facility. All final HEPA filters prior to release to the atmosphere shall operate at 99.7% removal efficiency except the TAN 629-013 Phase I Stack which shall operate at 99% control efficiency. INL is not proposing to modify or to add new processes that emit radionuclides. All radionuclide sources must continue to comply with 40 CFR 61 Subpart H National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities.

Table 3 SOURCES THAT MUST BE CONTROLLED BY HEPA FILTERS AS REQUIRED BY THE FEC PERMIT

Location	Emissions Units / Processes	Emission Control Devices	Emission Points
AMWTP	TSA-RE - RCE/ICE and TSA-R CCE HEPA Filter System	HEPA filter system in series	WMF 636-002
AMWTP	Advanced Mixed Waste Treatment Facility (AMWTF) Zone 3 and Glovebox Ventilation System	Three stages of HEPA filter system in series. Each HEPA filter stage shall contain a minimum of two HEPA filters constructed in parallel; one filter shall be used to control emissions while the second filter is used as a backup.	WMF 676-002 & 003
INTEC	Fluorinel Dissolution Process and Fuel Storage (FAST) includes Sodium Distillation System	Two stages of HEPA filtration in series: • Cell Off-Gas: three parallel filter banks (Each bank is made up of 4 individual HEPA filters.)	CPP-767-001

Location	Emissions Units / Processes	Emission Control Devices	Emission Points
		• Final Exhaust: four parallel filter banks. Each bank is made up of 24 individual HEPA filters.	
MFC	Fuel Manufacturing Facility (FMF)	Two HEPA filter banks in series	MFC-704-008 Gloveboxes and hoods at FMF
MFC	Irradiated Materials Characterization Laboratory (IMCL)	HEPA filter system	MFC-1729-001 Enclosures, Hoods and Gloveboxes at IMCL
MFC	Fuel Conditioning Facility (FCF) - Building Maintenance Activities in Low-Level Contamination Areas	HEPA filter	MFC-764-00 MFC Main Stack
MFC	FCF - Air Cell System (fuel assembly disassembly in cell, combined with emissions from hot repair facility (HRF), hot repair area (HRA), subcell D, glove boxes, air hoods, and other contaminated areas within the building.	Two-stage HEPA filter system	MFC-764-00 MFC Main Stack
MFC	FCF - Argon Cell System (fuel element chopping, electrorefining process, waste stream preparation for disposal fuel fabrication).	Two-stage HEPA filter system	MFC-764-00 MFC Main Stack
SMC	TAN 629-013 Phase I Stack[1]	HEPA filter bank	TAN 629-013 Phase I Stack
SMC	TAN 679-022, 023, 024; Phase II - North (3 stacks)	HEPA filter bank	TAN 679-022, 023, 024 Stacks
SMC	TAN 679-025, 026, 027; Phase II - South (3 stacks)	HEPA filter bank	TAN 679-025, 026, 027 Stacks
SMC	TAN 681-018 and TAN 681-020 - Process Reclamation Facility	HEPA filter bank	TAN 681-018 and TAN 681-020 Stacks

1) TAN 629-013 Phase I Stack HEPA filters shall be maintained at 99% efficiency.

Emissions Inventories

This permitting action is to establish a facility emissions cap in accordance with IDAPA 58.01.01.175 and allow the potential for increased operation of 29.3 MMBtu/hr diesel fired boiler at NRF. No other specific changes are proposed at the facility. A facility emissions cap (FEC) is defined at IDAPA 58.01.01.176.03.c as "A facility-wide emission limitation expressed in tons per year, for any criteria pollutant or hazardous air pollutant established in accordance with Sections 176 through 181. A FEC is calculated using baseline actual emissions plus an operational variability component and a growth component. A FEC, which is based on a twelve (12) month rolling basis, must be set below major facility thresholds as defined in Sections 204 and 205."

In order to establish a FEC, the baseline actual emissions must be determined. Table 4 and Table 5 list the source's baseline actual emissions for the calendar years 2011 and 2012.

Table 4 CRITERIA POLLUTANT BASELINE ACTUAL EMISISONS

Criterial Air Pollutant	SO_2 (tons)	NOx (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)
AMWTP Boilers	0.15	1.34	0.77	0.07	0.07	0.10
CFA Boilers	0.00	0.21	0.05	0.03	0.02	0.00
INTEC Boilers	0.07	6.24	1.56	1.03	0.72	0.06
NRF Boilers	0.05	4.58	1.14	0.76	0.53	0.05
SMC Boilers	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	0.06	6.00	1.50	0.99	0.69	0.06

Criterial Air Pollutant	SO_2 (tons)	NOx (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)
Boilers						
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 Compressor, Emergency Gen.,Excavators, Space Heat	1.05	7.10	3.95	0.28	0.28	1.23
CPP-666 Sodium Treatment Emissions	0.05	0.00	0.02	-	-	0.00
Total	12.51	70.21	13.06	4.99	3.99	2.72

Table 5 HAP BASELINE ACTUAL EMISISONS

HAP Pollutant	T/yr	HAP Pollutant	T/yr
1,1,1-Trichloroethane	1.20E-03	Ethyl benzene	7.53E-04
1,1,2,2-Tetrachloroethane	2.55E-04	Ethyl chloride	3.73E-05
1,1,2-Trichloroethane	1.19E-07	Ethylene dibromide	2.49E-07
1,1-Dichloroethane	3.98E-04	Formaldehyde	3.60E-02
1,1-Dichloroethylene	2.13E-04	Hexane	2.53E-04
1,2-Dichloroethane	2.13E-04	Hexachlorobenzene	1.61E-08
1,2-Dichloropropane	2.94E-04	Hexachloroethane	2.85E-04
1,3-Butadiene	1.31E-04	Hydrochloric acid	8.20E-01
1,3-Dichloropropene	9.85E-08	Hydrogen sulfide	5.45E-04
1,4-Dichlorobenzene	2.98E-04	Lead	1.36E-03
1,4 Dioxane	3.19E-02	Manganese	7.67E-04
2-Butanone	6.94E-04	Mercury	2.27E-03
2,2,4-Trimethylpentane	2.85E-04	Methanol	4.81E-04
2,4-Dinitrotoluene	8.20E-04	Methyl isobutyl ketone	8.45E-05
Acetaldehyde	3.19E-03	Methylene chloride	2.61E+00
Acrylonitrile	1.48E-04	Naphthalene	1.27E-03
Acrolein	4.08E-04	Nickel	1.12E-02
Arsenic	1.23E-03	Nitrobenzene	4.66E-04
Benzene	5.82E-03	Polychlorinated biphenyls	1.23E-02
Beryllium	1.21E-03	POM/PAH	3.66E-03
Cadmium	1.24E-02	Selenium	2.74E-03
Carbon disulfide	1.96E-05	Styrene	9.25E-08
Carbon tetrachloride	4.52E+00	Tetrachloroethylene	7.47E-04
Carbonyl sulfide	1.31E-05	Toluene	1.52E-02
Chlorobenzene	2.04E-05	Trichloroethylene	6.30E-04
Chloroform	1.50E-03	Vinyl Chloride	2.03E-04
Chromium	1.41E-02	Xylene	2.54E-03
Cresols (m, p & o)	2.85E-04	Zinc	6.76E-04
Copper	7.67E-04	**Total**	**8.12**
Cyanide	8.20E-04		
Maximum Individual HAP (Carbon Tetrachloride) = 4.52 T/yr			

See the "Procedures and Requirements for Permits Establishing a Facility Emissions Cap" section of this statement of basis for a complete discussion of how the facility emissions cap limits were established.

TAP Emissions

As previously discussed the only specifically proposed physical or operational change (modification) at the facility is to allow criteria pollutant emissions from a 29.3 MMBtu/hr fuel oil fired boiler to increase beyond below regulatory concern exemption thresholds for criteria pollutants. Construction of the boiler began on June 27, 2017 and was exempted from the need to obtain a permit to construct in accordance with IDAPA 58.01.01.220, 221 and 223. Besides meeting the exemption requirements for criteria air pollutants, in order to be exempt uncontrolled TAP emissions from the boiler at its maximum firing rate must meet the TAP exemption criteria. Therefore, allowing criteria air pollutant emissions to increase beyond exemption thresholds does not affect toxic air pollutants since the exemption criteria for TAPs requires analyzing uncontrolled emissions at maximum firing rate.

Regarding the TAPs exemption analysis, in accordance with IDAPA 58.01.01.210.20, since TAP emissions that are also HAPs from boiler are regulated under 40 CFR 63, Subpart JJJJJJ no further preconstruction/exemption compliance demonstration is required for those TAPs. For any residual TAPs, that are not HAPs, INL has documented the source meets the exemption criteria which required analyzing those residual TAPs to exemption thresholds. DEQ requested, and has been provided, INL's TAP exemption analysis. Based on US EPA emissions factors (Publication AP-42) the only residual TAPs that were required to be analyzed are copper and zinc. Uncontrolled emissions at maximum firing rate for both of these toxic air pollutants are well below the exemption thresholds specified at IDAPA 58.01.01.223. Copper emissions are 380 times less than the screening emission level (EL), and zinc emissions are 5,700 times below its screening EL.

Following is the information INL provided DEQ which supports the exemption determination. Emission estimates are based on AP-42 emission factors.

NRF Boiler 4

	Emissions Factor ($lb/10^{12}$ Btu)	*Emissions (lb/hr)*	*EL (lb/hr)*	*Exceed EL*
Copper	*6.00E+00*	*1.76E-04*	*6.70E-2*	*No*
Zinc	*4.00E+00*	*1.17E-04*	*6.67E-01*	*No*

Conversion Factors:		
Heating Value of Fuel Oil	*140000*	*Btu/gal.*
NRF 4 Usage	*209.2*	*Gal/hr*

The FEC permit does not allow future modifications/changes that include TAP emissions unless the modification qualifies and complies with the exemption criteria for TAPs.

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the FEC emission limits for criteria pollutants (PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, VOC), which include an operational variability component and a growth component, demonstrated to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

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

Facility Classification

The facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

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

SM80 = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the permit sets limits ≥ 8 T/yr of a single HAP or ≥ 20 T/yr of THAP.

SM = Use if a synthetic minor (potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable limitations) and the potential HAP emissions are limited to < 8 T/yr of a single HAP and/or < 20 T/yr of THAP.

B = Use when the potential to emit without permit restrictions is below the 10 and 25 T/yr major source threshold

UNK = Class is unknown

For All Other Pollutants:

A = Actual or potential emissions of a pollutant are ≥ 100 T/yr.

SM80 = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are ≥ 80 T/yr.

SM = Use if a synthetic minor for the applicable pollutant (potential emissions fall below 100 T/yr if and only if the source complies with federally enforceable limitations) and potential emissions of the pollutant are < 80 T/yr.

B = Actual and potential emissions are < 100 T/yr without permit restrictions.

UNK = Class is unknown.

Table 6 REGULATED AIR POLLUTANT FACILITY CLASSIFICATIONS

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	<100	6.6	**100**	B
$PM_{10}/PM_{2.5}$	<100	5.6	**100**	B
SO_2	>100	16.9	**100**	SM
NO_X	>100	95	**100**	SM80
CO	<100	17.7	**100**	B
VOC	<100	3.7	**100**	B
HAP (single)	>10[1]	<10	**10**	SM80
HAP (Total)	>25[1]	<25	**25**	SM80

1) Even though uncontrolled HAP emission are greater than major facility thresholds, existing permit restrictions limit emissions below major facility thresholds and the fact that uncontrolled emissions are greater than major facility thresholds does not affect EPA's once in, always in guidance. It is presumed that without a throughput restriction on the IWTU the potential to emit HAPs exceeds major facility thresholds.

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 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. A change to existing monitoring, reporting or recordkeeping requirements in the permit establishing the FEC;

b. A change to the FEC; or

c. A change to the facility that would impose new requirements not included in the permit establishing the FEC.

The FEC emission 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 (BAE), the facility establishes an operational variability component and then adds a growth component. Table 7 gives the BAE, the operational variability component and a growth component. A summary of BAE calculations are included in Appendix A.

Table 7 BAE, OPERATION VARIABILITY & GROWTH COMPONENTS & FEC LIMITS

	SO2	NOx	CO	Total PM	PM-10/2.5/ Condensables	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	0.4	–	–
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**

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 8.

Table 8 OPERATIONAL VARIABILITY COMPONENTS

	SO2	NOx	CO	Total PM	PM-10/2.5/ With Condensable	VOCs	Individual HAPs	Aggregate HAPs
Proposed Operational Variability Component	1.7	9.8	1.8	0.5	0.7	0.4	NA	NA
Significant Emission Rate minus 1 ton	39	39	99	24	9	39	NA	NA

In accordance with IDAPA 58.01.01.176.03.f 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.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625..... Visible Emissions

The sources of visible emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity.

Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

IDAPA 58.01.01.301 ..... Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year of regulated air pollutants, or 10 tons per year for any individual HAP or 25 tons per year for all HAP combined. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply. Table 9 provides the permitted PTE for criteria air pollutants. The permitted PTE for HAPs is less than 10 tons per year for any single HAP and less than 25 tons per year for all HAPs in aggregate; the HAP PTE for calendar year 2016 is included in Table 10. The current Tier I operating permit is terminated as requested by the applicant. The potential applicability of EPA's once in, always in guidance regarding Title V operating permits (i.e. Tier I operating permits) is addressed below the following two tables.

Table 9 PTE FOR CRITERIA AIR POLLUTANTS

	SO2	NOx	CO	Total PM	PM-10/2.5/Plus Condensable	VOCs
	Emissions T/yr					
Facility Emissions Cap (FEC)	**16.9**	**95.0**	**17.7**	**6.6**	**5.6**	**3.7**

Table 10 PTE FOR THE HAZARDOUS AIR POLLUTANTS

Hazardous Air Pollutants	2016 Total (tons)	Hazardous Air Pollutants	2016 Total (tons)
1,1,1-Trichloroethane	4.19E-02	Chromium	1.73E+00
1,1,2,2-Tetrachloroethane	3.29E-04	Cobalt	1.76E-04
1,1,2-Trichloroethane	7.06E-05	Cresols (m, p & o)	1.68E-02
1,1-Dichloroethane	4.31E-04	Cyanide	8.18E-04
1,1-Dichloroethylene	3.77E-04	Dibenzofuran	1.96E-04
1,2,4-Trichlorobenzene	1.14E-04	Dimethyl phthalate	1.26E-04
1,2-Dibromo-3-chloropropane	8.31E-05	Ethyl Benzene	3.31E-01
1,2-Dichloroethane	3.00E-04	Ethylene Dibromide	3.38E-05
1,2-Dichloropropane	3.42E-04	Formaldehyde	6.43E-01
1,2-Diphenylhydrazine	1.32E-04	Hexachlorobenzene	1.79E-04
1,3-Butadiene	2.26E-03	Hexachlorobutadiene	1.25E-04
1,3-Dichloropropene	2.01E-05	Hexachlorocyclopentadiene	1.16E-03
1,4-Dichlorobenzene	1.70E-02	Hexachloroethane	1.70E-02
2,2,4-Trimethyl pentane	2.84E-04	Hexane	2.79E-04
2,4,5-Trichlorophenol	2.27E-04	Hydrochloric Acid	4.96E+00
2,4,6-Trichlorophenol	1.99E-04	Isophorone	1.51E-04
2,4-Dinitrophenol	1.64E-03	Lead	3.55E-02
2,4-Dinitrotoluene	1.76E-02	Manganese	3.23E-01
4-Nitrophenol	8.66E-04	Mercury	6.10E+00
Acetaldehyde	3.18E-02	Methanol	2.19E-02
Acetophenone	3.65E-04	Methyl isobutyl ketone	6.92E-05
Acrolein	7.60E-03	Methylene chloride	1.94E-02
Acrylonitrile	7.93E-04	Naphthalene	2.53E-02
Aniline	1.45E-03	Nickel	1.03E+00
Antimony	6.47E-04	Nitrobenzene	6.01E-04
Arsenic	1.69E-02	N-Nitrosodimethylamine	8.35E-03
Benzene	9.04E-02	PCBs	2.61E-01
Benzidine	6.47E-03	Pentachloronitrobenzene	1.75E-04
Beryllium	2.27E-02	Pentachlorophenol	1.71E-02
bis(2-Chloroethyl)ether	6.25E-05	Pentane	6.37E-05
bis(2-Ethylhexyl)phthalate	8.34E-04	Phenol	1.45E-03
Bromoform	4.48E-05	Phosphorus	1.12E-02
Bromomethane	1.08E-04	POM	5.96E-02
Cadmium	7.25E-01	Selenium	2.56E-02
Carbon disulfide	2.14E-04	Styrene	4.04E-05
Carbon tetrachloride	3.68E+00	Tetrachloroethylene	3.81E-02
Carbonyl sulfide	1.07E-05	Toluene	1.15E-01
Chlorobenzene	8.41E-05	Trichloroethylene	8.33E-01
Chloroethane	9.23E-05	Vinyl Chloride	7.61E-03
Chloroform	2.69E-03	Xylene	1.59E+00
Chloromethane	6.72E-04	**Total HAP**	**2.29E+01**
		Maximum Individual (Hg)	**6.10E+00**

Potential to Emit for MACT Standards – Guidance on Timing Issues

On May 16, 1995 EPA issued guidance[1] regarding applicability of MACT Standards and Title V (i.e. Tier I) operating permit requirements. This guidance is often referred to as the "once in, always in guidance". In short, this guidance specifies that if a source is a major source of HAPs on the "first compliance date" of a MACT then the source must permanently comply with the MACT standard. This guidance also states that the Clean Air Act requires that any source that is a HAP major source will also be a major source for Title V (i.e. Tier I) permitting requirements. EPA's guidance states that it follows that any source subject to the once in, always in guidance for a MACT standard is also permanently required to obtain a Title V (i.e. Tier I) operating permit. This guidance may potentially affect whether INL may cancel its current Tier I permit. However, as described below, the once in, always in guidance does not affect INL and the Tier I permit may be canceled.

The guidance defines the "first compliance date" as the first date a source must comply with an emission limitation or other substantive regulatory requirement (i.e., leak detection and repair programs, work practices measures, housekeeping measures, etc…, but not a notice requirement).

In order to determine if the "once in, always in guidance" applies to INL all potentially applicable MACT regulations and their respective "compliance dates" must be identified. Then the facility-wide potential to emit for HAPs must be provided on those compliance dates.

The potentially applicable MACT standards for INL are listed in Table 11 as well and their respective "compliance dates", or an explanation is provided why the source is not subject to a "compliance date".

Table 11 MACT COMPLIANCE DATES

Potentially Applicable MACT	Compliance Date or Reason for No Compliance Date
40 CFR 63, Subpart DD - National Emission Standards for Hazardous Air Pollutants from Off-site Waste and Recovery Operations	The source does not have a "compliance date" because it is operating under a facility-wide exemption at 40 CFR 63.680(d) - the total annual quantity of the HAP that is contained in the off-site material received at the plant site is less than 1 megagram per year. In accordance with 40 CFR 63.680(d)(3), INL must maintain records of the quantity of off-site material to verify their exempt status. The INL is not subject to a substantive requirement of the MACT. See the regulatory discussion about this Subpart in this Statement of Basis.
40 CFR 63, Subpart JJ - National Emission Standards for Wood Furniture Manufacturing Operations	The source meets the definition for an incidental wood furniture manufacturer and shall maintain purchase or usage records demonstrating that the source meets the definition in §63.801 of this subpart. Even though INL shall maintain purchase or usage records demonstrating that the source meets the definition of an incidental wood furniture manufacturer it is not subject to a substantive requirement of the MACT. See the regulatory discussion about this Subpart in this Statement of Basis.
40 CFR 63, Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines	Summary of Relevant Compliance Dates for Major Sources 8/19/04 – for new or reconstructed RICE > 500 Hp (emergency RICE are excluded). INL has only one new RICE > 500 Hp and it is an emergency use only unit that was installed in 2005. Therefore, this date is not relevant to the once in, always in determination). 6/15/07 – existing emergency RICE >500 Hp (fuel limits would apply to non-emergency engines- §63.6604(a)) 1/18/08 – new or reconstructed RICE ≤ 500 Hp 5/3/13 &10/19/13 – Existing RICE dependent on engine size and construction date See Appendix E for a detailed review of these Subpart ZZZZ MACT compliance dates
40 CFR 63 Subpart DDDDD - National Emission	Compliance Date for New or Reconstructed Boiler/Heater

1 May 16, 1995 EPA Memorandum, Subject: Potential to Emit for MACT Standards – Guidance on Timing Issues, From: John S. Seitz, Director, Office of Air Quality Planning and Standards

Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters	4/1/13 - for new (i.e. after June 4, 2010) or reconstructed units. INL has one new 29.3 MMBtu/hr fuel oil fired boiler at the NRF which construction began June 27, 2017. Compliance Date for Existing Boiler/Heater 1/31/16

The next step in determining if INL is affected by the "once in, always in guidance" is to determine the facility-wide potential to emit for HAPs on all of the relevant compliance dates listed in Table 11. The date range for the need of a HAP inventory begins June 15, 2007 and ends on December 11, 2015 which is the date that INL entered into a voluntary consent order to limit the facility's potential to emit below HAP major source thresholds.

Table 12 provides the facility-wide potential to emit for HAPs which spans the relevant date range for the once in, always in determination. A summary of the emissions calculations for these values are included in Appendix F. The potential to emit shows an increase in 2011 because of the startup of the Integrated Waste Treatment Unit (IWTU) on September 14, 2011. The facility-wide potential to emit is based on either operational design capacity without consideration of limitations on emissions, or where emissions are limited by a permit the allowable emissions under that permit. Overall INL's HAP potential to emit estimates are conservative. For instance, the HAP emissions from the IWTU are constrained by the annual throughput limit in the air permit (1,114,000 gallons per year) and the operation of HEPA filters as required by the air permit. Even though the IWTU permit requires operation of HEPA filters, INL provided a conservative estimate of the potential to emit for HAPs from the IWTU because the source did not take credit for the HEPA filters limiting emissions. The potential to emit for all HAPs from IWTU are based on assuming all contaminates in the waste are emitted unabated while processing 1,114,000 gallons per year of waste.

Table 12 Facility-wide HAP Potential to Emit

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Aggregate HAPs (T/yr)	13.3	12.0	11.0	10.6	10.3	21.4	20.9	22.8	22.4	22.2	22.9
Individual HAP (T/yr)	5.96[1]	5.67[1]	5.41[1]	5.15[1]	4.91[1]	6.10[2]	6.10[2]	6.10[2]	6.10[2]	6.10[2]	6.10[2]

1) Carbon Tetrachloride. Primarily from fugitive emissions from the Subsurface Disposal Area (SDA).
2) Mercury. The mercury values in this table are based on the unabated potential to emit for the IWTU. Actual emissions are significantly less because mercury is controlled by carbon adsorption as required by a RCRA permit.

As can be seen in Table 12 above, INL was not a major source of HAPs on any of the potentially applicable MACT compliance dates and is not affected by the "once in, always in guidance".

During the 2007 to 2010 time period the maximum individual HAP was carbon tetrachloride primarily from fugitive emissions at the Subsurface Disposal Area. During the remaining years, mercury is the predominate source of potential individual HAP emissions. The vast majority of the potential mercury emissions are from the IWTU. Potential mercury emissions from the IWTU were calculated based on the maximum concentration of mercury measured in the waste to be processed through the IWTU and the maximum permitted throughput rate of 1,114,000 gallons per year. Potential mercury emissions from the IWTU are based on unabated emissions because an air permit does not require emissions controls even though a Resource Conservation and Recovery Act (RCRA) permit requires carbon adsorption to control emissions. Therefore, actual mercury emissions will be significantly less than the potential to emit in this analysis.

For a historical perspective on the facility's HAP PTE, even though INL was not a major HAP source on any relevant MACT compliance date, they have reported that it was a major source of HAPs prior to those dates. During calendar year 2002 the facility was major because hydrogen chloride (HCl) emissions were over 10 tons per year with approximately 12 tons per year of HCl being emitted, and was major during calendar year 2004 with

approximately 17 tons per year of HCl being emitted. HCl emissions are predominately from the soil remediation project at the Radio Active Waste Management Complex, Organic Carbon in the Vadose Zone (OCVZ) Project (soil vapor extraction and oxidation). As the remediation project proceeded the amount of chlorinated organics removed decreased due to the success of the remediation project, which also reduced the amount of HCl emissions that occurred from combustion of those chlorinated organics. The following table lists the potential to emit of HCl from the OCVZ project. See Appendix G[2] for the emissions calculations as well as discussion on how the maximum uncontrolled potential to emit was determined. For years where the OCVZ project did not operate 100% of the time, the potential to emit was adjusted to reflect emissions at 100% (see Appendix F).

HCl Emissions from the Organic Carbon in the Vadose Zone (OCVZ) Project	
Calendar Year	Potential HCl Emissions (T/yr)
2006	3.66
2007	2.67
2008	1.92
2009	1.73
2010	1.69
2011	0.80
2012	0.61
2013	0.79
2014	0.66
2015	0.58
2016	1.48[3]

The potential to emit for the 2006 through 2015 time period at the OCVZ project are based on all available wells operating at maximum operational design capacity and the concentration of chlorinated organics contained in the gases extracted from those wells being combusted and forming HCl. INL has certified that the "... operation of the OCVZ Project results in extracting the maximum possible amount of VOCs..."[4] thereby resulting in the maximum amount of chlorinated organics removed from the soil and in turn the maximum amount of HCl formed from oxidizing those chlorinated organics. Beginning in 2005 there is a marked decrease in HCl emissions from the OCVZ Project because the highest concentration VOCs contaminates within the subsurface disposal area (SDA) were removed; removal of the source of VOCs in the soil substantially reduced VOC emissions (including chlorinated organics) and ultimately HCl emissions from the OCVZ project.

Prior to submitting the application for this permit, INL had proceeded under the presumption that the facility was a HAP major source based on the 2002 and 2004 emissions of HCl from the remediation project (OCVZ Project) being over 10 tons per year and because of the pending startup of the Integrated Waste Treatment Unit (IWTU). Based on these presumptions INL sought and obtained a voluntary consent order on March 27, 2013 to address compliance issues relevant to major sources of HAPs as required by 40 CFR 63 Subpart ZZZZ. Then INL sought and obtained on December 11, 2015 a voluntary consent order to limit the potential to emit below HAP major source thresholds to avoid 40 CFR 63 Subpart DDDDD MACT requirements for boilers. In preparing the application for this Facility-wide Emissions Cap permit, INL reassessed the facility classification for HAPs and determined that since at least as early as 2006 the facility has actually been an area (minor) source of HAP emissions. Therefore, in retrospect, the March 27, 2013 and December 11, 2015 voluntary consent orders were unnecessary commitments because they were based on an inaccurate presumption that the facility was a HAP major source on those dates.

2 DEQ TRIM record # 2017AAG1563

3 HCl emissions increase from previous years because deep wells began to be used since the upper wells chlorinated organics concentrations had decreased below the lower wells concentration in some cases.

4 June 23, 2016 letter from Teresa Perkins, Director, Environmental and Sustainability Division, DOE to Michael Simon, Stationary Source Program Manager, Idaho Department of Environmental Quality (letter is included within TRIM Record # 2017AAG1565 and #2016AAG2083) .

PSD Classification (40 CFR 52.21)

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

The existing facility prior to this permitting action is classified as an existing major stationary source, because the estimated emissions of SO_2 and NO_X have the potential to exceed major stationary source thresholds[5]. The facility is a designated facility as defined in 40 CFR 52.21(b)(1)(i)(a) (Fossil-fuel boilers, or combination thereof, totaling more than 250 million British thermal units per hour heat input[6]). However, after this permit is issued the source will be a minor source of air pollution; SO_2, and NO_X emissions are limited to below 100 tons per year.

NSPS Applicability (40 CFR 60)

40 CFR 60, Subpart IIII ..... Standards of Performance for Stationary Compression Ignition Internal Combustion Engines

The facility is subject to this subpart. A detailed regulatory breakdown of 40 CFR 60 Subpart IIII is provided in Appendix D.

40 CFR 60, Subpart JJJJ ..... Standards of Performance for Stationary Spark Ignition Internal Combustion Engines

The facility is subject to this subpart. A detailed regulatory breakdown of 40 CFR 60 Subpart JJJJ is provided in Appendix D.

40 CFR 60, Subpart Dc ..... Standards of Performance for Small Industrial–Commercial–Institutional Steam Generating Units

The facility is subject to this subpart. A detailed regulatory breakdown of 40 CFR 60 Subpart Dc is provided in Appendix D.

NESHAP Applicability (40 CFR 61)

40 CFR 61, Subpart H ..... National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities

INL is not proposing to construct or modify any emissions units that would be affected by this regulation. The requirements that are already applicable to the source are included in the Tier I operating permit. Those existing requirements are now incorporated into this permit and the Tier I permit has been canceled.

Idaho DEQ is not delegated this subpart. A detailed breakdown of the regulation is provided in Appendix D.

MACT Applicability (40 CFR 63)

40 CFR 63, Subpart DD ..... National Emission Standards for Hazardous Air Pollutants from Off-site Waste and Recovery Operations

§ 63.680 ..... Applicability and designation of affected sources?

(a) The provisions of this subpart apply to the owner and operator of a plant site for which both of the conditions specified in paragraphs (a)(1) and (a)(2) of this section are applicable. If either one of these conditions does not apply to the plant site, then the owner and operator of the plant site are not subject to the provisions of this subpart.

(1) The plant site is a major source of hazardous air pollutant (HAP) emissions as defined in 40 CFR 63.2.

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5 February 1, 2013 Statement of Basis that supports issuance of Tier I Operating Permit No. T1-2009.0148.
6 INL's boilers total 370 MMBtu/hr

The source was a HAP major source during calendar year 2002 with approximately 12 tons per year of HCl being emitted, and during calendar year 2004 with approximately 17 tons per year of HCl being emitted from the soil remediation project at the Radio Active Waste Management Complex, Organic Carbon in the Vadose Zone (OCVZ) Project. Since 2004 the potential to emit HCl has been reduced to less than 10 tons per year.

(2) At the plant site is located one or more of operations that receives off-site materials as specified in paragraph (b) of this section and the operations is one of the following waste management operations or recovery operations as specified in paragraphs (a)(2)(i) through (a)(2)(vi) of this section.

It is presumed that the INL is involved with one of the operations specified in paragraph (a)(2)(i) through (a)(2)(vi).

With these two criteria met it appears the source is an affected source. However, there is a facility-wide exemption at 40 CFR 63.680(d).

(d) *Facility-wide exemption.* The owner or operator of affected sources subject to this subpart is exempted from the requirements of §§63.682 through 63.699 of this subpart in situations when the total annual quantity of the HAP that is contained in the off-site material received at the plant site is less than 1 megagram per year. For a plant site to be exempted under the provisions of this paragraph (d), the owner or operator must meet the requirements in paragraphs (d)(1) through (d)(3) of this section.

(1) The owner or operator must prepare an initial determination of the total annual HAP quantity in the off-site material received at the plant site. This determination is based on the total quantity of the HAP listed in Table 1 of this subpart as determined at the point-of-delivery for each off-site material stream.

(2) The owner or operator must prepare a new determination whenever the extent of changes to the quantity or composition of the off-site material received at the plant site could cause the total annual HAP quantity in the off-site material received at the plant site to exceed the limit of 1 megagram per year.

(3) The owner or operator must maintain documentation to support the owner's or operator's determination of the total annual HAP quantity in the off-site material received at the plant site. This documentation must include the basis and data used for determining the HAP content of the off-site material.

The permittee has been operating under this exemption under the current Tier I operating permit. INL provided the following in the application for this permit. "As stated in the operating permit INL is exempt from the requirement of Subpart DD when the total annual quantity of the HAP contained in the off-site material received at the plant is less than one megagram (Mg) per year. On May 31, 2002, DOE-ID sent a certified statement to DEQ of the amount of off-site material received at the INTEC for the calendar years 1999, 2000, and 2001. According to the statement, the INL facility did not received off-site material, as defined in Subpart DD, with a total annual quantity of HAPs greater than or equal to 1 Mg (~1.1 tons) per year. The off-site material received in years 1999 (0.03 Mg), 2000 (0.03 Mg) and 2001 (0.06 Mg) shows that the INL is not subject to Subpart DD. The INL has not received off-site material that meets the above cited definition since the compliance date of October 13, 1994.

This regulatory position does not subject the source to the EPA's once in, always in guidance [7] for MACT applicability and Part 70 operating permits. In order to be subject to the guidance the source would have been subject to an "emission limitation or other substantive requirement" of Subpart DD on the "first compliance date." EPA provides examples of what substantive requirements are, they include: "...emissions limitations...", "...leak detection and repair programs, work practice measures, housekeeping measures, etc..., but not a notice requirement." The total HAP quantity determinations and recordkeeping requirements of § 63.680(d) are not "substantive" requirements and the source is not affected by EPA's once in always in guidance for either Subpart DD or for Tier I operating permits (i.e. Part 70 operating permit). Since EPA's once in, always in policy was not triggered and the facility potential to emit HAPs is limited below major source thresholds the facility no longer needs to maintain records.

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7 Potential to Emit for MACT Standards – Guidance on Timing Issues, John S. Seitz, Director, EPA Office of Air Quality Planning and Standards, May 16, 1995.

40 CFR 63, Subpart JJ ..... National Emission Standards for Wood Furniture Manufacturing Operations

§63.800 Applicability.

(a) The affected source to which this subpart applies is each facility that is engaged, either in part or in whole, in the manufacture of wood furniture or wood furniture components and that is located at a plant site that is a major source as defined in 40 CFR part 63, subpart A, §63.2. The owner or operator of a source that meets the definition for an incidental wood furniture manufacturer shall maintain purchase or usage records demonstrating that the source meets the definition in §63.801 of this subpart, but the source shall not be subject to any other provisions of this subpart.

INL is an incidental wood furniture manufacturer and had, as a major facility, maintained records. Since the source is now an area source of HAP emissions this record keeping requirement is no longer required.

Incidental wood furniture manufacturer means a major source that is primarily engaged in the manufacture of products other than wood furniture or wood furniture components and that uses no more than 100 gallons per month of finishing material or adhesives in the manufacture of wood furniture or wood furniture components.

INL provided the following in the application for this permit. "The INL currently meets this definition and was an incidental wood furniture manufacturer on the compliance date of December 7, 1998."

This regulatory position does not subject the source to the EPA's once in, always in guidance for MACT applicability and Part 70 operating permits. In order to be subject to the guidance the source would have been subject to an "emission limitation or other substantive requirement" of Subpart DD on the "first compliance date." EPA provides examples of what substantive requirements are, they include: "...emissions limitations...", "...leak detection and repair programs, work practice measures, housekeeping measures, etc..., but not a notice requirement." The recordkeeping requirements of § 63.800(a) are not "substantive" requirements and the source is not affected by EPA's once in always in guidance for either Subpart JJ or for Tier I operating permits (i.e. Part 70 operating permits). Since EPA's once in, always in policy was not triggered and the facility potential to emit HAPs is limited below major source thresholds the facility no longer needs to maintain records under these major source requirements.

40 CFR 63, Subpart ZZZZ..... National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

Idaho DEQ is not delegated this subpart since INL is not, after this permit action, a Tier I source (i.e. Title V source). A detailed breakdown of the regulation is provided in Appendix D. Currently All RICE at the facility are emergency engines and the source is an area source.

It is noted that a March 27, 2013Voluntary Consent Order[8] (VCO) was developed to address apparent violations of this Subpart. Two ATR Complex engines (M-42 and M-43) operated in a non-emergency status after the May 3, 2013compliance date for major sources without meeting the presumably applicable emission limitations and operating and maintenance requirements of the Subpart that apply to major sources. This Voluntary Consent was developed based on the presumption that INL would be a HAP major source on the May 3, 2013 compliance date. The major source presumption was based on the fact that INL had been a HAP major source in the past. However, in preparing the application for this Facility-wide Emissions Cap permit INL reassessed the facility classification for HAPs and determined that since at least as early as 2006 the facility has actually been an area (minor) source of HAP emissions. Therefore, in retrospect, the March 27, 2013 voluntary consent order was an unnecessary commitment because it was based on an inaccurate presumption that the facility was a HAP major source on that date. For a more complete description see the *Title V Classification* section of this statement of basis.

This permit has been written to require the ATR engines to operate as emergency engines only.

40 CFR 63, Subpart JJJJJJ ..... National Emissions Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources

After this permit action Idaho DEQ is not delegated this subpart since INL is not a Tier I source (i.e. Title V

8 Case No. E-2012.0012, dated March 27, 2013

source). The source is subject to this subpart and a detailed breakdown of the regulation is provided in Appendix D.

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.

Facility Emission Cap (FEC) Requirements – Section 2

Permit Condition 2.2

This permit condition includes the FEC emission limits requested by the permittee and approved by DEQ. Details on how the FEC limits were established are discussed in the Emission Inventory and the Procedures and Requirements for Permits Establishing a Facility Emissions Cap Sections of this Statement of Basis.

Permit Condition 2.3

For all pollutants listed in the FEC Emission Limits section of this permit, each month the permittee shall calculate and record total facility-wide emissions that occurred during the previous consecutive 12 month period, including the individual and total HAP emissions. The permittee is also required to maintain documentation of all emission factors and equations used to estimate emissions, maintain monitoring records of all fuel used in all stationary sources, identifying the company or entity that performed the analyses, and documenting the analytical techniques or methods used. Emission estimates shall be documented with sufficient detail so that DEQ can verify the validity of the emission estimates. Records shall be maintained for a period of at least five years and shall be made available to DEQ representatives upon request. Emissions calculations shall be made using the methods and emissions factors presented in the application, except that credit may be taken for mercury emissions control at the IWTU since this air permit now requires use of the carbon canisters.

The NAAQS compliance demonstration for all combustion sources was based on the potential to emit of the combustion sources at design capacity, or on any fuel usage limitations on combustion sources contained in the source specific operating requirements included in Sections 4 through 11 of the permit. Additional restrictions on the combustion sources are not required to protect the ambient standards.

Permit Condition 2.4

The permittee shall maintain a list of all stationary sources at the facility that emit FEC pollutants. The list shall include:

- Identification if equipment was included in the permit application;
- Identification if in service at time of permit issuance;
- Equipment location;
- Installation date, if installed after permit issuance;
- Date of removal, if removed after permit issuance; and
- Identification if equipment is subject to NSPS requirements (40 CFR 60), or NESHAP requirements (40 CFR 61 & 63).

These requirements will enable inspectors to determine what equipment is on-site and when new equipment is added triggering a modeling assessment. It will also inform the inspector if any of the new equipment is subject to a NSPS or NESHAP.

Permit Condition 2.5

This permit condition specifies when a change to the FEC permit is required as specified at IDAPA 58.01.01.180.01.

Permit Conditions 2.6, 2.7, 2.8

These permit conditions specify the notice and recording requirements for changes at the facility that comply with the FEC permit in accordance with IDAPA 58.01.01.181

Permit Condition 2.9

Specifies the annual emissions reporting requirements in accordance with IDAPA 58.01.01.178.04.b.

Permit Condition 2.10

Includes the renewal requirements of IDAPA 58.01.01.179.02.

Facility-Wide Permit Conditions – Section 3

Permit Conditions 3.1 through 3.13 and 3.15 through 3.74 incorporate State Rules and Federal Regulations and where necessary monitoring requirements are added. The State Rules conditions are self-explanatory. Applicability of the Federal Regulations is described in the Regulatory Review section of this Statement of Basis.

Permit Condition 3.14 limits the sulfur content of fuel oil combusted in on-site boilers and reciprocating internal combustion engines to 15 ppm consistent with the emission inventory and modeling analysis provided in the application for the FEC permit.

Permit Condition 3.74 incorporates federal requirements stating that if there is conflict between the CFR and the permit, the CFR shall govern including any amendments to those regulations. This is standard permit language that DEQ uses.

Permit Conditions 3.75 through 3.83 establishes consistent requirements for all HEPA filters that are required to be operated by this permit. The HEPA filters are required to be operated by existing permits to construct issued to the facility that are terminated by this permitting action. The existing permits had very similar HEPA filter operating requirements, but they were not identical. Permit Conditions 3.75 through 3.83 serve to standardize the HEPA filters requirement. There are no new processes at the facility that are controlled by HEPA filters.

Existing Permit for the Utility Paint Booth – PTC No. 011-00022, issued February 20, 2003 for the Utility Paint Spray Booth – Section 4

The section of the permit is for an existing permitted emission unit. Those requirements are incorporated into this permit as described below and the underlying permit is terminated.

Existing Permit Condition 2.1 describes control equipment used on the booth which is located at the Materials and Fuels Complex (MFC). That description is included in new Permit Condition 4.2.

Existing Permit Condition 2.2 limits emissions of particulate matter (PM) and volatile organic compounds (VOCs). These emission limits are included in new Permit Condition 4.4 without change.

Existing Permit Condition 2.3 includes the opacity limitation of IDAPA 58.01.01.625. That requirement is included in the new permit in the Facility Wide Permit Conditions.

Existing Permit Condition 2.4 limits paint types to those included in the application for the permit or comparable replacements that meet the PM and VOC emission limits. The application that the permit is referring to is the application submitted for the 1990 permit. Limiting the permittee to the paint types included in the application for the 1990 permit, or comparable paints and solvents poses compliance determination issues. First to determine compliance the application for the 1990 permit would need to be available, and second, a determination must be made if alternative paints are "comparable". To avoid these compliance determination issues those requirements were removed from the permit. The permit now has monitoring and record keeping requirements to assure compliance with the PM and VOC emission limits.

Existing Permit Condition 2.5 requires an O&M manual to be developed for operation of the paint booth filter system within 60 days of permit issuance. This permit condition originated in the 1990 permit and this obligation is now obsolete because of the time that has elapsed. New Permit Condition 4.5 simply requires that the manual that has been developed remain on-site and the substantive requirements of what the manual is to address remain exactly the same.

Existing Permit Condition 2.6 requires that filters be in place during operation of the booth and appears in new Permit Condition 4.6 without change.

Existing Permit Condition 2.7 requires the filters to be guaranteed to remove 87% of particulate matter and appears in new Permit Condition 4.7 without change.

New Permit Condition 4.8 includes an Operating Requirement that was within existing Permit Condition 2.8. under Monitoring and Recordkeeping Requirements. The Operating Requirement is that "The permittee shall not use any paints or solvents with potential hourly toxic emission rates that are greater than screening emission rates listed in IDAPA 58.01.01.585 or 586 without prior Department approval". This requirement is unchanged from the existing requirement except that it is moved from the Monitoring and Recordkeeping Requirements section of the permit to the Operating Requirements section.

The monitoring requirements of existing Permit Condition 2.8 for toxic air pollutants are included in the new Permit Condition 4.9 without change.

Existing Permit Condition 2.9 requires the permittee maintain records to show compliance with VOC emission limits. Those Monitoring Requirements are included in new Permit Condition 4.10 without change except that PM was added and the phrase "Each month the total PM and VOC emissions that occurred during the previous consecutive 12-month period shall be recorded" was added to the permit condition and records are required to be maintained in accordance with the general provisions.

Existing Permit for the Chemical Processing Plant (CPP) – PTC No. P-2012.0053, issued September 18, 2012 for four boilers – Section 5.

The requirements of this permit were included in Section 5 of the new permit with the following changes.

Existing emission rate limits of Section 2.3 were changed as indicated below.

~~2.3~~5.4 The SO_2 and NO_x, ~~and beryllium~~ emissions from the CPP-606 boiler stacks shall not exceed any corresponding emissions rate limits listed in the following table.

CPP-606 Boiler Emissions Limits*

Source Description	SO_2		NO_x		~~Beryllium~~	
	lb/hr	T/yr	lb/hr	T/yr	~~lb/hr~~	~~T/yr~~
CPP-606 boilers	~~895~~ 0.18	~~1630~~0.81	~~415~~17.3	75.6	~~1.05E-02~~	~~1.91E-03~~

* The permittee shall not exceed the T/yr listed based on any consecutive 12-month period.

The beryllium emission rate limits were removed from the permit condition because estimated emissions from the four fuel oil boilers using AP-42 emission factors is 4.4E-4 pounds per hour. Which is two orders of magnitude less than the emission rate limit making that limitation unnecessary. The SO_2 and NOx emission limits remain in the permit because they are the rates that were used in the ambient impact assessment that demonstrated compliance with ambient standards. They do not represent boiler emissions at maximum design capacity therefore restrictions are necessary to limit emissions to those used in the ambient impact assessment. The design capacity hourly fuel use for the boilers is 1,033 gallons per hour[9] and the emission estimates provided in the application are based on using 864 gallons per hour.

The SO_2 emission rate limits were changed to reflect emissions that occur from combusting fuel oil with a sulfur content of 0.0015% by weight. This is consistent with the emission rates used in the air pollution dispersion model that demonstrated compliance with ambient standards.

The hourly NOx emission rate limits was adjusted to match emission rates used in the ambient impact assessment.

Existing Permit Condition 2.4 includes the Fuel Burning Equipment particulate matter standard of IDAPA 58.01.01.676. This requirement is now located in the facility-wide section of the permit.

Existing Permit Condition 2.5 includes the opacity standard of IDAPA 58.01.01.625. This Rule is now in the facility-wide section of the permit.

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9 Based #2 fuel oil having a rating of 141,000 Btu/gal

Existing Permit Condition 2.6 was changed as follows.

This permit condition includes the opacity limit of 40 CFR 60 Subpart Dc. This requirement is consolidated with all other 40 CFR 60 Subpart Dc requirements and it is included in the Facility-wide section of the permit.

Existing Permit Condition 2.7 limited boiler fuel sulfur content to 0.3 percent sulfur. This limit has been reduced to 15 ppm and occurs in the FEC section of the permit. The reduction in allowable sulfur content was necessary to be consistent with application submitted for this FEC permit.

This change is consistent with the emission inventory provided in the application.

Existing Permit Condition 2.8 was changed as follows.

This permit condition includes the fuel sulfur limits of 40 CFR 60 Subpart Dc. This requirement is consolidated with all other 40 CFR 60 Subpart Dc requirements in the Facility-wide section of the permit.

Existing Permit Condition 2.9 limits the amount of fuel that may be combusted in the boilers. This restriction was changed to limit the hourly fuel limit consistent with the emission inventory and modeling analysis that was provided in the application. The permit condition has been renumbered to Permit Condition 5.5. An annual fuel restriction was not included because overall NO_x impact from the facility is predicted to be less than 4% of the annual ambient standard.

Existing Permit Condition 2.10 was changed as follows.

This permit condition included 40 CFR 60 Subpart Dc fuel sulfur monitoring requirement. This requirement is consolidated with all other 40 CFR 60 Subpart Dc requirements in the Facility-wide section of the permit.

Existing Permit Condition 2.11 was changed as follows.

This permit condition included 40 CFR 60 Subpart Dc fuel usage monitoring requirement. This requirement is consolidated with all other 40 CFR 60 Subpart Dc requirements in the Facility-wide section of the permit.

Existing Permit Condition 2.12 was changed as follows.

This permit condition included 40 CFR 60 Subpart Dc fuel usage monitoring requirement. This requirement is consolidated with all other 40 CFR 60 Subpart Dc requirements in the Facility-wide section of the permit.

Existing Permit Condition 2.13 was removed from this permit section. Source test reporting requirements now reside in the General Provisions of the permit.

Existing Permit Conditions 2.14 and 2.15 include reporting and record keeping requirements of 40 CFR 60 Subpart Dc. These regulations are now included in the facility-wide section of the permit.

This permit condition included the source test reporting requirements of IDAPA 58.01.01.157.04. This requirement is now located in the General Provisions of the permit.

New Permit Condition 5.6.

This new permit condition requires monitoring the amount of fuel burned in all CPP-606 boilers in units of gallons per day to be able to determine compliance with the fuel usage limit for these boilers.

Existing Permit for the Integrated Waste Treatment Unit (IWTU) – PTC No. 2008.0199, revised August 31, 2009 and originally issued May 3, 2007

This permit remains active and does not change and is not incorporated into this FEC permit. There are no modifications to the IWTU.

However, in order to obtain the FEC permit the applicant is required to estimate NO_2 emissions and demonstrate compliance with the one hour NO_2 standard which was not in affect at the time of issuance of the initial IWTU permit. Therefore the FEC permit includes new emission rate limits and operating requirements for the IWTU to assure compliance with the one hour NO_2 standards. These requirements are included in Section 6 of the permit. Also, the FEC permit includes requirements to operate and maintain carbon canisters to control mercury emissions from the IWTU similar to the requirements in the existing RCRA permit. Even though IWTU already includes carbon canisters to control mercury emissions those requirements are not in an air permit. The requirement to operate carbon canisters are now included in this air permit to allow the facility to use emissions reductions attributed to carbon canister in demonstrating compliance with FEC emission limits.

New Permit Condition 6.3 limits NOx emissions to 12.4 pounds per hour consistent with the emission rate used in the air pollution dispersion model that demonstrated compliance with the NO_2 one hour standard.

New Permit Condition 6.4 limits the throughput rate of the IWTU to 210 gallons per hour consistent with the emission inventory provided in the application for this FEC permit and consistent with the application submitted for the existing PTC No. 2008.0199, revised August 31, 2009 and issued May 3, 2007. PTC No. 2008.0199 was issued based on the design throughput rate of 3.5 gallons per minute (or 210 gallons per hour). Even though the existing permit was issued based on the design throughput rate of 3.5 gallons per minute (or 210 gallons per hour) the existing permit only includes an annual throughput limit and now a short term limit is necessary to assure compliance with the one hour NO_2 standard. New Permit Condition 6.7 requires the permittee to monitor the throughput to the IWTU unit once each hour to assure compliance with the throughput limit.

New Permit Condition 6.5 requires carbon canisters to control mercury emissions. The IWTU is already equipped with carbon canisters and operation of the canisters is required by the existing RCRA permit for the IWTU. This requirement is added to the air permit so that the facility may take credit for control of mercury emissions when calculating emission at the facility as required by this air permit. The permittee shall develop, submit and receive DEQ approval for a mercury breakthrough monitoring plan prior to startup of the IWTU after this permit issuance with any waste or simulated waste that contains mercury. The permittee may rely upon an approved mercury breakthrough monitoring plan in a Resource Conservation and Recovery Act permit provided that plan is submitted to DEQ's Air Quality Division. The plan is required to be submitted to the Air Quality Division so that DEQ has a record what the plan is that is required by the air permit.

Permit Condition 6.6 requires a NOx source tests on the IWTU stack to assure compliance with the pound per hour emission rate limit. This test is similar to the source test requirements in the existing permit that remains active for the IWTU. An initial test is required after the IWTU starts up after this permit issuance, and then periodic ongoing testing is required. The schedule for ongoing testing is dependent on how close the most recent test was to the pound per hour NOx emission limit.

Existing Permit for the Specific Manufacturing Capability (SMC) – PTC No. P-2011.0092, issued October 18, 2011 – Section 7

The requirements of this permit are included in Section 7 of the new permit and the existing permit is terminated. Permit conditions for 40 CFR 61 Subpart H requirements (existing Permit Conditions 7, 17 & 22), opacity limits (existing Permit Condition 10), fuel burning equipment particulate matter grain loading limits (existing Permit Condition 11), and HEPA filter requirements (existing Permit Conditions 13 & 16) are included in the Facility-Wide permit conditions.

The boiler emission limits of existing Permit Condition 8, shown below, have been deleted from the permit. Justification for deleting the limits follows the table.

~~8.0 Boiler Emission Limits~~

~~The combined emissions of SO_2 and NO_x from the three SMC boilers that vent to stacks TAN-679-067a, TAN-679-067b and TAN-679-068 shall not exceed any emissions rate limit in the following table.~~

~~**Table 3 COMBINED BOILER EMISSION LIMITS**[e]~~

~~Source Description~~	~~SO_2~~		~~NO_x~~	
	~~lb/hr[a]~~	~~T/yr[b]~~	~~lb/hr[a]~~	~~T/yr[b]~~
~~Combined Emissions From Boilers TAN 679-067a (25 MMBtu/hr), TAN 679-067b (60 Horsepower), and TAN 679-068 (25 MMBtu/hr)~~	~~19.8~~	~~79.3~~	~~5.53~~	~~22.1~~

a) Pounds per hour, as determined by a test method prescribed by IDAPA 58.01.01.157, EPA reference method, or DEQ approved alternative.

b) Tons per any consecutive 12-calendar month period.

The TAN 679-067b boiler will be removed from the site and the permit prohibits its use. The applicant estimated emissions from the two remaining boilers at the maximum rated input capacity of each of the boilers. Estimated emissions at rated capacity are greater than the existing NOx permit limits as shown in the following table. The increased NOx emission rate was included in the air pollution dispersion model that demonstrates compliance with ambient standards. Sulfur dioxide emissions are significantly reduced because the permit requires the sulfur content of fuel to be no greater than 0.0015% and the existing permit limited sulfur content to 0.5%. The following table shows the existing permit limits along with the maximum emission rates included in the application for this FEC permit.

Source Description	SO_2		NO_x	
	lb/hr (Existing Permit)	lb/hr (Current Permit Application)	lb/hr (Existing Permit)	lb/hr (Current Permit Application)
Combined Emissions From Boilers TAN 679-067a (25 MMBtu/hr), TAN 679-067b (60 Horsepower), and TAN 679-068 (25 MMBtu/hr)	19.8	0.0765	5.53	7.18

The AP-42 emission factors used to estimate NOx and SO_2 emissions in the current application are rated "A"(i.e. in developing the emissions factors tests were performed providing adequate validation of the emission factors). The sulfur dioxide emission factor is based on conversion of all of the sulfur in the fuel to sulfur dioxide.

The air pollution model that demonstrated compliance with ambient standards used these maximum hourly emissions rates at design capacity for each hour of the year. Since emission rates were estimated at maximum capacity of the boilers, emission rate limits and fuel usage rate limitations are not required in the permit to assure that emissions do not exceed those in the ambient impact assessment. The Facility-wide permit conditions limit fuel sulfur content to 0.0015% (15 ppm).

Existing Permit Condition 14 has been modified as follows:

~~1~~47.6. Only distillate fuel oil, liquefied petroleum gas (LPG), or natural gas shall be combusted in ~~the three~~ SMC Boilers: TAN 679-067a (25 MMBtu/hr), ~~TAN 679-067b (60 Horsepower),~~ and TAN 679-068 (25 MMBtu/hr). The TAN 679-067b (60 Horsepower) boiler shall not be operated.

Existing Permit Conditions 18 & 19 required monitoring fuel consumption in the boilers and then to calculate emissions of NOx and SO_2. These permit condition are not included in the permit because emission estimates from these boilers were at maximum capacity and it is not necessary to calculate emissions.

Existing Permit Condition 20 has been modified as follows:

~~20~~7.7 Each month The permittee shall maintain a record of ~~either one or the other of the following types of painting production information. The records shall be maintained in accordance with permit condition 31:~~

- ~~the number of parts processed during the previous consecutive 12 months at the 2B Paint Process (i.e., that vent to stacks TAN 629-012 and TAN 629-014), or;~~
- the quantity of each material used in the 2B Paint Process, including but not limited to pre-treatment wash primer, primer, topcoat, clear coat, catalyst, activator, hardener, and thinner/reducer and the quantities of VOCs contained in these materials.

This permit condition was modified because the applicant did not demonstrate that monitoring the number of parts processed would give a reliable indication of VOC emissions, which is what the monitoring requirement was intended to accomplish.

All other existing permit conditions remain unchanged except that they have been renumbered.

Existing Permit for the Advanced Test Reactor (ATR) Generator Engines – PTC P-000534, issued May 18, 2004 – Section 8

This existing permit allowed operation of the engines in non-emergency situations and is terminated. New permit conditions limiting the generator engines to operate as emergency stationary RICE consistent with the requirements of Consent Order Case No. E-2012.0012, dated March 27, 2013 are included in Section 8 of the permit.

Existing Permit for the Transuranic Storage Area -Retrieval Enclosure (TSA-RE) – PTC P-2011.0109 issued July 31, 2013 – Section 9

The requirements of this permit are included in Section 9 of the new permit except permit conditions for 40 CFR 61 Subpart H requirements (existing Permit Conditions 7, 20 & 25), the opacity standard (existing Permit Condition 9), and HEPA filter requirements (existing Permit Conditions 15 & 24) now appear in the Facility-Wide permit conditions. The existing permit has been terminated.

Existing Permit Condition 8 was modified as follows:

~~8~~9.3 Criteria Pollutant Emission Limits

Nitrogen oxides (NOx) emissions from the mobile equipment operating within the RCE/ICE and TSA-R CCE at the TSA-RE shall not exceed ~~33.4~~:

7.5 pounds per hour;

33.0 tons per any consecutive 12-month period.

The NOx limit applies to equipment used to move soil and retrieve/treat waste within the RCE/ICE at the TSA-RE.

The NOx limit does not apply to dump trucks, tugs, yard cranes, and other equipment that enters and leaves the RCE/ICE and TSA-R CCE at the TSA-RE to move soil, retrieved waste, or other materials from the RCE/ICE and TSA-R CCE to another location outside of the RCE/ICE and TSA-R CCE. This permit condition no longer applies after retrieval of the existing waste containers, and the soil covering those waste containers, within the RCE/ICE and TSA-R CCE has been completed.

This permit condition was modified to reflect the emission rate used in the air pollution dispersion model that demonstrated compliance with the ambient standards.

Existing Permit Conditions 13 and 22 limited hours of operation of the emergency generator to 500 hours per year and required monitoring of hours of operation of the emergency generators. These permit conditions are removed from the permit. In order for this generator to qualify as an emergency generator in accordance with Federal regulations the hours of operation are limited to 100 hours per year and the 500 hour per year limit is not necessary.

Existing Permit Conditions 14 and 23 limited hourly fuel consumption of the emergency generator to 40 gallons per hour and required maintaining documentation that the generator does not exceed 40 gallons per hour. These permit conditions are not necessary because the maximum hourly emission rates from the generator are based on the maximum capacity of the generator to combust fuel oil, which is 40 gallons per hour.

New Permit Condition 9.8 & 9.9

These permit conditions limit the NOx emissions rates and total horsepower for the mobile equipment operated within the Transuranic Storage Area Retrieval Enclosure (TSA-RE). These limitations assure that emissions will remain below the NOx emission rate limits included in this permit for mobile equipment. These limitations were proposed by the permittee.

All other permit conditions are unchanged, including limits for waste retrieval and waste treatment.

Existing Permit for the Advanced Mixed Waste Treatment Facility (AMWTF) – PTC P-023-0001 issued June 7, 2002 – Section 10

The requirements of this permit were included in Section 10 of the new permit except permit conditions for 40 CFR 61 Subpart H requirements (existing Permit Conditions 1.1, 3.1 & 4.3), the opacity standard (existing Permit Condition 1.4), and HEPA filter requirements (existing Permit Conditions 2.6, 3.4 & 4.1) now appear in the Facility-Wide permit conditions.

Existing Permit Condition 1.2 limited criteria air pollutant emissions from three boilers. In the application for this FEC permit INL estimated emissions from the boilers at maximum rated capacity and emission rate limits are no longer necessary and they have been removed from the permit. Similarly the fuel consumption limits of existing Permit Condition 2.3 and the fuel consumption monitoring requirements of existing Permit Condition 3.3 have also been removed from the permit.

Existing Permit Condition 3.2 (now Permit Condition 10.8) requires throughput monitoring of the waste processed at the facility. The existing permit condition required records to be kept for a two year period. The record keeping duration has been changed to 5 years consistent with the General Provisions of the FEC permit.

All other permit conditions are unchanged, including the limits for waste retrieval and treatment.

Existing Permit for the Distillation of Sodium From Waste at INTEC – PTC P-2013.0023 issued August 30, 2013

All of the provisions of this permit are included in the facility-wide permit conditions. The requirements of 40 CFR 61 Subpart H are included as are the HEPA filter requirements. There are no other requirements in this permit. The existing permit has been terminated.

Existing Permit for the Materials and Fuels Complex (MFC) Fuel Manufacturing Facility (FMF) – PTC P-2011.0077 issued April 8, 2011.

All of the provisions of this permit are included in the facility-wide permit conditions. The requirements of 40 CFR 61 Subpart H are included as are the HEPA filter requirements. There are no other requirements in this permit. The existing permit has been terminated.

Existing Permit for the Fluorinel and Storage Facility (FAST) – PTC P-2011.0124 issued December 30, 2011.

INL requested that permit not be incorporated into the FEC permit and it remains active.

Existing Permit for the Materials and Fuels Complex (MFC) Fuel Conditioning Facility (FCF) – PTC P-2008.0073 issued December 5, 1989 and revised June 10, 2008. – Section 11

The requirements of this permit are included in Section 11 of the new permit without change except permit conditions for 40 CFR 61 Subpart H requirements (existing Permit Conditions 2.3, 2.5, 2.10 & 2.12), and HEPA filter requirements (existing Permit Conditions 2.7, 2.8 & 2.11) now appear in the Facility-Wide permit conditions. The existing permit has been terminated.

Existing Permit for Materials and Fuels Complex (MFC) Irradiated Materials Characterization Laboratory (IMCL) – PTC P-2011.0113, issued January 31, 2012

All of the provisions of this permit are included in the facility-wide permit conditions. The requirements of 40 CFR 61 Subpart H are included as are the HEPA filter requirements. There are no other requirements in this permit. The existing permit has been terminated.

Permit Condition 12.1

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Permit Condition 12.2

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Permit Condition 12.3

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Permit Condition 12.4

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 12.5

Includes standard FEC permit language for notifications of construction.

Permit Condition 12.7

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Permit Condition 12.8

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Permit Condition 12.9

The performance test report provision requires that the permittee report any performance test results to DEQ within 60 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 12.10

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Permit Condition 12.11

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130-136.

Permit Condition 12.12

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Permit Condition 12.13

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 12.14

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Permit Condition 12.15

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Permit Condition 12.16

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

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 and is included in Appendix I of this statement of basis.

APPENDIX A – EMISSIONS INVENTORIES

[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 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 Si 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 we

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)
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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
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
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

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	%

Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000

ze-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for

ight.

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)	Benz(a)- anthracene (lbs)	Benzene (lbs)	1,1,1- Trichloroethane (lbs)	Lead (lbs)	Manganese (lbs)
2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06	4.01E-06	2.14E-04	2.36E-04	1.23E-03	8.18E-04
7.66E-06	7.25E-06	1.64E-05	8.57E-07	8.07E-06	1.12E-01	5.66E-06	1.36E-05	7.25E-04	8.00E-04	4.16E-03	2.77E-03
8.83E-06	8.36E-06	1.89E-05	9.88E-07	9.29E-06	1.29E-01	6.52E-06	1.57E-05	8.36E-04	9.22E-04	4.79E-03	3.19E-03
8.87E-06	8.40E-06	1.90E-05	9.93E-07	9.34E-06	1.29E-01	6.55E-06	1.57E-05	8.40E-04	9.26E-04	4.81E-03	3.21E-03
5.95E-06	5.63E-06	1.27E-05	6.66E-07	6.26E-06	8.68E-02	4.39E-06	1.06E-05	5.63E-04	6.21E-04	3.23E-03	2.15E-03
2.72E-06	2.58E-06	5.83E-06	3.05E-07	2.87E-06	3.97E-02	2.01E-06	4.83E-06	2.58E-04	2.84E-04	1.48E-03	9.85E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.29E-08	4.07E-08	9.20E-08	4.81E-09	4.52E-08	6.27E-04	3.17E-08	7.62E-08	4.07E-06	4.48E-06	2.33E-05	1.55E-05
5.72E-06	5.41E-06	1.22E-05	6.40E-07	6.02E-06	8.35E-02	4.22E-06	1.01E-05	5.41E-04	5.97E-04	3.10E-03	2.07E-03
8.84E-06	8.37E-06	1.89E-05	9.90E-07	9.31E-06	1.29E-01	6.53E-06	1.57E-05	8.37E-04	9.23E-04	4.80E-03	3.20E-03
8.16E-06	7.73E-06	1.75E-05	9.14E-07	8.59E-06	1.19E-01	6.03E-06	1.45E-05	7.73E-04	8.52E-04	4.43E-03	2.95E-03
9.51E-06	9.01E-06	2.04E-05	1.06E-06	1.00E-05	1.39E-01	7.03E-06	1.69E-05	9.01E-04	9.93E-04	5.16E-03	3.44E-03
7.13E-06	6.75E-06	1.53E-05	7.98E-07	7.51E-06	1.04E-01	5.27E-06	1.27E-05	6.75E-04	7.45E-04	3.87E-03	2.58E-03
4.33E-06	4.10E-06	9.27E-06	4.84E-07	4.56E-06	6.32E-02	3.20E-06	7.68E-06	4.10E-04	4.52E-04	2.35E-03	1.57E-03
2.36E-06	2.24E-06	5.06E-06	2.65E-07	2.49E-06	3.45E-02	1.75E-06	4.19E-06	2.24E-04	2.47E-04	1.28E-03	8.56E-04
1.40E-06	1.33E-06	3.00E-06	1.57E-07	1.48E-06	2.05E-02	1.04E-06	2.49E-06	1.33E-04	1.46E-04	7.61E-04	5.07E-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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.20E-08	4.92E-08	1.11E-07	5.82E-09	5.47E-08	7.59E-04	3.84E-08	9.22E-08	4.92E-06	5.43E-06	2.82E-05	1.88E-05
3.52E-06	3.34E-06	7.55E-06	3.94E-07	3.71E-06	5.14E-02	2.60E-06	6.25E-06	3.34E-04	3.68E-04	1.91E-03	1.28E-03
4.39E-06	4.16E-06	9.40E-06	4.91E-07	4.62E-06	6.41E-02	3.24E-06	7.79E-06	4.16E-04	4.58E-04	2.38E-03	1.59E-03

5.81E-06	5.50E-06	1.24E-05	6.51E-07	6.12E-06	8.49E-02	4.30E-06	1.03E-05	5.50E-04	6.07E-04	3.16E-03	2.10E-03
9.53E-05	9.02E-05	2.04E-04	1.07E-05	1.00E-04	1.39E+00	7.04E-05	1.69E-04	9.02E-03	9.95E-03	5.17E-02	3.45E-02
4.76E-05	4.51E-05	1.02E-04	5.33E-06	5.02E-05	6.96E-01	3.52E-05	8.45E-05	4.51E-03	4.98E-03	2.59E-02	1.72E-02

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)
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
1.39E-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
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
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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
7.77E-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
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
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
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
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
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
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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
9.41E-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
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
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

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
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
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

Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
1.48E-06	3.30E-03
5.02E-06	1.12E-02
5.78E-06	1.29E-02
5.81E-06	1.29E-02
3.89E-06	8.68E-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
2.81E-08	6.27E-05
3.74E-06	8.35E-03
5.79E-06	1.29E-02
5.34E-06	1.19E-02
6.23E-06	1.39E-02
4.67E-06	1.04E-02
2.83E-06	6.32E-03
1.55E-06	3.45E-03
9.18E-07	2.05E-03
0.00E+00	0.00E+00
0.00E+00	0.00E+00
0.00E+00	0.00E+00
3.40E-08	7.59E-05
2.31E-06	5.14E-03
2.87E-06	6.41E-03

3.81E-06	8.49E-03
6.24E-05	1.39E-01
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 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 Distributio 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 sulf

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)
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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
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
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

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	%

; for Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal

n and Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for

ur by weight.

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)	Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)
1.09E-04	2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06	4.01E-06	2.14E-04	2.36E-04	1.23E-03
1.13E-02	2.35E-04	2.23E-04	5.03E-04	2.63E-05	2.47E-04	3.43E+00	1.74E-04	4.17E-04	2.23E-02	2.45E-02	1.28E-01
9.41E-03	1.95E-04	1.85E-04	4.18E-04	2.18E-05	2.06E-04	2.85E+00	1.44E-04	3.46E-04	1.85E-02	2.04E-02	1.06E-01
7.88E-03	1.63E-04	1.55E-04	3.50E-04	1.83E-05	1.72E-04	2.39E+00	1.21E-04	2.90E-04	1.55E-02	1.71E-02	8.87E-02
6.43E-03	1.33E-04	1.26E-04	2.86E-04	1.49E-05	1.40E-04	1.95E+00	9.86E-05	2.37E-04	1.26E-02	1.39E-02	7.24E-02
3.01E-03	6.24E-05	5.91E-05	1.34E-04	6.99E-06	6.58E-05	9.12E-01	4.61E-05	1.11E-04	5.91E-03	6.52E-03	3.39E-02
2.27E-03	4.71E-05	4.46E-05	1.01E-04	5.27E-06	4.96E-05	6.87E-01	3.48E-05	8.35E-05	4.46E-03	4.91E-03	2.55E-02
2.23E-03	4.62E-05	4.38E-05	9.90E-05	5.17E-06	4.87E-05	6.75E-01	3.41E-05	8.20E-05	4.38E-03	4.83E-03	2.51E-02
1.45E-03	3.02E-05	2.86E-05	6.46E-05	3.38E-06	3.18E-05	4.40E-01	2.23E-05	5.35E-05	2.86E-03	3.15E-03	1.64E-02
1.54E-03	3.20E-05	3.03E-05	6.86E-05	3.58E-06	3.37E-05	4.68E-01	2.37E-05	5.68E-05	3.03E-03	3.34E-03	1.74E-02
5.34E-03	1.11E-04	1.05E-04	2.37E-04	1.24E-05	1.17E-04	1.62E+00	8.18E-05	1.97E-04	1.05E-02	1.16E-02	6.01E-02
8.68E-03	1.80E-04	1.70E-04	3.86E-04	2.02E-05	1.90E-04	2.63E+00	1.33E-04	3.19E-04	1.70E-02	1.88E-02	9.78E-02
1.06E-02	2.20E-04	2.08E-04	4.71E-04	2.46E-05	2.31E-04	3.21E+00	1.62E-04	3.90E-04	2.08E-02	2.30E-02	1.19E-01
1.10E-02	2.28E-04	2.16E-04	4.88E-04	2.55E-05	2.40E-04	3.32E+00	1.68E-04	4.04E-04	2.16E-02	2.38E-02	1.24E-01
9.81E-03	2.03E-04	1.93E-04	4.36E-04	2.28E-05	2.14E-04	2.97E+00	1.50E-04	3.61E-04	1.93E-02	2.12E-02	1.10E-01
9.27E-03	1.92E-04	1.82E-04	4.12E-04	2.15E-05	2.02E-04	2.81E+00	1.42E-04	3.41E-04	1.82E-02	2.01E-02	1.04E-01
6.21E-03	1.29E-04	1.22E-04	2.76E-04	1.44E-05	1.36E-04	1.88E+00	9.51E-05	2.28E-04	1.22E-02	1.34E-02	6.99E-02
2.67E-03	5.54E-05	5.25E-05	1.19E-04	6.20E-06	5.84E-05	8.09E-01	4.09E-05	9.83E-05	5.25E-03	5.79E-03	3.01E-02
2.04E-03	4.24E-05	4.01E-05	9.07E-05	4.74E-06	4.46E-05	6.18E-01	3.13E-05	7.51E-05	4.01E-03	4.42E-03	2.30E-02
7.35E-04	1.52E-05	1.44E-05	3.27E-05	1.71E-06	1.61E-05	2.23E-01	1.13E-05	2.71E-05	1.44E-03	1.59E-03	8.28E-03
8.67E-04	1.80E-05	1.70E-05	3.85E-05	2.01E-06	1.89E-05	2.62E-01	1.33E-05	3.19E-05	1.70E-03	1.88E-03	9.76E-03
8.67E-04	1.80E-05	1.70E-05	3.85E-05	2.01E-06	1.89E-05	2.62E-01	1.33E-05	3.19E-05	1.70E-03	1.88E-03	9.76E-03
5.14E-03	1.07E-04	1.01E-04	2.28E-04	1.19E-05	1.12E-04	1.56E+00	7.88E-05	1.89E-04	1.01E-02	1.11E-02	5.79E-02
7.26E-03	1.50E-04	1.43E-04	3.22E-04	1.68E-05	1.58E-04	2.20E+00	1.11E-04	2.67E-04	1.43E-02	1.57E-02	8.17E-02

9.89E-03	2.05E-04	1.94E-04	4.39E-04	2.29E-05	2.16E-04	2.99E+00	1.51E-04	3.64E-04	1.94E-02	2.14E-02	1.11E-01
1.36E-01	2.82E-03	2.67E-03	6.04E-03	3.16E-04	2.97E-03	4.12E+01	2.08E-03	5.00E-03	2.67E-01	2.94E-01	1.53E+00
6.80E-02	1.41E-03	1.33E-03	3.02E-03	1.58E-04	1.48E-03	2.06E+01	1.04E-03	2.50E-03	1.33E-01	1.47E-01	7.65E-01

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)
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
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
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
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
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
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
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
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
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
1.16E-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
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
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
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
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
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
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
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
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
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
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
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
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
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
5.45E-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

7.42E-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
1.02E+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
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

Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
1.13E-03	1.48E-06	3.30E-03
1.17E-01	1.54E-04	3.43E-01
9.76E-02	1.28E-04	2.85E-01
8.17E-02	1.07E-04	2.39E-01
6.67E-02	8.74E-05	1.95E-01
3.12E-02	4.09E-05	9.12E-02
2.35E-02	3.08E-05	6.87E-02
2.31E-02	3.03E-05	6.75E-02
1.51E-02	1.98E-05	4.40E-02
1.60E-02	2.10E-05	4.68E-02
5.54E-02	7.25E-05	1.62E-01
9.00E-02	1.18E-04	2.63E-01
1.10E-01	1.44E-04	3.21E-01
1.14E-01	1.49E-04	3.32E-01
1.02E-01	1.33E-04	2.97E-01
9.61E-02	1.26E-04	2.81E-01
6.44E-02	8.43E-05	1.88E-01
2.77E-02	3.63E-05	8.09E-02
2.12E-02	2.77E-05	6.18E-02
7.62E-03	9.99E-06	2.23E-02
8.98E-03	1.18E-05	2.62E-02
8.99E-03	1.18E-05	2.62E-02
5.33E-02	6.98E-05	1.56E-01
7.52E-02	9.86E-05	2.20E-01

1.03E-01	1.34E-04	2.99E-01
1.41E+00	1.85E-03	4.12E+00
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 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 Siz 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 wei

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)
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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
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
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

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	%

Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal

:e-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for

ght.

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)	Benz(a)- anthracene (lbs)	Benzene (lbs)	1,1,1- Trichloroethane (lbs)	Lead (lbs)
2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06	4.01E-06	2.14E-04	2.36E-04	1.23E-03
2.05E-04	1.94E-04	4.38E-04	2.29E-05	2.15E-04	2.99E+00	1.51E-04	3.63E-04	1.94E-02	2.14E-02	1.11E-01
1.82E-04	1.73E-04	3.91E-04	2.04E-05	1.92E-04	2.66E+00	1.35E-04	3.24E-04	1.73E-02	1.91E-02	9.91E-02
1.54E-04	1.46E-04	3.30E-04	1.72E-05	1.62E-04	2.25E+00	1.14E-04	2.73E-04	1.46E-02	1.61E-02	8.36E-02
1.05E-04	9.90E-05	2.24E-04	1.17E-05	1.10E-04	1.53E+00	7.73E-05	1.86E-04	9.90E-03	1.09E-02	5.68E-02
2.36E-05	2.23E-05	5.05E-05	2.64E-06	2.48E-05	3.45E-01	1.74E-05	4.19E-05	2.23E-03	2.46E-03	1.28E-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
5.56E-05	5.26E-05	1.19E-04	6.22E-06	5.85E-05	8.11E-01	4.11E-05	9.86E-05	5.26E-03	5.80E-03	3.02E-02
1.77E-04	1.67E-04	3.79E-04	1.98E-05	1.86E-04	2.58E+00	1.31E-04	3.14E-04	1.67E-02	1.85E-02	9.60E-02
1.97E-04	1.86E-04	4.21E-04	2.20E-05	2.07E-04	2.87E+00	1.45E-04	3.49E-04	1.86E-02	2.05E-02	1.07E-01
1.95E-04	1.85E-04	4.18E-04	2.19E-05	2.06E-04	2.85E+00	1.44E-04	3.47E-04	1.85E-02	2.04E-02	1.06E-01
1.68E-04	1.59E-04	3.60E-04	1.88E-05	1.77E-04	2.46E+00	1.24E-04	2.99E-04	1.59E-02	1.76E-02	9.14E-02
1.35E-04	1.28E-04	2.89E-04	1.51E-05	1.42E-04	1.97E+00	9.97E-05	2.39E-04	1.28E-02	1.41E-02	7.32E-02
4.48E-05	4.24E-05	9.60E-05	5.02E-06	4.72E-05	6.54E-01	3.31E-05	7.95E-05	4.24E-03	4.68E-03	2.43E-02
1.09E-05	1.03E-05	2.33E-05	1.22E-06	1.15E-05	1.59E-01	8.05E-06	1.93E-05	1.03E-03	1.14E-03	5.92E-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
7.44E-05	7.04E-05	1.59E-04	8.32E-06	7.83E-05	1.09E+00	5.49E-05	1.32E-04	7.04E-03	7.76E-03	4.04E-02
1.45E-04	1.38E-04	3.11E-04	1.63E-05	1.53E-04	2.12E+00	1.07E-04	2.58E-04	1.38E-02	1.52E-02	7.89E-02

1.96E-04	1.86E-04	4.21E-04	2.20E-05	2.07E-04	2.87E+00	1.45E-04	3.49E-04	1.86E-02	2.05E-02	1.07E-01
2.07E-03	1.96E-03	4.43E-03	2.32E-04	2.18E-03	3.02E+01	1.53E-03	3.67E-03	1.96E-01	2.16E-01	1.12E+00
1.03E-03	9.79E-04	2.22E-03	1.16E-04	1.09E-03	1.51E+01	7.64E-04	1.84E-03	9.79E-02	1.08E-01	5.62E-01

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)
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
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
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
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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.01E-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
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
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
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
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
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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
2.69E-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
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

7.11E-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
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
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

Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
1.13E-03	1.48E-06	3.30E-03
1.02E-01	1.34E-04	2.99E-01
9.12E-02	1.20E-04	2.66E-01
7.70E-02	1.01E-04	2.25E-01
5.23E-02	6.85E-05	1.53E-01
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
2.78E-02	3.64E-05	8.11E-02
8.84E-02	1.16E-04	2.58E-01
9.83E-02	1.29E-04	2.87E-01
9.77E-02	1.28E-04	2.85E-01
8.42E-02	1.10E-04	2.46E-01
6.74E-02	8.83E-05	1.97E-01
2.24E-02	2.93E-05	6.54E-02
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
3.72E-02	4.87E-05	1.09E-01
7.27E-02	9.52E-05	2.12E-01

9.82E-02	1.29E-04	2.87E-01
1.03E+00	1.35E-03	3.02E+00
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 Fu 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 S 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 w

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)
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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
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

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
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
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

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	%

el Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000

Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10)

veight.

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)	Benz(a)-anthracene (lbs)	Benzene (lbs)	1,1,1-Trichloroethane (lbs)	Lead (lbs)
2.26E-06	2.14E-06	4.84E-06	2.53E-07	2.38E-06	3.30E-02	1.67E-06	4.01E-06	2.14E-04	2.36E-04	1.23E-03
8.29E-05	7.85E-05	1.78E-04	9.28E-06	8.73E-05	1.21E+00	6.13E-05	1.47E-04	7.85E-03	8.66E-03	4.50E-02
7.64E-05	7.23E-05	1.64E-04	8.55E-06	8.04E-05	1.12E+00	5.64E-05	1.36E-04	7.23E-03	7.98E-03	4.15E-02
5.74E-05	5.43E-05	1.23E-04	6.42E-06	6.04E-05	8.38E-01	4.24E-05	1.02E-04	5.43E-03	5.99E-03	3.11E-02
4.28E-05	4.05E-05	9.17E-05	4.79E-06	4.51E-05	6.25E-01	3.16E-05	7.60E-05	4.05E-03	4.47E-03	2.32E-02
3.54E-05	3.35E-05	7.58E-05	3.96E-06	3.73E-05	5.17E-01	2.61E-05	6.28E-05	3.35E-03	3.69E-03	1.92E-02
1.48E-05	1.41E-05	3.18E-05	1.66E-06	1.56E-05	2.17E-01	1.10E-05	2.63E-05	1.41E-03	1.55E-03	8.06E-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
1.63E-05	1.54E-05	3.49E-05	1.82E-06	1.72E-05	2.38E-01	1.20E-05	2.89E-05	1.54E-03	1.70E-03	8.85E-03
5.50E-05	5.21E-05	1.18E-04	6.16E-06	5.79E-05	8.03E-01	4.07E-05	9.76E-05	5.21E-03	5.75E-03	2.99E-02
6.47E-05	6.13E-05	1.39E-04	7.24E-06	6.81E-05	9.45E-01	4.78E-05	1.15E-04	6.13E-03	6.75E-03	3.51E-02
5.86E-05	5.55E-05	1.25E-04	6.56E-06	6.17E-05	8.56E-01	4.33E-05	1.04E-04	5.55E-03	6.12E-03	3.18E-02
4.56E-05	4.31E-05	9.76E-05	5.10E-06	4.80E-05	6.65E-01	3.37E-05	8.08E-05	4.31E-03	4.76E-03	2.47E-02
3.94E-05	3.73E-05	8.45E-05	4.41E-06	4.15E-05	5.76E-01	2.91E-05	7.00E-05	3.73E-03	4.12E-03	2.14E-02
3.20E-05	3.03E-05	6.85E-05	3.58E-06	3.37E-05	4.67E-01	2.36E-05	5.67E-05	3.03E-03	3.34E-03	1.74E-02
2.07E-05	1.96E-05	4.42E-05	2.31E-06	2.18E-05	3.02E-01	1.53E-05	3.67E-05	1.96E-03	2.16E-03	1.12E-02
8.93E-07	8.45E-07	1.91E-06	9.99E-08	9.40E-07	1.30E-02	6.60E-07	1.58E-06	8.45E-05	9.32E-05	4.85E-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
1.54E-07	1.46E-07	3.29E-07	1.72E-08	1.62E-07	2.24E-03	1.14E-07	2.73E-07	1.46E-05	1.60E-05	8.34E-05
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.23E-05	3.06E-05	6.91E-05	3.61E-06	3.40E-05	4.71E-01	2.38E-05	5.73E-05	3.06E-03	3.37E-03	1.75E-02
4.58E-05	4.34E-05	9.81E-05	5.13E-06	4.82E-05	6.69E-01	3.38E-05	8.13E-05	4.34E-03	4.78E-03	2.49E-02

6.41E-05	6.07E-05	1.37E-04	7.18E-06	6.75E-05	9.36E-01	4.74E-05	1.14E-04	6.07E-03	6.69E-03	3.48E-02
7.85E-04	7.43E-04	1.68E-03	8.79E-05	8.27E-04	1.15E+01	5.80E-04	1.39E-03	7.43E-02	8.20E-02	4.26E-01
3.93E-04	3.72E-04	8.41E-04	4.39E-05	4.13E-04	5.73E+00	2.90E-04	6.97E-04	3.72E-02	4.10E-02	2.13E-01

Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaphtlene (lbs)	Phenanthrene (lbs)
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
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
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
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
1.55E-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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.90E-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
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
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
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
1.65E-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
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
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
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
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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
5.56E-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
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
1.17E-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
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

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
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
1.42E-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

Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k)-fluoranthene (lbs)	POM (lbs)
4.47E-06	1.13E-03	1.48E-06	3.30E-03
1.64E-04	4.15E-02	5.43E-05	1.21E-01
1.51E-04	3.82E-02	5.00E-05	1.12E-01
1.13E-04	2.87E-02	3.76E-05	8.38E-02
8.47E-05	2.14E-02	2.80E-05	6.25E-02
7.00E-05	1.77E-02	2.32E-05	5.17E-02
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
3.22E-05	8.15E-03	1.07E-05	2.38E-02
1.09E-04	2.75E-02	3.60E-05	8.03E-02
1.28E-04	3.23E-02	4.24E-05	9.45E-02
1.16E-04	2.93E-02	3.84E-05	8.56E-02
9.01E-05	2.28E-02	2.98E-05	6.65E-02
7.80E-05	1.97E-02	2.58E-05	5.76E-02
6.32E-05	1.60E-02	2.09E-05	4.67E-02
4.09E-05	1.03E-02	1.35E-05	3.02E-02
1.77E-06	4.46E-04	5.85E-07	1.30E-03
0.00E+00	0.00E+00	0.00E+00	0.00E+00
3.04E-07	7.68E-05	1.01E-07	2.24E-04
0.00E+00	0.00E+00	0.00E+00	0.00E+00
6.38E-05	1.61E-02	2.11E-05	4.71E-02
9.06E-05	2.29E-02	3.00E-05	6.69E-02

1.27E-04	3.21E-02	4.20E-05	9.36E-02
1.55E-03	3.93E-01	5.14E-04	1.15E+00
7.76E-04	1.96E-01	2.57E-04	5.73E-01

		SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)		
	Emission Factor (lb/MMBtu)[a,b]	0.29	4.41	0.95	0.31	0.31	0.36		
Emergency ICE ≤ 600 hp									
Annual Fuel usage (gallons)	10646	2.16E-01	3.29E+00	7.08E-01	2.31E-01	2.31E-01	2.68E-01		
	Emission Factor (lb/MMBtu)[c,d,e,g]	1.52E-03	3.2	0.85	0.0697	0.0697	0.09		
Emergency ICE > 600 hp									
Annual Fuel usage (gallons)	15749	1.67E-03	3.53E+00	9.37E-01	7.68E-02	7.68E-02	9.92E-02		
	Total	2.18E-01	6.81E+00	1.65E+00	3.08E-01	3.08E-01	3.68E-01		

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)
	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
Propane (gallons)	98	2.62E-06	1.01E-02	1.66E-02	8.65E-05	8.65E-05	1.32E-04	2.26E-04	1.36E-04
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
	Total	4.57E-06	1.76E-02	2.89E-02	1.51E-04	1.51E-04	2.30E-04	3.93E-04	2.38E-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)
All ICE - Total	2.18E-01	6.83E+00	1.67E+00	3.08E-01	3.08E-01	3.68E-01	3.93E-04	2.38E-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	%

1,3-Butadiene (lbs)		Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)						
3.91E-05		7.67E-04	9.25E-05	9.33E-04						

5.83E-02		1.14E+00	1.38E-01	1.39E+00						
		2.52E-05	7.88E-06	7.76E-04						

		5.56E-02	1.74E-02	1.71E+00						
5.83E-02		1.20E+00	1.55E-01	3.10E+00						

1,3-Butadiene (lbs)	1,3-Dichloro-propene (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)	Carbon Tetra-chloride (lbs)	Chloro-benzene (lbs)	Chloroform (lbs)	1,1-Dichloroethane (lbs)	1,2-Dichloroethane (lbs)	1,2-Dichloro-propane (lbs)
6.63E-04	1.27E-05	2.79E-03	2.63E-03	1.58E-03	1.77E-05	1.29E-05	1.37E-05	1.13E-05	1.13E-05	1.30E-05
5.91E-03	1.13E-04	2.49E-02	2.35E-02	1.41E-02	1.58E-04	1.15E-04	1.22E-04	1.01E-04	1.01E-04	1.16E-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	7.48E-05	7.48E-05	8.60E-05
1.03E-02	1.97E-04	4.33E-02	4.09E-02	2.45E-02	2.75E-04	2.00E-04	2.13E-04	1.76E-04	1.76E-04	2.02E-04

1,3-Butadiene (lbs)	1,3-Dichloro-propene (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)	Carbon Tetra-chloride (lbs)	Chloro-benzene (lbs)	Chloroform (lbs)	1,1-Dichloroethane (lbs)	1,2-Dichloroethane (lbs)	1,2-Dichloro-propane (lbs)
6.86E-02	1.97E-04	1.24E+00	1.96E-01	3.13E+00	2.75E-04	2.00E-04	2.13E-04	1.76E-04	1.76E-04	2.02E-04

		Formaldehyde (lbs)			Naphthalene (lbs)			Toluene (lbs)		Xylenes (lbs)
		1.18E-03			8.48E-05			4.09E-04		2.85E-04
		1.76E+00			1.26E-01			6.10E-01		4.25E-01
		7.89E-05			1.30E-04			2.81E-04		1.93E-04
		1.74E-01			2.87E-01			6.20E-01		4.26E-01
		1.93E+00			4.13E-01			1.23E+00		8.50E-01

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)
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
2.21E-04	1.90E-04	1.83E-01	2.73E-02	3.67E-04	8.66E-04	1.26E-03	1.06E-04	4.98E-03	6.40E-05	1.74E-03
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
3.85E-04	3.31E-04	3.18E-01	4.75E-02	6.40E-04	1.51E-03	2.19E-03	1.85E-04	8.67E-03	1.12E-04	3.03E-03

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)
3.85E-04	3.31E-04	2.25E+00	4.75E-02	6.40E-04	4.15E-01	2.19E-03	1.85E-04	1.24E+00	1.12E-04	8.53E-01

Emergency ICE Fuel Usage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Frequency	Duration (min)	Annual Fuel Consumption (gal or ft^3)
Engines ≤ 600 hp							
AMWTP	S1-GEN 1001	225	11.00	gal/hr	M	15	33.0
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
			26.00	gal/hr	A	120	52.0
ATR Complex	633-M-1	315	16.10	gal/hr	W	30	418.6
			16.10	gal/hr	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
			20.00	gal/hr	A	120	40.0
ATR Complex	688-M-2	368	20.00	gal/hr	W	30	520.0
			20.00	gal/hr	A	120	40.0
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-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-665-002	310	14.00	gal/hr	W	31	376.1
CFA	TAN-610-002	310	14.00	gal/hr	W	33	400.4
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	EFW-ENG-4301	140	7.24	gal/hr	W	30	188.2
RWMC	S GEN-RE501	157	8.12	gal/hr	W	30	211.1
RWMC	EFW-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- 798--008	27	1.70	gal/hr	Q	120	13.6
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-754	77	4.00	gal/hr	M	140	112.0
MFC	ANL-704	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	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-768-028	173	9.00	gal/hr	Q	120	72.0
MFC	ANL-1728	230	10.40	gal/hr	M	150	312.0
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-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	10646.5
Liquified Natural Gas							
CFA	CFA-1611	220	1810.00	ft3/hr	M	17	6154.0
						Total	6154.0

Emergency ICE Fuel Usage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Frequency	Duration (min)	Annual Fuel Consumption (gal or ft^3)
Propane							
CFA	GE-B28601	61	8.40	gal/hr	Q	14	7.8
CFA	TAN-601	55	6.11	gal/hr	W	17	90.0
						Total	97.9
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
			44.00	gal/hr	Q	180	528.0
ATR Complex	670-M-43	2118	44.00	gal/hr	M	60	528.0
			44.00	gal/hr	Q	180	528.0
ATR Complex	674-M-6	2132	44.00	gal/hr	M	60	528.0
			44.00	gal/hr	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	686-016	1445	69.70	gal/hr	M	60	836.4
NRF	686-017	1445	69.70	gal/hr	M	60	836.4
NRF	686-018	1445	69.70	gal/hr	M	60	836.4
NRF	686-019	1445	69.70	gal/hr	M	60	836.4
SMC	TAN 679-012	890	20.40	gal/hr	M	60	244.8
						Total	15748.6

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

[1a]P-2008.0199 May 3, 2007, Statement of Basis , Table 5.1

[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 I 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 an 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 b

ICP/EXT-05-01116, Table 2: IWTU Building Heat, Steam Usage:					1.56E+03	lb/hr
ICP/EXT-05-01116, Table 2: IWTU Process Heat, Steam Usage:					7.23E+03	lb/hr @ 3.5 gpm waste feed rate (conservative)
Conversion					120	lb steam/gal fuel

Emission Point: CPP-606 Boilers (IWTU Contribution)

Month/Year	Total Fuel Projected, Monthly, gal	Total Steam Projected, Monthly, lbs	Actual IWTU Steam Usage, lbs		SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as NMTOCs (tons)	Ethyl Benzene (lbs)
				Emissions Increase due to IWTU[1a]	**13.9**	**6.53**	**1.63**	**0.65**		**0.08**	
				Emission Factor, lb/1000gal[a,b,c,d,e,f]	0.213	20	5	3.3	**2.3**	0.2	6.36E-05
Oct, 14	9,692	1,163,095	192,234		1.03E-03	9.69E-02	2.42E-02	1.60E-02	1.11E-02	9.69E-04	6.16E-04
Nov, 14	9,380	1,125,576	1,049,848		9.99E-04	9.38E-02	2.34E-02	1.55E-02	1.08E-02	9.38E-04	5.97E-04
Dec, 14	54,537	6,544,447	1,735,362		5.81E-03	5.45E-01	1.36E-01	9.00E-02	6.27E-02	5.45E-03	3.47E-03
Jan, 15	9,692	1,163,095			1.03E-03	9.69E-02	2.42E-02	1.60E-02	1.11E-02	9.69E-04	6.16E-04
Feb, 15	8,754	1,050,538			9.32E-04	8.75E-02	2.19E-02	1.44E-02	1.01E-02	8.75E-04	5.57E-04
Mar, 15	54,537	6,544,447			5.81E-03	5.45E-01	1.36E-01	9.00E-02	6.27E-02	5.45E-03	3.47E-03
Apr, 15	52,778	6,333,336			5.62E-03	5.28E-01	1.32E-01	8.71E-02	6.07E-02	5.28E-03	3.36E-03
May, 15	54,537	6,544,447			5.81E-03	5.45E-01	1.36E-01	9.00E-02	6.27E-02	5.45E-03	3.47E-03
June, 15	43,398	5,207,760			4.62E-03	4.34E-01	1.08E-01	7.16E-02	4.99E-02	4.34E-03	2.76E-03
July, 15	44,845	5,381,352			4.78E-03	4.48E-01	1.12E-01	7.40E-02	5.16E-02	4.48E-03	2.85E-03
Aug,15	44,845	5,418,871			4.78E-03	4.48E-01	1.12E-01	7.40E-02	5.16E-02	4.48E-03	2.85E-03
Sept, 15	43,398	5,245,279			4.62E-03	4.34E-01	1.08E-01	7.16E-02	4.99E-02	4.34E-03	2.76E-03
Oct, 15	54,537	6,544,447			5.81E-03	5.45E-01	1.36E-01	9.00E-02	6.27E-02	5.45E-03	3.47E-03
Nov, 15	52,778	6,333,336			5.62E-03	5.28E-01	1.32E-01	8.71E-02	6.07E-02	5.28E-03	3.36E-03
Dec, 15	33,357	4,002,887			3.55E-03	3.34E-01	8.34E-02	5.50E-02	3.84E-02	3.34E-03	2.12E-03
Jan, 16	9,692	1,163,095			1.03E-03	9.69E-02	2.42E-02	1.60E-02	1.11E-02	9.69E-04	6.16E-04

Feb, 16	9,692	1,163,095			1.03E-03	9.69E-02	2.42E-02	1.60E-02	1.11E-02	9.69E-04	6.16E-04
Mar, 16	9,692	1,163,095			1.03E-03	9.69E-02	2.42E-02	1.60E-02	1.11E-02	9.69E-04	6.16E-04
Total	600,143	72,092,200	2,977,444		6.39E-02	6.00E+00	1.50E+00	9.90E-01	6.90E-01	6.00E-02	3.82E-02

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	%

Fuel Oil Combustion: External Combustion Sources, Boilers < 100 Million Btu/hr, Distillate oil fired (2.00 lb/1000 gal for

d Size-Specific Emission Factors for Uncontrolled Industrial Boiler firing Distillate Oil (1.00 lb/1000 gal for PM10) for a total

/ weight.

Toluene (lbs)	Anthracene (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)	Benz(a)-anthracene (lbs)
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	4.01E-06
6.01E-02	1.18E-05	4.12E-05	1.06E-03	2.19E-05	2.07E-05	4.69E-05	2.45E-06	2.31E-05	3.20E-01	1.62E-05	3.89E-05
5.82E-02	1.14E-05	3.99E-05	1.02E-03	2.12E-05	2.01E-05	4.54E-05	2.37E-06	2.23E-05	3.10E-01	1.57E-05	3.76E-05
3.38E-01	6.65E-05	2.32E-04	5.94E-03	1.23E-04	1.17E-04	2.64E-04	1.38E-05	1.30E-04	1.80E+00	9.11E-05	2.19E-04
6.01E-02	1.18E-05	4.12E-05	1.06E-03	2.19E-05	2.07E-05	4.69E-05	2.45E-06	2.31E-05	3.20E-01	1.62E-05	3.89E-05
5.43E-02	1.07E-05	3.72E-05	9.54E-04	1.98E-05	1.87E-05	4.24E-05	2.21E-06	2.08E-05	2.89E-01	1.46E-05	3.51E-05
3.38E-01	6.65E-05	2.32E-04	5.94E-03	1.23E-04	1.17E-04	2.64E-04	1.38E-05	1.30E-04	1.80E+00	9.11E-05	2.19E-04
3.27E-01	6.44E-05	2.24E-04	5.75E-03	1.19E-04	1.13E-04	2.55E-04	1.34E-05	1.26E-04	1.74E+00	8.81E-05	2.12E-04
3.38E-01	6.65E-05	2.32E-04	5.94E-03	1.23E-04	1.17E-04	2.64E-04	1.38E-05	1.30E-04	1.80E+00	9.11E-05	2.19E-04
2.69E-01	5.29E-05	1.84E-04	4.73E-03	9.81E-05	9.29E-05	2.10E-04	1.10E-05	1.03E-04	1.43E+00	7.25E-05	1.74E-04
2.78E-01	5.47E-05	1.91E-04	4.89E-03	1.01E-04	9.60E-05	2.17E-04	1.13E-05	1.07E-04	1.48E+00	7.49E-05	1.80E-04
2.78E-01	5.47E-05	1.91E-04	4.89E-03	1.01E-04	9.60E-05	2.17E-04	1.13E-05	1.07E-04	1.48E+00	7.49E-05	1.80E-04
2.69E-01	5.29E-05	1.84E-04	4.73E-03	9.81E-05	9.29E-05	2.10E-04	1.10E-05	1.03E-04	1.43E+00	7.25E-05	1.74E-04
3.38E-01	6.65E-05	2.32E-04	5.94E-03	1.23E-04	1.17E-04	2.64E-04	1.38E-05	1.30E-04	1.80E+00	9.11E-05	2.19E-04
3.27E-01	6.44E-05	2.24E-04	5.75E-03	1.19E-04	1.13E-04	2.55E-04	1.34E-05	1.26E-04	1.74E+00	8.81E-05	2.12E-04
2.07E-01	4.07E-05	1.42E-04	3.64E-03	7.54E-05	7.14E-05	1.61E-04	8.44E-06	7.94E-05	1.10E+00	5.57E-05	1.34E-04
6.01E-02	1.18E-05	4.12E-05	1.06E-03	2.19E-05	2.07E-05	4.69E-05	2.45E-06	2.31E-05	3.20E-01	1.62E-05	3.89E-05

6.01E-02	1.18E-05	4.12E-05	1.06E-03	2.19E-05	2.07E-05	4.69E-05	2.45E-06	2.31E-05	3.20E-01	1.62E-05	3.89E-05
6.01E-02	1.18E-05	4.12E-05	1.06E-03	2.19E-05	2.07E-05	4.69E-05	2.45E-06	2.31E-05	3.20E-01	1.62E-05	3.89E-05
3.72E+00	7.32E-04	2.55E-03	6.54E-02	1.36E-03	1.28E-03	2.90E-03	1.52E-04	1.43E-03	1.98E+01	1.00E-03	2.41E-03

Benzene (lbs)	1,1,1-Trichloro-ethane (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)	Nickel (lbs)	Arsenic (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Copper (lbs)	Zinc (lbs)	Selenium (lbs)	Acenaph-tlene (lbs)	Phenan-threne (lbs)
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
2.07E-03	2.29E-03	1.19E-02	7.93E-03	3.96E-03	3.96E-03	5.29E-03	3.96E-03	3.96E-03	3.96E-03	7.93E-03	5.29E-03	1.98E-02	2.05E-04	1.02E-04
2.01E-03	2.21E-03	1.15E-02	7.67E-03	3.84E-03	3.84E-03	5.11E-03	3.84E-03	3.84E-03	3.84E-03	7.67E-03	5.11E-03	1.92E-02	1.98E-04	9.85E-05
1.17E-02	1.29E-02	6.69E-02	4.46E-02	2.23E-02	2.23E-02	2.97E-02	2.23E-02	2.23E-02	2.23E-02	4.46E-02	2.97E-02	1.12E-01	1.15E-03	5.73E-04
2.07E-03	2.29E-03	1.19E-02	7.93E-03	3.96E-03	3.96E-03	5.29E-03	3.96E-03	3.96E-03	3.96E-03	7.93E-03	5.29E-03	1.98E-02	2.05E-04	1.02E-04
1.87E-03	2.07E-03	1.07E-02	7.16E-03	3.58E-03	3.58E-03	4.77E-03	3.58E-03	3.58E-03	3.58E-03	7.16E-03	4.77E-03	1.79E-02	1.85E-04	9.19E-05
1.17E-02	1.29E-02	6.69E-02	4.46E-02	2.23E-02	2.23E-02	2.97E-02	2.23E-02	2.23E-02	2.23E-02	4.46E-02	2.97E-02	1.12E-01	1.15E-03	5.73E-04
1.13E-02	1.25E-02	6.48E-02	4.32E-02	2.16E-02	2.16E-02	2.88E-02	2.16E-02	2.16E-02	2.16E-02	4.32E-02	2.88E-02	1.08E-01	1.11E-03	5.54E-04
1.17E-02	1.29E-02	6.69E-02	4.46E-02	2.23E-02	2.23E-02	2.97E-02	2.23E-02	2.23E-02	2.23E-02	4.46E-02	2.97E-02	1.12E-01	1.15E-03	5.73E-04
9.29E-03	1.02E-02	5.32E-02	3.55E-02	1.77E-02	1.77E-02	2.37E-02	1.77E-02	1.77E-02	1.77E-02	3.55E-02	2.37E-02	8.87E-02	9.16E-04	4.56E-04
9.60E-03	1.06E-02	5.50E-02	3.67E-02	1.83E-02	1.83E-02	2.45E-02	1.83E-02	1.83E-02	1.83E-02	3.67E-02	2.45E-02	9.17E-02	9.46E-04	4.71E-04
9.60E-03	1.06E-02	5.50E-02	3.67E-02	1.83E-02	1.83E-02	2.45E-02	1.83E-02	1.83E-02	1.83E-02	3.67E-02	2.45E-02	9.17E-02	9.46E-04	4.71E-04
9.29E-03	1.02E-02	5.32E-02	3.55E-02	1.77E-02	1.77E-02	2.37E-02	1.77E-02	1.77E-02	1.77E-02	3.55E-02	2.37E-02	8.87E-02	9.16E-04	4.56E-04
1.17E-02	1.29E-02	6.69E-02	4.46E-02	2.23E-02	2.23E-02	2.97E-02	2.23E-02	2.23E-02	2.23E-02	4.46E-02	2.97E-02	1.12E-01	1.15E-03	5.73E-04
1.13E-02	1.25E-02	6.48E-02	4.32E-02	2.16E-02	2.16E-02	2.88E-02	2.16E-02	2.16E-02	2.16E-02	4.32E-02	2.88E-02	1.08E-01	1.11E-03	5.54E-04
7.14E-03	7.87E-03	4.09E-02	2.73E-02	1.36E-02	1.36E-02	1.82E-02	1.36E-02	1.36E-02	1.36E-02	2.73E-02	1.82E-02	6.82E-02	7.04E-04	3.50E-04
2.07E-03	2.29E-03	1.19E-02	7.93E-03	3.96E-03	3.96E-03	5.29E-03	3.96E-03	3.96E-03	3.96E-03	7.93E-03	5.29E-03	1.98E-02	2.05E-04	1.02E-04

2.07E-03	2.29E-03	1.19E-02	7.93E-03	3.96E-03	3.96E-03	5.29E-03	3.96E-03	3.96E-03	3.96E-03	7.93E-03	5.29E-03	1.98E-02	2.05E-04	1.02E-04
2.07E-03	2.29E-03	1.19E-02	7.93E-03	3.96E-03	3.96E-03	5.29E-03	3.96E-03	3.96E-03	3.96E-03	7.93E-03	5.29E-03	1.98E-02	2.05E-04	1.02E-04
1.28E-01	1.42E-01	7.36E-01	4.91E-01	2.45E-01	2.45E-01	3.27E-01	2.45E-01	2.45E-01	2.45E-01	4.91E-01	3.27E-01	1.23E+00	1.27E-02	6.30E-03

Fluorene (lbs)	Naphthalene (lbs)	Benzo(b,k) Fluoranthene (lbs)	POM (lbs)
4.47E-06	1.13E-03	1.48E-06	3.30E-03
4.33E-05	1.10E-02	1.43E-05	3.20E-02
4.19E-05	1.06E-02	1.39E-05	3.10E-02
2.44E-04	6.16E-02	8.07E-05	1.80E-01
4.33E-05	1.10E-02	1.43E-05	3.20E-02
3.91E-05	9.89E-03	1.30E-05	2.89E-02
2.44E-04	6.16E-02	8.07E-05	1.80E-01
2.36E-04	5.96E-02	7.81E-05	1.74E-01
2.44E-04	6.16E-02	8.07E-05	1.80E-01
1.94E-04	4.90E-02	6.42E-05	1.43E-01
2.00E-04	5.07E-02	6.64E-05	1.48E-01
2.00E-04	5.07E-02	6.64E-05	1.48E-01
1.94E-04	4.90E-02	6.42E-05	1.43E-01
2.44E-04	6.16E-02	8.07E-05	1.80E-01
2.36E-04	5.96E-02	7.81E-05	1.74E-01
1.49E-04	3.77E-02	4.94E-05	1.10E-01
4.33E-05	1.10E-02	1.43E-05	3.20E-02

4.33E-05	1.10E-02	1.43E-05	3.20E-02
4.33E-05	1.10E-02	1.43E-05	3.20E-02
2.68E-03	6.78E-01	8.88E-04	1.98E+00

P-2008.0199, Maximum liquid waste throughput:	1,114,000	gallons
P-2008.0199, Maximum liquid waste throughput rate:	3.5	gpm
Projected actual liquid waste throughput rate:	2.5	gpm

[1] P-2008.0199 August 31, 2009, Statement of Basis Table 3.2 and Tables 2 and 3 of EDF-6495, Rev. 2

[2] P-2008.0199 August 31, 2009, Appendix B, Table 1, Page 2: PM_{10} controlled emissions:	3.92E-08	tons/year
[3] EDF-6495 Table 2, Lead abated emissions:	6.51E-12	tons/year
[4] P-2008.0199 August 31, 2009, Table 3.2, Lead unabated emissions:	7.24E-05	tons/year

ICP/EXT-05-01116, Table 2: IWTU Building Heat, Steam Usage:	1.56E+03	lb/hr
ICP/EXT-05-01116, Table 2: IWTU Process Heat, Steam Usage:	7.23E+03	lb/hr @ 3.5 gpm waste feed rate (conservative)
Conversion factor	120	lb steam/gal fuel

Emission Point: STK-SRE-140 Stack (Based upon 2.5 gpm feed rate)								Emis		
Month/Year	Liquid Waste to be Processed, gals @ 2.5 gpm	Liquid Surrogate Processed, gals @ 2.5 gpm	SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	VOCs, as TOCs (tons)	Month/Year	Hydrochloric acid	Arsenic Compounds (inorganic including arsine)
Abated Emission Rates, lbs/hr @ 2.5 gpm			2.73E+00	8.85E+00	1.64E-01	1.06E-08	0.00E+00	**Emission Rates, lbs/hr @ 2.5 gpm**	9.36E-03	3.35E-06
Abated Emission Rates[1], lbs/hr @ 3.5 gpm			3.83E+00	1.24E+01	2.30E-01	1.48E-08	0.00E+00	**Emission Rates[1], lbs/hr @ 3.5 gpm**	1.31E-02	4.69E-06
								Unabated Emission Rates[1], lbs/hr @ 3.5 gpm	1.31	4.69E-04
PTE[1], tons			10.15	32.86	0.61	0.436	0.0	**PTE[1,4], tons**	3.47E+00	1.24E-03
Unabated Emission Factor, lbs/gal liquid waste processed			1.82E-02	5.90E-02	1.10E-03	7.83E-04	0.00E+00	**Unabated Emission Factor, lbs/gal liquid waste processed**	6.24E-03	2.23E-06
Abated Emission Factor, lbs/gal liquid waste processed[2]						7.04E-11		**Abated Emission Factor, lbs/gal liquid waste processed[3]**		
Abated Emission Factor			0	0	0	0.9997	0	**Abated Emission Factor (est.)**	0.99	0.99
Dec, 14	0	36,553.60	3.33E-01	1.08E+00	2.00E-02	1.29E-09	0.00E+00	Dec, 14	1.14E-03	4.08E-07
Jan, 15	0	22,154.40	2.02E-01	6.54E-01	1.21E-02	7.80E-10	0.00E+00	Jan, 15	6.91E-04	2.47E-07
Feb, 15	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	Feb, 15	0.00E+00	0.00E+00
Mar, 15	104,400	10,000.00	1.04E+00	3.37E+00	6.26E-02	4.03E-09	0.00E+00	Mar, 15	3.57E-03	1.28E-06
Apr, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	Apr, 15	3.37E-03	1.21E-06
May, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	May, 15	3.48E-03	1.25E-06
June, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	June, 15	3.37E-03	1.21E-06
July, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	July, 15	3.48E-03	1.25E-06

Aug,15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Aug,15	3.48E-03	1.25E-06
Sept, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	Sept, 15	3.37E-03	1.21E-06
Oct, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Oct, 15	3.48E-03	1.25E-06
Nov, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Nov, 15	3.48E-03	1.25E-06
Dec, 15	58,892	0	5.37E-01	1.74E+00	3.22E-02	2.07E-09	0.00E+00	Dec, 15	1.84E-03	6.58E-07
Total (gal, tons)	1,114,000	68,708	10.15	32.86	0.61	0.00	0.00	Total (tons)	3.47E-02	1.24E-05
									6.95E+01	2.49E-02

Assume surrogate has same chemical composition as liquid waste, exclusive of radionuclides.
Assume surrogate usage does not count as part of liquid waste feed permitted quantity for P-2008.0199.

sion Point: STK-SRE-140 Stack (Based upon 2.5 gpm feed rate)

Beryllium Compounds	Cadmium Compounds	Chromium Compounds	Lead Compounds[1]	Mercury Compounds	Nickel Compounds	Selenium Compounds
1.07E-06	1.94E-03	3.64E-03	1.75E-12	3.79E-04	1.84E-03	4.99E-07
1.50E-06	2.71E-03	5.10E-03	2.45E-12	5.30E-04	2.58E-03	6.98E-07
1.50E-04	2.71E-01	0.51	2.73E-05	2.65	2.58E-01	6.98E-05
3.98E-04	7.19E-01	1.35E+00	7.24E-05	7.03	0.68	0.00
7.14E-07	1.29E-03	2.43E-03	1.30E-07	1.26E-02	1.23E-03	3.32E-07
			1.17E-14			
0.99	0.99	0.99	0.9999	0.9998	0.99	0.99
1.31E-07	2.36E-04	4.44E-04	2.38E-10	4.61E-05	2.25E-04	6.07E-08
7.91E-08	1.43E-04	2.69E-04	1.44E-10	2.80E-05	1.36E-04	3.68E-08
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.09E-07	7.38E-04	1.39E-03	7.43E-10	1.44E-04	7.03E-04	1.90E-07
3.86E-07	6.97E-04	1.31E-03	7.02E-10	1.36E-04	6.63E-04	1.79E-07
3.99E-07	7.20E-04	1.36E-03	7.25E-10	1.41E-04	6.86E-04	1.85E-07
3.86E-07	6.97E-04	1.31E-03	7.02E-10	1.36E-04	6.63E-04	1.79E-07
3.99E-07	7.20E-04	1.36E-03	7.25E-10	1.41E-04	6.86E-04	1.85E-07

3.99E-07	7.20E-04	1.36E-03	7.25E-10	1.41E-04	6.86E-04	1.85E-07
3.86E-07	6.97E-04	1.31E-03	7.02E-10	1.36E-04	6.63E-04	1.79E-07
3.99E-07	7.20E-04	1.36E-03	7.25E-10	1.41E-04	6.86E-04	1.85E-07
3.99E-07	7.20E-04	1.36E-03	7.25E-10	1.41E-04	6.86E-04	1.85E-07
2.10E-07	3.80E-04	7.15E-04	3.83E-10	7.43E-05	3.62E-04	9.79E-08
3.98E-06	7.19E-03	1.35E-02	7.24E-09	1.41E-03	6.84E-03	1.85E-06
7.96E-03	1.44E+01	2.71E+01	1.45E-05	2.81E+00	1.37E+01	3.70E-03

	1,1,1-Trichloroethane	1,1,2,2-Tetrachloro-ethane	1,1-Dichloroethylene	1,2-Dichloroethane	2-Butanone	Arsenic compounds	Benzene	Cadmium compounds
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

	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	1.72E-02	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
HAP
1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane
1,1-Dichloroethylene
1,2-Dichloroethane
2-Butanone
Arsenic compounds
Benzene
Cadmium compounds
Carbon tetrachloride
Chloroform
Chromium compounds
Cyanide compounds
Lead compounds
Mercury compounds
Methylene chloride
Nickel compounds
Polychlorinated biphenyls
Selenium compounds
Tetrachloroethylene
Toluene
Trichloroethylene

a. See Excel file "CY13 HAP Emissions_CPP-659 & Information files.

Sodium Distillation and Treatment at CPP-666[c]							
Contributor	CO (lbs/yr)	NO_x (lbs/yr)	SO_2 (lbs/yr)	VOC (lbs/yr)		HAP	Usage (lb)

TSA-RE (Retrieval/Inner Contamination Enclosure and Cargo Contamination Enclosure) - 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)	Total Emissions (Unabated) (lb/yr)	Pollutant
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]**
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]**
1,1,1-Trichloroethane	2.3	2.09E-06	5.13E-08	1.45E-04	2.30E-06	1.49E-04	1.31E+00	1,1,1-Trichloroethane
1,1,2,2-Tetrachloroethane	0.00001	9.10E-12	2.23E-13	6.30E-10	1.00E-11	6.49E-10	5.69E-06	1,1,2,2-Tetrachloroethane
1,1-Dichloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	1,1-Dichloroethane
1,1-Dichloroethylene	0.01	9.10E-09	2.23E-10	6.30E-07	1.00E-08	6.49E-07	5.69E-03	1,1-Dichloroethylene
1,2-Dichloroethane	0.00226	2.06E-09	5.04E-11	1.42E-07	2.26E-09	1.47E-07	1.29E-03	1,2-Dichloroethane
1,2-Dichloropropane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	1,2-Dichloropropane
1,4-Dichlorobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	1,4-Dichlorobenzene
2,2,4-Trimethyl pentane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	2,2,4-Trimethyl pentane
2,4-Dinitrotoluene	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.64E+00	2,4-Dinitrotoluene
2-Butanone	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	2-Butanone
Arsenic	0.86	7.22E-05	1.77E-06	7.22E-06	7.95E-05	1.61E-04	1.41E+00	Arsenic
Benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Benzene
Beryllium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.64E+00	Beryllium
Cadmium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.64E+00	Cadmium
Carbon tetrachloride	0.78	7.10E-07	1.74E-08	4.91E-05	7.80E-07	5.06E-05	4.44E-01	Carbon tetrachloride[c]
Chlorobenzene	0.00005	4.55E-11	1.12E-12	3.15E-09	5.00E-11	3.25E-09	2.84E-05	Chlorobenzene
Chloroform	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Chloroform
Chromium	0.24	2.02E-05	4.94E-07	2.02E-06	2.22E-05	4.48E-05	3.93E-01	Chromium
Cresols (m, p & o)	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Cresols (m, p & o)
Cyanide	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.64E+00	Cyanide
Ethyl benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Ethyl benzene
Hexachlorobenzene	0.0000564	5.13E-11	1.26E-12	3.55E-09	5.64E-11	3.66E-09	3.21E-05	Hexachlorobenzene
Hexachloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Hexachloroethane
Lead	25	2.10E-03	5.15E-05	2.10E-04	2.31E-03	4.67E-03	4.09E+01	Lead
Mercury	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Mercury
Methanol	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Methanol
Methyl isobutyl ketone	0.00007	6.37E-11	1.56E-12	4.41E-09	7.00E-11	4.55E-09	3.98E-05	Methyl isobutyl ketone
Methylene chloride	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Methylene chloride
Nickel								Nickel
Nitrobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Nitrobenzene

Polychlorinated Biphenyls	15	1.26E-03	3.09E-05	1.26E-04	1.39E-03	2.80E-03	2.46E+01	Polychlorinated Biphenyls
Selenium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	1.64E+00	Selenium
Tetrachloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Tetrachloroethylene
Toluene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Toluene
Trichloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Trichloroethylene
Xylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	5.69E-01	Xylene

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

AMWTF Emissions								
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)
		4.93E-04	**1.74E-03**	**1.72E-03**	**1.77E-04**	**4.13E-03**		
		5.30E-09	**1.90E-08**	**1.80E-08**	**4.90E-12**	**4.23E-08**		
15	1	4.93E-06	1.74E-05	1.72E-05	2.66E-05	6.6E-05	5.79E-01	1.89E+00
0	1	4.93E-06	1.74E-05	1.72E-05	0.00E+00	4.0E-05	3.46E-01	3.46E-01
1	0	0.00E+00	0.00E+00	0.00E+00	1.77E-06	1.8E-06	1.55E-02	5.84E-01
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.67E-01
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	3.63E-01
								5.69E-01
								5.69E-01
								5.69E-01
								1.64E+00
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
1	1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	3.71E-06	1.41E+00
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
1	1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	3.71E-06	1.64E+00
1	1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	3.71E-06	1.64E+00
5	1	4.93E-06	1.74E-05	1.72E-05	8.85E-06	4.8E-05	4.24E-01	8.67E-01
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	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
1	1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	3.71E-06	3.93E-01
								5.69E-01
1	0	0.00E+00	0.00E+00	0.00E+00	4.90E-14	4.9E-14	4.29E-10	1.64E+00
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
								3.21E-05
								5.69E-01
1	25	1.33E-09	4.75E-09	4.50E-09	4.90E-14	1.1E-08	9.26E-05	4.09E+01
2.5	1	4.93E-06	1.74E-05	1.72E-05	4.43E-06	4.4E-05	3.85E-01	9.54E-01
0.003	1	4.93E-06	1.74E-05	1.72E-05	5.31E-09	4.0E-05	3.46E-01	9.15E-01
								3.98E-05
0.07	1	4.93E-06	1.74E-05	1.72E-05	1.24E-07	4.0E-05	3.47E-01	9.16E-01
1	0	0.00E+00	0.00E+00	0.00E+00	4.90E-14	4.9E-14	4.29E-10	4.29E-10
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01

								2.46E+01
1	1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	3.71E-06	1.64E+00
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
1	1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	3.62E-01	9.31E-01
0.005	1	4.93E-06	1.74E-05	1.72E-05	8.85E-09	4.0E-05	3.46E-01	9.15E-01

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).

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.

Basis for Emission Factors

a. 40 CFR 89.112, "Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines," Paragraph 112(a), Table 1.

b. Emission factors obtained from AP-42, Chapter 3, "Stationary Internal Combustion Engines," Section 3.3, "Gasoline and Diesel Industrial Engines (Final Section, Supplement B, Octobe

c. Excavator (1) is 1998 Gradall XL5200 excavator: Cummins 6BTA 5.9 turbo-charged diesel engine, Tier I (165 hp at 2,000 rpm). Telehandler is 115-hp Tier II John Deere engines. Assu telehandlers operating during CERCLA exhumation activities. One excavtor and two telehandlers operating during RCRA operations.

d Emission factors obtained from AP-42, Chapter 3, "Stationary Internal Combustion Engines," Section 3.3, "Gasoline and Diesel Industrial Engines (Final Section, Supplement B, Octobe

e Mobile material handling equipment run time estimates: Based upon 8 hrs a day equipment operation over 10 hr single shift. Operation cycle:Typically 4-10 shifts per week with maximu hrs shifts per week.

f For HAP, emission factor (lb/hp-hr) calculated using an average brake-specific horsepower rating of 7,000 Btu/hp-hr (EPA 1998, Table 3.3-1) to convert from lb/MMBtu (Note: MMBtu is r [emission factor (lb/MMBtu)] ´ [1 MMBtu/1E+06 Btu] ´ [7,000 Btu/hp-hr].

g Fuel consumption: (hp rating * Hrs of operation* 7,000 Btu/hp-hr divided by [19,300 Btu/lb, heating value of diesel * 0.84, denisity ration for diesel * 8.33, density of water (lbs/gal)].

Unit: WMF-1617 (Formerly ARP V): Ultra-low Sulfur Diesel Fuel

										SO2[b] (tons)	Tier I (1998) NOx[a] (tons)	Tier II (2003)-NMHC +NOx[a] (tons)
									Emission Factor[a] g/kW-hr		9.2	6.6
									Emission Factor[b,f] (lb/hp-hr)	2.05E-03	1.52E-02	1.09E-02
Year	Month	Regulatory Status	Tier I Total engine load (hp)	Tier II Total engine load (hp)	Maximum Working Days/Mth	Tier I Total engine run time (hrs)[e]	Tier II Total engine run time (hrs)[e]	Fuel Consumption (based on brake-hp-run time calc)[g] (gal)	Emission Factor[d] lb/MMBtu			
2011	January	CERCLA	330	230	16	128	128	7431		1.47E-01	3.21E-01	1.61E-01
2011	February	CERCLA	330	230	16	128	128	7431		1.47E-01	3.21E-01	1.61E-01
2011	March	CERCLA	330	230	19	152	152	8824		1.74E-01	3.82E-01	1.91E-01
2011	April	CERCLA	330	230	16	128	128	7431		1.47E-01	3.21E-01	1.61E-01
2011	May	CERCLA	330	230	17	136	136	7895		1.56E-01	3.41E-01	1.71E-01
2011	June	CERCLA	330	230	18	144	144	8360		1.65E-01	3.61E-01	1.81E-01
2011	July	CERCLA	330	230	16	128	128	7431		1.47E-01	3.21E-01	1.61E-01
2011	August	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2011	September	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2011	October	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2011	November	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2011	December	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	January	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	February	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	March	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	April	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	May	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	June	CERCLA	NA	NA	NA	NA	NA	---		---	---	---

2012	July	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	August	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	September	CERCLA	NA	NA	NA	NA	NA	---		---	---	---
2012	October	RCRA	NA	NA	NA	NA	NA	---		---	---	---
2012	November	RCRA	NA	NA	NA	NA	NA	---		---	---	---
2012	December	RCRA	165	230	14	112	112	4,586		9.07E-02	1.41E-01	1.41E-01
									Annual Average	5.87E-01		

Conversion Factors:

BSFC:	7000	Btu/hp-hr	(brake specific fuel consumption, from AP-42)
Heating Value of Diesel	19300	Btu/lb	
Density of Diesel	0.84		
Water, lbs/gal	8.33	lb/gal	

:r 1996)," Table 3.3-1 (EPA 2009).

ɹme engines operating at 100% load. Two excavators and two

r 1996)," Table 3.3-2 (EPA 2009). MMBtu is million Btu.

m of 5-10 shifts per week. Estimated run time is based upon 4-10

nillion Btu) to hp-hr using the following equation:

NOx (combined engines) (tons)	CO (AP-42 factor used for Tier I)[b]	CO (Table 1 factor used for Tier II)[b] (tons)	CO (combined engines) (tons)	PM-10[b] (tons)	Tier I (1998)-PM[a] (tons)	Tier II (2003)-PM[a] (tons)	PM[a] (combined engines) (tons)	VOCs, as TOCs (tons)	Benzene (lbs)	Toluene (lbs)	Xylene (lbs)	1,3-Butadiene (lbs)
		5			3.00E-01	3.00E-01						
	6.68E-03	8.27E-03		2.20E-03	4.96E-04	4.96E-04		2.51E-03	6.53E-06	2.86E-06	2.00E-06	2.74E-07
									9.33E-04	4.09E-04	2.85E-04	3.91E-05
4.82E-01	1.41E-01	1.22E-01	2.63E-01	1.58E-01	1.05E-02	7.30E-03	1.78E-02	1.80E-01	4.68E-04	2.05E-04	1.43E-04	1.96E-05
4.82E-01	1.41E-01	1.22E-01	2.63E-01	1.58E-01	1.05E-02	7.30E-03	1.78E-02	1.80E-01	4.68E-04	2.05E-04	1.43E-04	1.96E-05
5.72E-01	1.68E-01	1.45E-01	3.12E-01	1.87E-01	1.24E-02	8.67E-03	2.11E-02	2.14E-01	5.56E-04	2.44E-04	1.70E-04	2.33E-05
4.82E-01	1.41E-01	1.22E-01	2.63E-01	1.58E-01	1.05E-02	7.30E-03	1.78E-02	1.80E-01	4.68E-04	2.05E-04	1.43E-04	1.96E-05
5.12E-01	1.50E-01	1.29E-01	2.79E-01	1.68E-01	1.11E-02	7.76E-03	1.89E-02	1.91E-01	4.97E-04	2.18E-04	1.52E-04	2.08E-05
5.42E-01	1.59E-01	1.37E-01	2.96E-01	1.77E-01	1.18E-02	8.21E-03	2.00E-02	2.02E-01	5.27E-04	2.31E-04	1.61E-04	2.21E-05
4.82E-01	1.41E-01	1.22E-01	2.63E-01	1.58E-01	1.05E-02	7.30E-03	1.78E-02	1.80E-01	4.68E-04	2.05E-04	1.43E-04	1.96E-05
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2.81E-01	6.17E-02	1.06E-01	1.68E-01	9.73E-02	4.58E-03	6.39E-03	1.10E-02	1.11E-01	5.78E-01	2.53E-01	1.77E-01	2.42E-02
1.92E+00			1.05E+00	6.30E-01			7.10E-02	7.19E-01	2.89E-01	1.27E-01	8.83E-02	1.21E-02

Formaldehyde (lbs)	Acetaldehyde (lbs)	Acrolein (lbs)	Polycyclic aromatic hydrocarbons (lbs)
8.26E-06	5.37E-06	6.48E-07	1.18E-06
1.18E-03	7.67E-04	9.25E-05	1.68E-04
5.92E-04	3.85E-04	4.64E-05	8.43E-05
5.92E-04	3.85E-04	4.64E-05	8.43E-05
7.03E-04	4.57E-04	5.51E-05	1.00E-04
5.92E-04	3.85E-04	4.64E-05	8.43E-05
6.29E-04	4.09E-04	4.93E-05	8.96E-05
6.66E-04	4.33E-04	5.22E-05	9.48E-05
5.92E-04	3.85E-04	4.64E-05	8.43E-05
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7.31E-01	4.75E-01	5.73E-02	1.04E-01
3.65E-01	2.38E-01	2.86E-02	5.20E-02

Pollutant	Emission Factor[a] g/kW-hr	Emission Factor[b] (lb/hp-hr)	Total engine load (hp)	g/lb	Potenial-to-Emit (hr/yr)	(lb/ton)	Hourly Emissions (lb/hr)
Diesel Fired Breathing Air Compressor Trailer #10: RWMC: BA-CMP-T							
Tier II (2005) NO_x[a]	7.50E+00	1.24E-02	17	453.6	8760	2000	2.11E-01
Tier II (2005) CO[a]	6.60E+00	1.09E-02	17	453.6	8760	2000	1.86E-01
SO_x[b]	1.25E+00	2.05E-03	17	453.6	8760	2000	3.49E-02
Tier II (2005) PM-10[a]	8.00E-01	1.32E-03	17	453.6	8760	2000	2.25E-02
Total organic carbon (as ozone)	---	2.51E-03	17	453.6	8760	2000	4.27E-02
Diesel Fired Emergency Generator (S-GEN RE601)							
Tier III (2007) NO_x[a]	4.00E+00	6.61E-03	157	453.6	500	2000	1.04E+00
Tier III (2007) CO[a]	5.00E+00	8.27E-03	157	453.6	500	2000	1.30E+00
SO_x[b]	1.25E+00	2.05E-03	157	453.6	500	2000	3.22E-01
Tier III (2007) PM-10[a]	3.00E-01	4.96E-04	157	453.6	500	2000	7.79E-02
Total organic carbon (as ozone)	---	2.51E-03	157	453.6	500	2000	3.94E-01
Two Gradall XL-5200 Excavators and Two TH-103 Telehandlers[c]							
Tier I (1998)- NO_x[a]	9.2	1.52E-02	330	453.6	8760	2000	5.02E+00
Tier II (2003)- NMHC +NO_x[a]	6.6	1.09E-02	230	453.6	8760	2000	2.51E+00
NO_x (combined engines)	---	---	560	453.6	8,760.00	---	7.53E+00
CO (AP-42 factor used for Tier I)[b]	---	6.68E-03	330	453.6	8760	2000	2.20E+00
CO (Table 1 factor used for Tier II)[b]	5.00	8.27E-03	230	453.6	8760	2000	1.90E+00
CO (combined engines)	---	---	560	---	---	---	4.11E+00
SO_x[b]	---	2.05E-03	560	453.6	8760	2000	1.15E+00
PM-10[b]	---	2.20E-03	560	453.6	8760	2000	1.23E+00
Tier I (1998)-PM[a]	3.00E-01	4.96E-04	330	453.6	8760	2000	1.64E-01
Tier II (2003)-PM[a]	3.00E-01	4.96E-04	230	453.6	8760	2000	1.14E-01
PM[a] (combined engines)	---	---	560	---	---	---	2.78E-01
Total organic carbon (as ozone)[b]	---	2.51E-03	560	453.6	8760	2000	1.41E+00
ARP VIII Propane Fired Space Heaters							
		Emission Factor[g] lb/10^3 gal	mmBtu/ hr	10^3 gal/yr			
NO_x	---	1.30E+01	3.879	371.37	8760	2000	5.51E-01
CO	---	7.50E+00	3.879	371.37	8760	2000	3.18E-01
SO_x	---	1.50E+00	3.879	371.37	8760	2000	6.36E-02
PM-10/Condensable	---	7.00E-01	3.879	371.37	8760	2000	2.97E-02
Total organic carbon (as ozone)[b]	---	1.00E+00	3.879	371.37	8760	2000	4.24E-02
Total Fuel Burning Equipment							
NO_x	---	---	---	---	---	---	9.330
CO	---	---	---	---	---	---	5.91
SO_x	---	---	---	---	---	---	1.568

PM-10	---	---	---	---	---	---	0.408
Total organic carbon (as ozone)[b]	---	---	---	---	---	---	1.885
Total							19.098

All specifications, limits and assumptions for operations in WMF-1621 are documented in EDF-10524, "Air Permitting Applicability Determination (APAD) for Accelerated Ret

a. 40 CFR 89.112, "Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines," Paragraph 112(a), Table 1.

b. Emission factors obtained from AP-42, Chapter 3, "Stationary Internal Combustion Engines," Section 3.3, "Gasoline and Diesel Industrial Engines (Final Section, Supplem

c. Excavators are 1998 Gradall XL5200 excavators: Cummins 6BTA 5.9 turbo-charged diesel engine, Tier I (165 hp at 2,000 rpm). The telehandlers (TH-103), 115-hp Tier I

d. IDAPA 58.01.01.222 (d) limits hours of operation for engines used exclusively for emergencies to 500 hr/yr. 40 CFR 60.4211(f) limits operations to 100 hours per year for r

e. Annual maximum emissions are conservatively based on the 17-hp engine.

f. Estimated maximum run time per year or maximum propane consumption (heaters), must not exceed this value.

g. Emission factors obtained from AP-42, Chapter 1, "External Combustion Sources," Section 1.5 "Liquefied Petroleum Gas Combustion (Final Section, July 2008)," Table 1.

Heating Value of Propane	91,500	Btu/gal	AP-42 Chpt 1.5, Table 1.5-1 footnote a
Commercial Propane Sulfur Content	15	gr/100 scf	Gas Processors Association Engineering Data Book (Ninth Edition, 197

— = Not applicable mmBTU = million BTU

Annual Emissions) Tons/Yr	Planned Maximum Run Time (hr/yr[d,f] or 10^3 gal/yr)	Planned Maximum Emissions (ton/yr)
1001		
0.9234	200	0.021
0.8126	200	0.019
0.1526	200	0.003
0.0985	200	0.002
0.1869	200	0.004
0.2596	100	0.052
0.3245	100	0.065
0.0805	100	0.016
0.0195	100	0.004
0.0985	100	0.020
21.9869	1600	4.016
10.9935	1600	2.008
32.9804	1600	6.024
9.6553	1600	1.764
8.3284	1600	1.521
17.9836	---	3.285
5.0282	1600	0.918
5.3962	1600	0.986
0.7170	1600	0.131
0.4997	1600	0.091
1.2167	---	0.222
6.1565	1600	1.124
	10^3 gal/yr	
2.4139	154.7	1.006
1.3926	154.7	0.580
0.2785	154.7	0.116
0.1300	154.7	0.054
0.1857	154.7	0.077
36.577		7.103
20.51		3.948
5.540		1.054

1.465		0.283
6.628		1.226
70.723		13.613

:rieval Project VIII"

ent B, October 1996)," Table 3.3-1 (EPA 2009).

I John Deere engine.

naintenance and testing, of which 50 hours may be for non-emergency situations..

5.-1 (EPA 2009)

'2), Figure 15-50 (GPA Liquefied Petroleum Gas Specifications, rev. 1979)

Pollutant	WMF-1621 Fuel Burning-Toxics (lbs)	WMF-1621 Waste Emissions (lbs)	Total (lbs)
Benzene	5.98E+00		5.98E+00
1,3-Butadiene	2.50E-01		2.50E-01
1,4-dioxane		6.37E+01	6.37E+01
Acetaldehyde	4.90E+00		4.90E+00
Acrolein	5.92E-01		5.92E-01
Carbon tetrachloride		4.61E+02	4.61E+02
Formaldehyde	7.53E+00		7.53E+00
Methylene chloride		5.11E+03	5.11E+03
Polyaromatic hydrocarbons	1.08E+00		1.08E+00
Toluene	2.61E+00		2.61E+00
Xylenes	1.83E+00		1.83E+00

Pollutant	Emission Factor[a] lb/MMBtu	Emission Factor[b] (b/hp-hr)	Total engine load (hp)	Potential Maximum Emissions (lb/hr)	24-hour Average Emissions Rates (lb/hr)	Annual Average Emissions Rates (lb/hr)	Hours of Operation	Annual Emissions (lbs)
Diesel Fired Breathing Air Compressor Trailer #10: RWMC: BA-CMP-T1001								
Benzene	9.33E-04	6.53E-06	17	1.11E-04		2.53E-06	200	2.22E-02
Toluene	4.09E-04	2.86E-06	17	4.87E-05	2.03E-05		200	4.06E-03
Xylenes	2.85E-04	2.00E-06	17	3.39E-05	1.41E-05		200	2.83E-03
1,3-Butadiene	3.91E-05	2.74E-07	17	4.65E-06		1.06E-07	200	2.12E-05
Formaldehyde	1.18E-03	8.26E-06	17	1.40E-04		3.21E-06	200	6.41E-04
Acetaldehyde	7.67E-04	5.37E-06	17	9.13E-05		2.08E-06	200	4.17E-04
Acrolein	9.25E-05	6.48E-07	17	1.10E-05	4.59E-06		200	9.17E-04
Polyaromatic hydrocarbons	1.68E-04	1.18E-06	17	2.00E-05		4.56E-07	200	9.13E-05
Diesel Fired Emergency Generator (S-GEN RE601)								
Benzene	9.33E-04	6.53E-06	157	1.03E-03		1.17E-05	100	1.03E-01
Toluene	4.09E-04	2.86E-06	157	4.49E-04	1.87E-04		100	4.49E-02
Xylenes	2.85E-04	2.00E-06	157	3.14E-04	1.31E-04		100	3.14E-02
1,3-Butadiene	3.91E-05	2.74E-07	157	4.30E-05		4.91E-07	100	4.30E-03
Formaldehyde	1.18E-03	8.26E-06	157	1.30E-03		1.48E-05	100	1.30E-01
Acetaldehyde	7.67E-04	5.37E-06	157	8.43E-04		9.62E-06	100	8.43E-02
Acrolein	9.25E-05	6.48E-07	157	1.02E-04	4.24E-05		100	1.02E-02
Polyaromatic hydrocarbons	1.68E-04	1.18E-06	157	1.85E-04		2.11E-06	100	1.85E-02
Two Gradall XL-500 Excavators and Two TH-103 Telehandlers[c]								
Benzene	9.33E-04	6.53E-06	560	3.66E-03		4.17E-05	1600	5.85E+00
Toluene	4.09E-04	2.86E-06	560	1.60E-03	6.67E-04		1600	2.56E+00
Xylenes	2.85E-04	2.00E-06	560	1.12E-03	4.67E-04		1600	1.79E+00
1,3-Butadiene	3.91E-05	2.74E-07	560	1.53E-04		1.75E-06	1600	2.46E-01
Formaldehyde	1.18E-03	8.26E-06	560	4.63E-03		5.28E-05	1600	7.40E+00
Acetaldehyde	7.67E-04	5.37E-06	560	3.01E-03		3.43E-05	1600	4.81E+00
Acrolein	9.25E-05	6.48E-07	560	3.63E-04	1.51E-04		1600	5.81E-01
Polyaromatic hydrocarbons	1.68E-04	1.18E-06	560	6.61E-04		7.54E-06	1600	1.06E+00
Total Fuel Burning Equipment								
Benzene	---	---		4.79E-03		5.60E-05	NA	5.98E+00
Toluene	---	---		2.10E-03	8.75E-04		NA	2.61E+00
Xylenes	---	---		1.47E-03	6.12E-04		NA	1.83E+00
1,3-Butadiene	---	---		2.01E-04		2.35E-06	NA	2.50E-01
Formaldehyde	---	---		6.06E-03		7.08E-05	NA	7.53E+00
Acetaldehyde	---	---		3.94E-03		4.60E-05	NA	4.90E+00
Acrolein	---	---		4.76E-04	1.98E-04		NA	5.92E-01
Polyaromatic hydrocarbons	---	---		8.66E-04		1.01E-05	NA	1.08E+00

a. Emission factors obtained from AP-42, Chapter 3, "Stationary Internal Combustion Engines," Section 3.3, "Gasoline and Diesel Industrial Engines (Final Section, Supplement B, October 1996)," Table 3.3-2 (EPA 2009). MMBtu is million Btu.

b. Emission factor (lb/hp-hr) calculated using an average brake-specific horsepower rating of 7,000 Btu/hp-hr (EPA 1998, Table 3.3-1) to convert from lb/MMBtu (Note: MMBtu is million Btu) to hp-hr using the following equation: [emission factor (lb/MMBtu)] ´ [1 MMBtu/1E+06 Btu] ´ [7,000 Btu/hp-hr].

c. Excavators are 1998 Gradall XL5200 excavators: Cummins 6BTA 5.9 turbo-charged diesel engine, Tier I (165 hp at 2,000 rpm). The telehandlers (TH-103), 115-hp Tier II John Deere engine.

WMF-1621 ARP VIII Waste Processing Parameters Used in Scenario

Duration of WMF-1621 operations, years	2	
Weeks per Year operation	50	
Days per week operation	4	
Hours per day	10	
Organic emission factor, lb/ton:	0.72	lb/ton of solvent processd (see EDF-10259)
Pounds per ton:	2,000	

	Pollutant	Calculated Emission Rate (lb/hr), annual avg.(see notes)[1]	ARP VIII Total Emissions	
			KGs	lbs
Carcinogenic	1,4-dioxane	5.73E-06	2.89E+01	6.37E+01
	Carbon tetrachloride	4.15E-05	2.09E+02	4.61E+02
	Methylene chloride	4.60E-04	2.32E+03	5.11E+03

WMF-1621 ARP VIII Air Emissions Planned Operations

Particulate matter emissions from waste and soil excavation activities (non-combustion sources)

ARP VIII-24 hour peak average

V, Volume, m^3	2031	
Bulk density, kg/m^3	2000	
lb/kg	2.2	
hours (working,per day)	10	
hours (per day)	24	
hours (working,per year)	2000	
hours (per year)	8760	
Period of operation, years	2	
RSF, kg/kg	7.81E-06	resuspension fraction, (see Appendix A of EDF-8181).
HFE	0.9997	HEPA filtration efficiency
RLF	0.005	Retrieval enclosure leakage fraction
ARF	0.0052985	total fugitive/abated release fraction (see EDF-4825)
Soil mass, (kg)	4.06E+06	
ER, lb/hr	9.24E-05	peak emission rate

Total acreage	2031
Total, soil mass (kg)	4.06E+06
Total 24 Hr Avg. ER, lb/hr	3.85E-05
Total Annual Avg Hr ER, lb/l	2.11E-05

WMF-1621 ARP VIII Chemical Estimates

Volatile Organic Compound

Chemical	ARP VIII, Kg
Carbon tetrachloride[a]	4.18E+02
Carbon tetrachloride[b]	2.09E+02
Dioxane	2.89E+01
Methylene chloride	2.32E+03

a. From data provided by project (WILD database).

b. Carbon tetrachloride inventory is reduced by 50% from that reported in Waste Identification and Location database (see text in EDF-10524).

Criterial Air Pollutant	SO_2 (tons)	NOx (tons)	CO (tons)	PM (tons)	PM-10/2.5 & Condensable (tons)	VOCs, as TOCs (tons)
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	10.15	32.86	0.61	0.44	0.44	0.00
AMWTP TSA-RE	0.09	1.39	0.30	0.10	0.10	0.11
WMF-1617	0.59	1.92	1.05	0.70	0.63	0.72
WMF-1621	1.05	7.10	3.95	0.28	0.28	1.23
CPP-666	0.05	0.00	0.02	-	-	0.00
Total	12.51	70.21	13.06	4.99	3.99	2.72

INL Summary

Hazardous and Toxic Air Pollutants	CFA Boilers (lbs)	INTEC Boilers (lbs)	NRF Boilers (lbs)	SMC Boilers (lbs)	Emergency ICE (lbs)
1,1,1-Trichloroethane	4.98E-03	1.47E-01	1.08E-01	4.10E-02	
1,1,2,2-Tetrachloroethane					3.93E-04
1,1,2-Trichloroethane					2.38E-04
1,1-Dichloroethane					1.76E-04
1,1-Dichloroethylene					
1,2-Dichloroethane					1.76E-04
1,2-Dichloropropane					2.02E-04
1,3-Butadiene					
1,3-Dichloropropene					1.97E-04
1,4-Dichlorobenzene					
1,4 Dioxane					
2-Butanone					
2,2,4-Trimethylpentane					
2,4-Dinitrotoluene					
Acetaldehyde					1.24E+00
Acrylonitrile					
Acrolein					1.96E-01
Arsenic	1.15E-02	3.40E-01	2.50E-01	9.47E-02	
Benzene	4.51E-03	1.33E-01	9.79E-02	3.72E-02	3.13E+00
Beryllium	8.62E-03	2.55E-01	1.87E-01	7.10E-02	
Cadmium	8.62E-03	2.55E-01	1.87E-01	7.10E-02	
Carbon disulfide					
Carbon tetrachloride					2.75E-04
Carbonyl sulfide					
Chlorobenzene					2.00E-04
Chloroform					2.13E-04
Chromium	8.62E-03	2.55E-01	1.87E-01	7.10E-02	
Cresols (m, p & o)					
Copper	1.72E-02	5.10E-01	3.74E-01	1.42E-01	
Cyanide					
Ethyl benzene	1.34E-03	3.97E-02	2.91E-02	1.10E-02	3.85E-04
Ethyl chloride					
Ethylene dibromide					3.31E-04
Formaldehyde	6.96E-01	2.06E+01	1.51E+01	5.73E+00	2.25E+00
Hexane					
Hexachlorobenzene					
Hexachloroethane					
Hydrochloric acid					
Hydrogen sulfide					
Lead	2.59E-02	7.65E-01	5.62E-01	2.13E-01	
Manganese	1.72E-02	5.10E-01	3.74E-01	1.42E-01	
Mercury	8.62E-03	2.55E-01	1.87E-01	7.10E-02	
Methanol					4.75E-02
Methyl isobutyl ketone					

Hazardous and Toxic Air Pollutants	CFA Boilers (lbs)	INTEC Boilers (lbs)	NRF Boilers (lbs)	SMC Boilers (lbs)	Emergency ICE (lbs)
Methylene chloride					6.40E-04
Naphthalene	2.38E-02	7.05E-01	5.17E-01	1.96E-01	4.15E-01
Nickel	8.62E-03	2.55E-01	1.87E-01	7.10E-02	
Nitrobenzene					
Polychlorinated biphenyls					
POM/PAH	6.96E-02	2.06E+00	1.51E+00	5.73E-01	2.19E-03
Selenium	4.31E-02	1.28E+00	9.36E-01	3.55E-01	
Styrene					1.85E-04
Tetrachloroethylene					
Toluene	1.31E-01	3.87E+00	2.84E+00	1.08E+00	1.24E+00
Trichloroethylene					
Vinyl Chloride					1.12E-04
Xylene	2.30E-03	6.80E-02	4.99E-02	1.89E-02	8.53E-01
Zinc	1.15E-02	3.40E-01	2.50E-01	9.47E-02	

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

INTEC IWTU Boiler[a] (lbs)	IWTU[a] (lbs)	INTEC Stacks[a] (lbs)	OU 7-08[a] (lbs)	SDA Fugitive Emissions (lbs)	WMF-1617[a] (lbs)	WMF-1621[a] (lbs)	AMWTP[a] (lbs)	Total (lbs)	Total (Tons)
1.42E-01		1.72E-02		5.68E-02			1.89E+00	2.41E+00	1.20E-03
		2.76E-04		1.64E-01			3.46E-01	5.11E-01	2.55E-04
								2.38E-04	1.19E-07
				2.12E-01			5.84E-01	7.96E-01	3.98E-04
		4.17E-02		1.72E-02			3.67E-01	4.26E-01	2.13E-04
		2.76E-02		3.60E-02			3.63E-01	4.27E-01	2.13E-04
				1.81E-02			5.69E-01	5.87E-01	2.94E-04
					1.21E-02	2.50E-01		2.62E-01	1.31E-04
								1.97E-04	9.85E-08
				2.74E-02			5.69E-01	5.96E-01	2.98E-04
						6.37E+01		6.37E+01	3.19E-02
		2.98E-03		4.54E-01			9.31E-01	1.39E+00	6.94E-04
							5.69E-01	5.69E-01	2.85E-04
							1.64E+00	1.64E+00	8.20E-04
					2.38E-01	4.90E+00		6.38E+00	3.19E-03
				2.96E-01				2.96E-01	1.48E-04
					2.86E-02	5.92E-01		8.17E-01	4.08E-04
3.27E-01	2.49E-02	1.08E-11					1.41E+00	2.46E+00	1.23E-03
1.28E-01		1.45E-01		7.64E-01	2.89E-01	5.98E+00	9.31E-01	1.16E+01	5.82E-03
2.45E-01	7.96E-03						1.64E+00	2.41E+00	1.21E-03
2.45E-01	1.44E+01	8.00E+00					1.64E+00	2.48E+01	1.24E-02
				3.92E-02				3.92E-02	1.96E-05
		1.42E-01		8.58E+03		4.61E+02	8.67E-01	9.04E+03	4.52E+00
				2.62E-02				2.62E-02	1.31E-05
				2.50E-02			1.55E-02	4.07E-02	2.04E-05
		2.06E+00		3.18E-03			9.31E-01	2.99E+00	1.50E-03
2.45E-01	2.71E+01	1.59E-10					3.93E-01	2.83E+01	1.41E-02
							5.69E-01	5.69E-01	2.85E-04
4.91E-01								1.53E+00	7.67E-04
		1.79E-14					1.64E+00	1.64E+00	8.20E-04
3.82E-02		2.07E-02		4.34E-01			9.31E-01	1.51E+00	7.53E-04
				7.46E-02				7.46E-02	3.73E-05
				1.67E-04				4.98E-04	2.49E-07
1.98E+01					3.65E-01	7.53E+00		7.21E+01	3.60E-02
				5.06E-01				5.06E-01	2.53E-04
							3.21E-05	3.21E-05	1.61E-08
							5.69E-01	5.69E-01	2.85E-04
	6.95E+01		1.57E+03					1.64E+03	8.20E-01
				1.09E+00				1.09E+00	5.45E-04
7.36E-01	1.45E-05	7.66E-03					4.09E-01	2.72E+00	1.36E-03
4.91E-01								1.53E+00	7.67E-04
2.45E-01	2.81E+00	2.22E-11		5.16E-05			9.54E-01	4.53E+00	2.27E-03
							9.15E-01	9.63E-01	4.81E-04
				1.69E-01			3.98E-05	1.69E-01	8.45E-05

INL Summary

INTEC IWTU Boiler[a] (lbs)	IWTU[a] (lbs)	INTEC Stacks[a] (lbs)	OU 7-08[a] (lbs)	SDA Fugitive Emissions (lbs)	WMF-1617[a] (lbs)	WMF-1621[a] (lbs)	AMWTP[a] (lbs)	Total (lbs)	Total (Tons)
		1.11E+02		1.06E+00		5.11E+03	9.16E-01	5.22E+03	2.61E+00
6.78E-01		7.49E-03						2.54E+00	1.27E-03
2.45E-01	1.37E+01	7.97E+00					4.29E-10	2.24E+01	1.12E-02
							9.31E-01	9.31E-01	4.66E-04
		5.40E-13					2.46E+01	2.46E+01	1.23E-02
1.98E+00					5.20E-02	1.08E+00		7.33E+00	3.66E-03
1.23E+00	3.70E-03	2.98E-12					1.64E+00	5.49E+00	2.74E-03
								1.85E-04	9.25E-08
		1.72E-02		5.46E-01			9.31E-01	1.49E+00	7.47E-04
3.72E+00		1.72E-02		1.39E+01	1.27E-01	2.61E+00	9.31E-01	3.05E+01	1.52E-02
		2.98E-03		3.26E-01			9.31E-01	1.26E+00	6.30E-04
				4.06E-01				4.06E-01	2.03E-04
6.54E-02		6.00E-02		1.13E+00	8.83E-02	1.83E+00	9.15E-01	5.08E+00	2.54E-03
3.27E-01		3.28E-01						1.35E+00	6.76E-04
								HAP Total	8.12E+00

[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
WMF-676-007	2	22.1		3.32E-02	2.87E-01	1.66E-01	1.55E-02	1.11E-02	2.21E-02
Total		438.2							
#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 1	52.4	470		1.00E-01	9.40E+00	2.35E+00	1.08E+00	6.11E-01	9.40E-02
NRF Boiler 3	52.4	470		1.00E-01	9.40E+00	2.35E+00	1.08E+00	6.11E-01	9.40E-02
NRF Proposed	26.4	209		4.45E-02	4.18E+00	1.05E+00	4.81E-01	2.72E-01	4.18E-02
TAN 679-067a	25	179.5		3.82E-02	3.59E+00	8.98E-01	4.13E-01	2.33E-01	3.59E-02
TAN 679-068	25	179.5		3.82E-02	3.59E+00	8.98E-01	4.13E-01	2.33E-01	3.59E-02
Total		2397.7							

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 Eng

Facility	Engine ID	Manufacturer	Model	Testing/ Maintenance Frequency	Design Hourly Fuel Use		SO2 (lbs/hr)	NOx (lbs/hr)
Emergency ICE ≤ 600 hp						Emission Factor[a] (lb/MMBtu)	0.29	4.41
MFC	ANL-785-017	Waukesha	EM200	Q	28.0		1.14E+00	1.73E+01
ATR Complex	619-10	Detroit Diesel-Allison	71237300	W	26.0		1.06E+00	1.61E+01
			71237300	A	26.0		1.06E+00	1.61E+01
SMC	TAN 675-010	Caterpillar	3408	M	15.6		6.33E-01	9.63E+00
Emergency ICE > 600 hp						Emission Factor[b] (lb/MMBtu)	1.52E-03	3.2
AMWTP	BGEN-812-001	Cummins/Onan	QSX15-G9	M	27.1		5.75E-03	1.21E+01
AMWTP	BGEN-812-002	Cummins/Onan	VTA-28-05	M	44.2		9.37E-03	1.98E+01
AMWTP	WMF-734	Caterpillar	3412	M	39.4		8.36E-03	1.77E+01
ATR Complex	670-M-42	Enterprise	DSQ-38	M	44.0		9.33E-03	1.97E+01
		Enterprise	DSQ-38	Q	44.0		9.33E-03	1.97E+01
ATR Complex	670-M-43	Enterprise	DSQ-38	M	44.0		9.33E-03	1.97E+01
		Enterprise	DSQ-38	Q	44.0		9.33E-03	1.97E+01
ATR Complex	674-M-6	Caterpillar	3516	M	44.0		9.33E-03	1.97E+01
		Caterpillar	3516	Q	44.0		9.33E-03	1.97E+01
ATR Complex	786-M-1	Caterpillar	3516B TA	Q	123.1		2.61E-02	5.51E+01
INTEC	GEN-WCS-002	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01
INTEC	GEN-WCS-004	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01
INTEC	GEN-WCS-006	Caterpillar	3516 Quad Turbo	M	119.2		2.53E-02	5.34E+01
MFC	ANL-768-003	Waukesha	VLRPD	Q	32.0		6.79E-03	1.43E+01
NRF	686-016	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01
NRF	686-017	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01
NRF	686-018	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01
NRF	686-019	Caterpillar	3512	M	69.7		1.48E-02	3.12E+01
SMC	TAN 679-012	Caterpillar	3412	M	20.4		4.33E-03	9.14E+00

Conversion Factors:

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

0.0015	%

jines

CO (lbs/hr)	PM-10/2.5/ Condensible (lbs/hr)	VOCs, as TOCs (lbs/hr)
0.95	0.31	0.36
3.72E+00	1.22E+00	1.41E+00
3.46E+00	1.13E+00	1.31E+00
3.46E+00	1.13E+00	1.31E+00
2.07E+00	6.77E-01	7.86E-01
0.85	6.97E-02	9.00E-02
3.22E+00	2.64E-01	3.41E-01
5.26E+00	4.31E-01	5.57E-01
4.69E+00	3.84E-01	4.96E-01
5.24E+00	4.29E-01	5.54E-01
5.24E+00	4.29E-01	5.54E-01
5.24E+00	4.29E-01	5.54E-01
5.24E+00	4.29E-01	5.54E-01
5.24E+00	4.29E-01	5.54E-01
5.24E+00	4.29E-01	5.54E-01
1.46E+01	1.20E+00	1.55E+00
1.42E+01	1.16E+00	1.50E+00
1.42E+01	1.16E+00	1.50E+00
1.42E+01	1.16E+00	1.50E+00
3.81E+00	3.12E-01	4.03E-01
8.29E+00	6.80E-01	8.78E-01
8.29E+00	6.80E-01	8.78E-01
8.29E+00	6.80E-01	8.78E-01
8.29E+00	6.80E-01	8.78E-01
2.43E+00	1.99E-01	2.57E-01

[a]AP-42: Table 3.3-1 Emission Factors for Uncontrolled Gasoline and Diesel Engines: Gasoline And Diesel Industrial Engines, Distillate oil fired
[b]40 CFR 89.112, "Control of Emissions from New and In-Use Nonroad Compression-Ignition Engines," Paragraph 112(a), Table 1.
[c]Emission factors obtained from AP-42, Chapter 1, "External Combustion Sources," Section 1.5 "Liquefied Petroleum Gas Combustion (Final Section, July 2008),'
[d] P-2008.0199 August 31, 2009, Statement of Basis Table 3.2 and Tables 2 and 3 of EDF-6495, Rev. 2

TSA-RE Mobile Equipment						
Equipment Horsepower		SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM-10 (lbs/hr)	VOCs, as TOCs (lbs/hr)
	Emission Factor[a] (lbs/hp-hr)	2.05E-03	3.10E-02	6.68E-03	2.20E-03	2.51E-03
111.0		2.28E-01	3.44E+00	7.41E-01	2.44E-01	2.79E-01

WMF-1617 TSDF Mobile Equipment								
			SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM-10 (lbs/hr)	PM (lbs/hr)	VOCs, as TOCs (lbs/hr)
Equipment Type	Equipment Horsepower	Emission Factor[a,b] (lbs/hp-hr)	2.05E-03	1.52E-02	6.68E-03	2.20E-03	4.96E-04	2.51E-03
Tier I	330		6.77E-01	5.02E+00	2.20E+00	7.26E-01	1.64E-01	8.28E-01
		Emission Factor[a,b] (lbs/hp-hr)	2.05E-03	1.09E-02	8.27E-03	2.20E-03	4.96E-04	2.51E-03
Tier II	230		4.72E-01	2.51E+00	1.90E+00	5.06E-01	1.14E-01	5.77E-01
		Total	1.15E+00	7.52E+00	4.11E+00	1.23E+00	2.78E-01	1.41E+00

WMF-1621 Equipment							
			SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM-10 (lbs/hr)	VOCs, as TOCs (lbs/hr)
Equipment Type	Equipment Horsepower	Emission Factor[a,b] (lbs/hp-hr)	2.05E-03	1.24E-02	1.09E-02	1.32E-03	2.51E-03
Compressor	17		3.49E-02	2.11E-01	1.85E-01	2.24E-02	4.27E-02
		Emission Factor[a,b] (lbs/hp-hr)	2.05E-03	6.61E-03	8.27E-03	4.96E-04	2.51E-03
Generator	157		3.22E-01	1.04E+00	1.30E+00	7.79E-02	3.94E-01

Mobile Equipment							
		Emission Factor[a,c] (lbs/hp-hr)	2.05E-03	1.52E-02	6.68E-03	2.20E-03	2.51E-03
Tier I	330		6.77E-01	5.02E+00	2.20E+00	7.26E-01	8.28E-01
		Emission Factor[a,c] (lbs/hp-hr)	2.05E-03	1.09E-02	8.27E-03	2.20E-03	2.51E-03
Tier II	230		4.72E-01	2.51E+00	1.90E+00	5.06E-01	5.77E-01
		Emission Factor[c] (lbs/1000 gal)	1.50E+00	1.30E+00	7.50E+00	2.00E-01	1.00E+00
Space Heaters	3.879 MMBtu/hr		4.16E-02	3.60E-02	2.08E-01	5.54E-03	2.77E-02
		Total	1.55E+00	8.81E+00	5.80E+00	1.34E+00	1.87E+00

Heating Value of Fuel Oil	140000	Btu/gall

[d] Table 1.5.-1 (EPA 2009)

INTEC IWTU - Treatment				
Emission Point: STK-SRE-140 Stack (Based upon 3.5 gpm feed rate)[d]				
	SO2	NOx	CO	PM-10/2.5/ Condensable (lbs/hr)
PTE[d], tons	10.15	32.86	0.61	0.436
Unabated Emission Factor, lbs/gal liquid waste processed	1.82E-02	5.90E-02	1.10E-03	7.83E-04
Unabated Emissions, lbs/hr	3.83E+00	1.24E+01	2.30E-01	1.64E-01

Sodium Distillation and Treatment at CPP-666					
	SO2 (lbs/hr)	NOx (lbs/hr)	CO (lbs/hr)	PM (lbs/hr)	VOC (lbs/hr)
Total	1.20E-02	3.42E-07	3.84E-03	NA	5.14E-06

[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

Non-Carcinogenic Toxic Air Pollutants	Emission Factor[a] (lb/1000 gal)	Emission Factor[b] (lb/10^{12} Btu)	Emissions (lbs/hr)	EL (lbs/hr)
Copper	—	6.00E+00	2.01E-03	6.70E-02
Ethyl Benzene	6.36E-05	—	1.52E-04	2.90E+01
Methyl Chloroform (1,1,1-Trichloroethane)	2.36E-04	—	5.66E-04	1.27E+02
Naphthalene	1.13E-03	—	2.71E-03	3.33E+00
Selenium	—	1.50E+01	5.04E-03	1.30E-02
Toluene	6.20E-03	—	1.49E-02	2.50E+01
Xylene	1.09E-04	—	2.61E-04	2.90E+01
Zinc	—	4.00E+00	1.34E-03	6.67E-01

	Usage		Heat Value	
Source and Fuel Type	Amount	Units	Amount	Units
Maximum Hourly Boiler Fuel Usage	2397.7	gal/hr	140000	Btu/gal

[a] T1-2009.0148, Idaho National Laboratory Title V Operating Permit, 2/6/2013. Calculated from Table 5.1 fuel throughput limit of 20,736 gal/day.
[b] T1-2009.0148, Idaho National Laboratory Title V Operating Permit, 2/6/2013. Calculated from Table in Section 8.1.1 NO_X limit of 22.1 ton/yr.
[c] Idaho National Laboratory Application for a Synthetic Minor Sitewide Air Quality Permit to Construct, Appendix A, Addendum to Form EU5.
[d] AP-42: Table 1.3-1 Criteria Pollutant Emission Factors for Liquified Petroleum Gas Combustion: External Combustion Sources, Boilers < 100 MMBtu/hr, Distillate oil
[e] AP-42: Table 1.3-9 Emission Factors for Speciated Organic Compounds from Fuel Oil Combustion.
[f] Assumes all emission are from diesel fired boilers.

Pre-FEC annual average fuel rate	
Facility	Permitted/Design Consumption Rate (gal/hr)
INTEC[a]	864.0
SMC[b]	252.6
CFA[c]	25.7
NRF[c]	940.0
Total	2082.3

Post-FEC annual average fuel rate	
INL FEC Proposed Nox limit (tons/yr)	Average hourly fuel consumption[f] (gal/hr)
95	1084.5

SMC Pre-Project fuel rate calculation.		
Facility	Permitted NOx Rate[b] (tons/yr)	Permitted Consumption Rate[b] (gal/hr)
SMC	22.13	252.6

Conversion Factors:		
NOx emission factor[d]	20	lbs/1000 gal
Naphthalene emission factor[e]	1.13E-03	lbs/1000 gal

Carcinogenic TAPs	Pre-Project Annual Average Emissions Rates (lb/hr)	Post-Project Annual Average Emissions Rates (lb/hr)	Change in Annual Average Emissions Rates (lb/hr)	EL (lbs/hr)
Naphthalene	2.35E-03	1.23E-03	-1.13E-03	9.10E-05

Gas / Pollutant	2012 Emission Rate[a] (lbs/year)	2012 Emission Rate (tons/year)
1,1,1-Trichloroethane	5.68E-02	2.84E-05
1,1,2,2-Tetrachloroethane	1.64E-01	8.20E-05
1,1-Dichloroethane	2.12E-01	1.06E-04
1,1-Dichloroethene	1.72E-02	8.61E-06
1,2-Dichloroethane	3.60E-02	1.80E-05
1,2-Dichloropropane	1.81E-02	9.03E-06
1,4-Dichlorobenzene	2.74E-02	1.37E-05
2-Butanone	4.54E-01	2.27E-04
Acrylonitrile	2.96E-01	1.48E-04
Benzene	7.64E-01	3.82E-04
Carbon disulfide	3.92E-02	1.96E-05
Carbon tetrachloride	8.58E+03	4.29E+00
Carbonyl sulfide	2.62E-02	1.31E-05
Chlorobenzene	2.50E-02	1.25E-05
Chloroform	3.18E-03	1.59E-06
Ethyl benzene	4.34E-01	2.17E-04
Ethyl chloride	7.46E-02	3.73E-05
Ethylene dibromide	1.67E-04	8.34E-08
Hexane	5.06E-01	2.53E-04
Hydrogen sulfide	1.09E+00	5.45E-04
Mercury	5.16E-05	2.58E-08
Methyl isobutyl ketone	1.69E-01	8.45E-05
Methylene chloride	1.06E+00	5.28E-04
Tetrachloroethylene	5.46E-01	2.73E-04
Toluene	1.39E+01	6.96E-03
Trichloroethylene	3.26E-01	1.63E-04
Vinyl chloride	4.06E-01	2.03E-04
Xylenes	1.13E+00	5.66E-04

a. EPA, 2005, Landfill Gas Emissions Model (LandGEM) Version 3.02 User's Guide, EPA-600/R-05/047, U.S. Environmental Protection Agency.

CERCLA Operable Unit OCVZ WET Manufacture of HCl, CAS # 7647-01-0			
CY	**HCl, lbs**	**HCl, tons**	**CL_2, lbs**
CY96	12,593	6.30	1,153
CY97	19,659	9.83	1,799
CY98	14,365	7.18	1,315
CY99	12,004	6.00	1,099
CY00	10,430	5.22	955
CY01	17,976	8.99	1,645
CY02	23,946	11.97	2,192
CY03	15,500	7.75	1,419
CY04	34,155	17.08	3,126
CY05	13,158	6.58	1,204
CY06	6,411	3.21	587
CY07	4,972	2.49	455
CY08	3,735	1.87	342
CY09	3,259	1.63	298
CY10	3,294	1.65	301
CY11	1,565	0.78	143
CY12	1,183	0.59	108
CY13	1,568	0.78	143
CY14	1,314	0.66	120
CY15	1,148	0.57	105
a. OS-ESD-16-073, Request to Regulate Idaho National Laboratory as an Area Source for Compliance with 40 CFR Part 63, Subpart ZZZZ.			

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: **January 12**, 2018

TO: **Dan Pitman**, Permit Writer, Air Program

FROM: Thomas Swain, Air Quality Modeler, Analyst 3, Air Program

PROJECT: Idaho National Laboratory (INL), Application for a Synthetic Minor Facility-Wide Air Permit to Construct (PTC) with a Facility Emission Cap Component, P-2015.0023 PROJ 61525, Facility No. 023-00001, 011-00022

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

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1.0 Summary

Idaho National Laboratory (INL) submitted a Permit to Construct (PTC) application for a Synthetic Minor Facility-wide Air Permit to Construct (PTC) with a Facility Emission Cap (FEC) Component at their facility in southeast Idaho on November 15, 2015. The facility occupies 890 square miles of land approximately 40 miles to the ENE of Idaho Falls, Idaho. The facility is an applied engineering national laboratory that supports the Department of Energy's (DOE's) missions in nuclear and energy research, science, and national defense. The entire process is discussed in detail in the main body of the DEQ Statement of Basis supporting the issued PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted with the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

Project-specific air quality impact analyses involving atmospheric dispersion modeling of estimated emissions associated with the proposed facility modification were submitted to DEQ to demonstrate that the modification would not cause or significantly contribute to a violation of any ambient air quality standard as required by IDAPA 58.01.01.203.02 and 203.03 (Idaho Air Rules Section 203.02 and 03).

Batelle Energy Alliance (BAE), on behalf of INL and the DOE, performed the ambient air impact analyses for this project, demonstrating compliance with applicable air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions increases at the facility associated with the proposed project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates was the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. Emissions estimates were not reviewed as part of the modeling review described in this modeling review memorandum.

A modeling protocol was submitted to DEQ for this project on February 9, 2015. On February 24, 2015 DEQ issued a conditional modeling protocol approval notification, with several comments. INL responded with various comments on the conditions set forth by DEQ in the protocol approval notification. In particular, DEQ requested that INL incorporate building wake effects into their modeling process. DEQ responded with a revised modeling protocol approval on April 16, 2015. INL submitted a permit application on May 18, 2015. DEQ responded on June 16, 2015 with a letter of incompleteness. The incompleteness determination was based largely on the permit writer's evaluation of emission calculations. Several modeling issues were also identified, and DEQ requested the following : 1) refinement of receptor grids to assure a denser spacing in locations of maximum modeled concentrations; 2) added building wake information for new growth component sources; 3) assurance that the latest versions of models were used in the analyses; 4) modeling for annual averages for criteria pollutants be done using the entire receptor grid. Additionally, because of INL's revisions to the emission inventory, the modeling files incorporated several changes, including extensive randomly generated hourly emission files (by DEQ) for treatment of intermittent testing emissions from the many emergency generators located throughout the facility. As requested by DEQ, all generators with a rating of 500 hp or greater were included in the modeling analyses. A refined treatment of the FEC growth component sources was also implemented in the revised modeling analyses. A 45 day extension for response to an incompleteness determination was given to INL by DEQ on July 21, 2015. INL submitted a second version of the application on October 15, 2015. This application was deemed incomplete on November 4, 2015. Upon review, it was discovered that a subset of the meteorological data had been processed incorrectly. INL then submitted a third application on November 15, 2015. This application was deemed complete on December 5, 2015. DEQ determined that the modeling analyses adequately demonstrated compliance with NAAQS and TAPS increments.

The final submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions 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 predicted pollutant concentrations from emissions associated with the project as modeled were below Significant Impact Levels (SILs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the project as modeled, when appropriately combined with co-contributing sources and background concentrations, were below applicable National Ambient Air Quality Standards (NAAQS) at ambient air locations where and when the project has a significant impact; 5) showed that Toxic Air Pollutant (TAP) emissions increases associated with the project will not result in increased ambient air impacts exceeding allowable TAP increments.

Table 1 presents key assumptions and results to be considered in the development of the permit.

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (*Guideline on Air Quality Models*). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that operation of the proposed facility will not cause or significantly contribute to a violation of any ambient air quality standard, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Emissions rates used in the modeling analyses, as listed in this memorandum, must represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
Modeling with Criteria Pollutant Emissions. Maximum short-term and long-term emissions for all criteria pollutants other than lead were assumed to be significant and therefore were addressed in the modeling analyses. Emissions were modeled to determine compliance with NAAQS	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutants having an emissions increase that is greater than Level I modeling applicability thresholds. These thresholds are set to assure that impacts are below significant impact levels (SILs). Compliance with NAAQS has not demonstrated for emissions that exceed the emission estimates presented in the application.
Ambient Background data. Ambient background concentrations were taken from NW AIRQUEST. Final values represent averages from several locations polled from the utility, due to the large size of the area that comprises INL.	Compliance has not been demonstrated when using background values other than what was utilized from NW AIRQUEST.
TAPS Emissions. There are no increases in emission rates for the TAPs as listed in Idaho Air Rules Sections 585 and 586 that exceed specific Emissions Screening Level (EL) rates.	Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, was not required for pollutants having an emissions rate less than ELs.

2.0 Background Information

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

2.1 Project Description

The INL facility, operated by the Department of Energy (DOE), is applying for a synthetic minor, Facility-wide PTC with a facility emission cap (FEC) component from DEQ to limit the potential to emit (PTE) to less than major source levels for criteria pollutants regulated under section 109 of the CAA and hazardous air pollutants (HAP) regulated under Section 112 of the CAA. INL is an applied engineering national laboratory whose efforts support DOE's missions in nuclear and energy research, science, and national defense. The INL facility conducts its activities under several cooperative agencies with main oversight managed by Battelle Energy Alliance (BEA), and INL's activities occur at multiple locations throughout the facility. The entire process is discussed in detail in the main body of the DEQ Statement of Basis supporting the issued PTC.

2.2 Proposed Location and Area Classification

The INL facility is located in southeast Idaho on the eastern Snake River Plain, encompassing 890 square miles in five Idaho counties: Bingham, Bonneville, Butte, Clark, and Jefferson. The nearest cities are Idaho Falls to the east, Blackfoot to the southeast, and Pocatello to the south-southeast. This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$).

2.3 Air Impact Analyses Required for All Permits to Construct

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in 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:

> ***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 Air Impact Analyses Required for A Facility Emissions Cap

Criteria Pollutant Impact Analyses for a FEC are addressed in Idaho Air Rules Sections 177.02:

02. Estimates of Ambient Concentrations.
a. Estimates of ambient concentrations will be determined as described in Subsection 202.02.
b. Estimates of ambient concentrations may include projections of alternative future changes within the proposed FEC.
c. For a new, existing, or modified facility, a demonstration that for each FEC pollutant, the FEC will not cause or significantly contribute to a violation of any ambient air quality standard.
d. For renewal of terms and conditions establishing a FEC, it is presumed that the previous permitting analysis is satisfactory, unless the Department determines otherwise.

2.5 Significant Impact Level and Cumulative NAAQS Impact Analyses

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 according to methods outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). 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.

If modeled maximum pollutant impacts to ambient air from the emissions 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. INL chose not to model for SIL impact s but rather do a full NAAQS compliance demonstration with all facility emissions, including a FEC growth component.

DEQ has developed modeling applicability thresholds that effectively assure that project-related emissions increases below stated values will result in ambient air impacts below the applicable SILs. The threshold levels and dispersion modeling analyses supporting those levels are presented in the *State of Idaho Guideline for Performing Air Quality Impact Analyses*[1] (*Idaho Air Modeling Guideline*). Use of a modeling threshold represents the use of conservative modeling, performed in support of the threshold, as a project SIL analysis. Project-specific modeling applicability for this project is addressed in Section 3.1.1 of this memorandum.

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 facility-wide emissions, and emissions from any nearby co-contributing sources, 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 lists SILs and 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 a violation of the standard, the permit may not be issued

if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. As an example, consider a hypothetical case where the SIL analysis indicates the project (new source or modification) has impacts exceeding the SIL and the cumulative impact analysis indicates a violation of the NAAQS. If project-specific impacts are below the SIL at the specific receptors showing the violations during the time periods when modeled violations occurred, then the facility does not have a significant contribution to the specific violations.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	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	0.3	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 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	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]	75 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. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb. However, this standard will not be applicable for permitting purposes until it is incorporated by reference *sine die* into Idaho Air Rules.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) 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 c) 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 Idaho Air Rules Section 210, if the total project-wide emissions 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 emissions 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.

3.0 Analytical Methods and Data

This section describes the methods and data used in analyses to demonstrate compliance with applicable air quality impact requirements.

3.1 Emission Source Data

Facility-wide emissions rates of criteria pollutants for the proposed FEC permit were provided by INL. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

Emissions rates used in the dispersion modeling analyses submitted by INL should be reviewed by the DEQ permit writer against those in the emissions inventory of the permit application. All modeled criteria air pollutant and TAP emissions rates should be equal to or greater than the facility's emissions calculated in other sections of the PTC application or requested permit allowable emission rates.

3.1.1 Criteria Pollutant Emissions Rates and Modeling Applicability

If project-related potential to emit (PTE) values would qualify for a below regulatory concern (BRC) permit exemption as per Idaho Air Rules Section 221 if it were not for some pollutants exceeding BRC thresholds, then an air impact analysis may not be required for those criteria pollutants with project emissions below BRC. DEQ's regulatory interpretation policy of exemption provisions of Idaho Air Rules (Policy on NAAQS Compliance Demonstration Requirements, DEQ policy memorandum, July 11, 2014) 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." The interpretation policy also states that the exemption criteria of uncontrolled 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.

Table 3 lists the criteria pollutant NAAQS compliance demonstration applicability assessment. Excluding pollutants from air impact analyses on the basis of the BRC interpretation was not evaluated for the INL project. An impact analysis must be performed for pollutant increases that would not qualify for an exclusion such as BRC. Modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*. Modeling applicability emissions thresholds published in the *Idaho Air Modeling Guideline* were based on assuring an ambient impact of less than established SIL for that specific pollutant and averaging period.

Table 3. AIR IMPACT ANALYSES APPLICABILILTY

Criteria Pollutant	Level I Modeling Thresholds (lb/hr)	Applicable Facility Wide PTE Emissions (ton/year)	Facility Wide Emissions including FEC Growth Components (ton/year)	Air Impact Analyses Required?
PM_{10}[a]	0.22	4.0	5.7	Yes
$PM_{2.5}$[b]	0.054 (0.35 ton/year)[c]	4.0	5.7	Yes
Carbon Monoxide (CO)	15	13.1	18.6	Yes
Sulfur Dioxide (SO_2)	0.21	12.5	17.8	Yes
Nitrogen Oxides (NOx)	0.20 (1.2 ton/year)[c]	70.2	100.0	Yes
Lead (Pb)	14 lbs/month	0.0	0.0	No

[a] Particulate matter with an aerodynamic diameter less than or equal to 10 micrometers
[b] Particulate matter with an aerodynamic diameter less than or equal to 2.5 micrometers
[c] Threshold for annual NAAQS

If project-specific total emissions rates are below Level I thresholds, project-specific air impact analyses are generally not necessary for permitting. Use of Level II Modeling Thresholds is conditional, requiring DEQ approval. INL elected to model all criteria pollutants except lead to demonstrate compliance with all NAAQS. (Lead emissions were deemed negligible). All short term periods were modeled with the maximum short term emission rates as listed in Table 4.

Table 4. CRITERIA POLLUTANT MODELED EMISSIONS RATES							
Source ID	**Source Description**	**Emissions (lb/hr)**					
		PM_{10}	**$PM_{2.5}$**	**CO**	**SO_2**	**NO_2 1-hour**	**NO_2 ann (ton/year)**
AMWBOIA	WMF-676-004A, 12.55 MMBtu/hr boiler	0.097	0.097	1.040	0.208	1.802	7.891
AMWBOIB	WMF-676-005B, 12.55 MMBtu/hr boiler	0.097	0.097	1.040	0.208	1.802	7.891
AMWBOIC	WMF-676-006C, 12.55 MMBtu/hr boiler	0.097	0.097	1.040	0.208	1.802	7.891
AMWBOI2	WMF-676-007, 2.0 MMBtu/hr boiler	0.015	0.015	0.166	0.033	0.287	1.258
AMWTSARE	TSA-RE, Mobile Equipment and Process Emissions	0.244	0.244	0.741	0.228	3.445	15.087
CFBOI608	CFA-608, 1.5 MMBtu/hr boiler	0.025	0.025	0.053	0.002	0.214	0.939
CFBOI609	CFA-609-005, 2.1 MMBtu/hr boiler	0.035	0.035	0.075	0.003	0.300	1.314
INTBOI1	CPP-606, 36.4 MMBtu/hr boiler	0.497	0.497	1.079	0.046	4.318	18.911
INTBOI2	CPP-606, 36.4 MMBtu/hr boiler	0.497	0.497	1.079	0.046	4.318	18.911
INTBOI3	CPP-606, 36.4 MMBtu/hr boiler	0.497	0.497	1.079	0.046	4.318	18.911
INTBOI4	CPP-606, 36.4 MMBtu/hr boiler	0.497	0.497	1.079	0.046	4.318	18.911
IWTUTMT	CPP-1696, Integrated Waste Treatment Unit	0.164	0.164	0.230	3.825	12.381	54.229
CPP666	CPP-666, Repack and Sodium Distillation	0.000	0.000	0.004	0.012	0.000	0.000
NRFBOI1	Boiler No. 1, 52.4 MMBtu/hr boiler	1.079	1.079	2.349	0.100	9.365	41.020
NRFBOI3	Boiler No. 3, 52.4 MMBtu/hr boiler	1.079	1.079	2.349	0.100	9.365	41.020
NRFBOIP	New Boiler, 28.9 MMBtu/hr boiler	0.481	0.481	1.048	0.045	4.183	18.320
WMF1617	WMF-1617 Mobile Equipment	1.230	1.230	4.103	1.151	7.524	32.955
WMF1621	WMF-1621, Retrieval Operations (5 separate exhaust ducts)	1.341	1.341	5.802	1.548	8.810	38.586
SMCBOI67	TAN-679-067a, 25 MMBtu/hr boiler	0.413	0.413	0.897	0.038	3.587	15.713
SMCBOI68	TAN-679-068, 25 MMBtu/hr boiler	0.413	0.413	0.897	0.038	3.587	15.713
Only one modeled at a time	**FEC Growth Component**						
AMWFEC	AMWTP FEC Growth, Same as AMWBOIA	0.387	0.387	1.270	1.214	6.810	29.826
ATRFEC	ATR FEC Growth	0.387	0.387	1.270	1.214	6.810	29.826
CFAFEC	CFA FEC Growth, Same as CFBOI608	0.387	0.387	1.270	1.214	6.810	29.826
INTFEC	INTEC FEC Growth, Same as INTBOI1	0.387	0.387	1.270	1.214	6.810	29.826
MFCFEC	MFC FEC Growth	0.387	0.387	1.270	1.214	6.810	29.826
NRFFEC	NRF FEC Growth, Same as NRFBOI1	0.387	0.387	1.270	1.214	6.810	29.826
SMCFEC	SMC FEC Growth, Same as SMCBOI68	0.387	0.387	1.270	1.214	6.810	29.826
Emergency Generators							
WMF734	AMWTP	0.384	0.384	4.691	0.008	17.619[a]	0.106
812001	AMWTP	0.264	0.264	3.222	0.006	12.143[a]	0.073
812002	AMWTP	0.431	0.431	5.262	0.009	19.842[a]	0.119

Table 4. CRITERIA POLLUTANT MODELED EMISSIONS RATES							
Source ID	Source Description	Emissions (lb/hr)					
		PM_{10}	$PM_{2.5}$	CO	SO_2	NO_2 1-hour	NO_2 ann (ton/year)
61910	ATR Complex	1.127	1.127	3.460	1.056	16.032[a]	2.084
670M42	ATR Complex	0.429	0.429	5.238	0.009	19.683[a]	0.118
670M43	ATR Complex	0.429	0.429	5.238	0.009	19.683[a]	0.118
674M6	ATR Complex	0.429	0.429	5.238	0.009	19.683[a]	0.118
786M1	ATR Complex	1.198	1.198	14.683	0.026	55.160[a]	0.883
WCS002	CWI-INTEC	1.167	1.167	14.207	0.025	53.414[a]	0.320
WCS004	CWI-INTEC	1.167	1.167	14.207	0.025	53.414[a]	0.320
WCS006	CWI-INTEC	1.167	1.167	14.207	0.025	53.414[a]	0.320
785017	MFC	1.214	1.214	3.722	1.135	17.302[a]	0.104
768003	MFC	0.312	0.312	3.810	0.007	14.365[a]	0.115
686016	NRF	0.680	0.680	8.333	0.015	31.191[a]	0.187
686017	NRF	0.680	0.680	8.333	0.015	31.191[a]	0.187
686018	NRF	0.680	0.680	8.333	0.015	31.191[a]	0.187
686019	NRF	0.680	0.680	8.333	0.015	31.191[a]	0.187
675010	SMC	0.677	0.677	2.071	0.633	9.603[a]	0.058
679012	SMC	0.199	0.199	2.429	0.004	9.127[a]	0.055

a. The source was not included in 1-hour NO_2 impact modeling analyses according to DEQ's guidance policy for intermittent emissions from emergency engines. See the sub-section on Intermittent Emissions Source in this section.

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 (see Section 3.3.3) 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 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."

Allowable emissions estimates of VOCs and NOx are below the 100 tons/year threshold, and DEQ determined it was not appropriate or necessary to require a quantitative source specific O_3 impact analysis.

Intermittent Emissions Sources

Emissions from the testing of emergency generator engines are intermittent sources that only operate on an infrequent basis. The internal combustion (IC) engines are only used for emergency conditions and during periodic operational testing. As such, these sources are difficult to model in a way that accounts for impacts in a reasonably accurate but conservative manner. Because of INL's revisions to the emission inventory, the modeling files incorporated several changes, including extensive randomly generated hourly emission files (by DEQ) for treatment of intermittent testing emissions from the many emergency generators located throughout the facility. As requested by DEQ, all generators with a rating of 500 hp or greater were included in the modeling analyses.

DEQ developed a guidance policy in 2013 on modeling intermittent sources for compliance with the 1-hour NO_2 NAAQS. The guidance is provided in Appendix A of the *Idaho Air Modeling Guideline*, and the following is stated in the guidance:

> Upon a review of other states' application of the Tyler Fox memo, comments from the public and Idaho industry, an internal review of Idaho sources, NO_2 background levels, and various sample model runs, DEQ has determined that Nitrogen Oxides (NO_x) emissions from the intermittent operational testing of engines powering emergency generators or fire-suppression water pumps may be excluded from the project-specific significant impact level (SIL) analysis and the cumulative NAAQS analysis for 1-hour NO_2, providing the annual hours of operation from testing and maintenance are less than or equal to 100 hours.
>
> This determination is applicable to minor source air permitting projects and is not limited to any specific number of engines present at a facility. The Director may require deviation from this guidance if deemed appropriate to assure compliance with 1-hour NO_2 NAAQS and IDAPA 58.01.01.203 or 01.403. DEQ will determine how emergency engines are included in permits for major sources, specifically those applicable to the Prevention of Significant Deterioration (PSD) program, on a case-by-case basis.

Secondary Particulate Formation

The impact from secondary particulate formation resulting from emissions of NOx, SO_2, and/or VOCs was assumed by DEQ to be negligible on the basis of the magnitude of emissions and the short distance from emissions sources to modeled receptors where maximum PM_{10} and $PM_{2.5}$ impacts would be anticipated.

3.1.2 Toxic Air Pollutant Emissions Rates

TAP emissions regulations under Idaho Air Rules Section 220 are only applicable for new or modified sources constructed after July 1, 1995. There were no TAPs emission increases that exceeded the screening emissions level (EL) of Idaho Air Rules Sections 585 and 586, and therefore no site specific modeling was required. Table 5 provided a summary of the TAP modeling applicability assessment for those TAPS potentially emitted as a result of the proposed changes in the facility due to the growth component.

TAP	Screening Level EL (lb/hr)	Emissions (lb/hr)	Modeling Required
1,1,1-Trichloroethane	1.27E+02	5.66E-04	N
Copper	6.70E-02	2.01E-03	N
Ethyl Benzene	2.90E+01	1.52E-04	N
Naphthalene	3.3E+00	2.71E-03	N
Selenium	1.30E-02	5.04E-03	N
Toluene	2.50E+01	1.49E-02	N
Xylene	2.90E+01	2.61E-04	N
Zinc	6.67E-01	1.34E-03	N

3.1.3 Emissions Release Parameters

Table 6 provides emissions release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for point sources as used in the final modeling assessment.

Stack parameters used in the modeling analyses were generally based on well documented data, including source tests and engine certifications. Documents and references for some of these derivations are provided in the appendices to the report submitted with the application. DEQ determined that the documentation and justification of release parameters was adequate considering the sources that were modeled.

Table 6. SOURCE RELEASE PARAMETERS USED IN IMPACT MODELING

Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elev (m)	Stack Height (ft)	Temp (°F)	Exit Velocity (fps)	Stack Diameter (ft)
AMWBOIA	WMF-676-004A, 12.55 MMBtu/hr boiler	335280	4817969	1530	50.52	350.33	30.807	1.837
AMWBOIB	WMF-676-005B, 12.55 MMBtu/hr boiler	335280	4817969	1530	50.52	350.33	30.807	1.837
AMWBOIC	WMF-676-006C, 12.55 MMBtu/hr boiler	335280	4817969	1530	50.52	350.33	30.807	1.837
AMWBOI2	WMF-676-007, 2.0 MMBtu/hr boiler	335268	4817975	1530	36.75	424.13	0.003	1.181
AMWTSARE	TSA-RE, Mobile Equipment and Process Emissions	335076	4818097	1530	60.04	69.53	38.386	4.921
CFBOI608	CFA-608, 1.5 MMBtu/hr boiler	342456	4821112	1506	34.45	325.13	0.003	1.001
CFBOI609	CFA-609-005, 2.1 MMBtu/hr boiler	342471	4821114	1506	25.92	325.13	0.003	0.833
INTBOI1	CPP-606, 36.4 MMBtu/hr boiler	343727	4826295	1499	50.52	375.53	75.787	2.034
INTBOI2	CPP-606, 36.4 MMBtu/hr boiler	343737	4826295	1499	50.52	375.53	75.787	2.034
INTBOI3	CPP-606, 36.4 MMBtu/hr boiler	343748	4826295	1499	50.52	375.53	75.787	2.034
INTBOI4	CPP-606, 36.4 MMBtu/hr boiler	343756	4826295	1499	50.52	375.53	75.787	2.034
IWTUTMT	CPP-1696, Integrated Waste Treatment Unit	344111	4826077	1498	120.08	256.73	59.055	4.987

Table 6. SOURCE RELEASE PARAMETERS USED IN IMPACT MODELING								
Source ID	**Source Description**	**Easting (X) (m)**	**Northing (Y) (m)**	**Base Elev (m)**	**Stack Height (ft)**	**Temp (°F)**	**Exit Velocity (fps)**	**Stack Diameter (ft)**
CPP666	CPP-666, Repack and Sodium Distillation	343721	4826050	1499	160.1	74.93	35.433	5.413
NRFBOI1	Boiler No. 1, 52.4 MMBtu/hr boiler	345440	4834677	1479	29.99	499.73	28.15	3.51
NRFBOI3	Boiler No. 3, 52.4 MMBtu/hr boiler	345440	4834688	1479	29.99	499.73	28.15	3.51
NRFBOIP	New Boiler, 28.9 MMBtu/hr boiler	345427	4834681	1479	22.34	456.53	0.003	2.001
WMF1617	WMF-1617 Mobile Equipment	335042	4818501	1526	25	76.73	58.071	3.97
WMF1621	WMF-1621, Retrieval Operations (5 separate exhaust ducts)	334341	4818445	1531	27.49	76.73	0.003	0.003
SMCBOI67	TAN-679-067a, 25 MMBtu/hr boiler	360896	4857581	1460	53.15	299.93	0.003	2.001
SMCBOI68	TAN-679-068, 25 MMBtu/hr boiler	360894	4857577	1460	53.15	299.93	0.003	2.001
Only one FEC Growth Component modeled at a time [a]								
AMWFEC	AMWTP FEC Growth, Same as AMWBOIA	335280	4817969	1530	50.52	350.33	30.807	1.837
ATRFEC	ATR FEC Growth	341579	4828097	1501	16.4	199.13	16.404	1.001
CFAFEC	CFA FEC Growth, Same as CFBOI608	342456	4821112	1506	34.45	325.13	0.003	1.001
INTFEC	INTEC FEC Growth, Same as INTBOI1	343727	4826295	1499	50.52	375.53	75.787	2.034
MFCFEC	MFC FEC Growth	366235	4828352	1562	16.4	199.13	16.404	1.001
NRFFEC	NRF FEC Growth, Same as NRFBOI1	345440	4834677	1479	29.99	499.73	28.15	3.51
SMCFEC	SMC FEC Growth, Same as SMCBOI68	360894	4857577	1460	53.15	299.93	0.003	2.001
Emergency Generators								
WMF734	AMWTP	335209	4817972	1530	11.52	1118.93	203.412	0.666
812001	AMWTP	335300	4817993	1530	12.01	870.53	156.168	0.623
812002	AMWTP	335301	4817964	1530	11.75	935.33	4.921	6.594
61910	ATR Complex	341600	4828095	1501	21	829.13	202.428	0.623
670M42	ATR Complex	341324	4828032	1502	29.99	704.93	83.005	1.44
670M43	ATR Complex	341319	4828032	1502	29.99	704.93	83.005	1.44
674M6	ATR Complex	341321	4828039	1502	10.99	913.73	0.003	0.003
786M1	ATR Complex	341683	4828099	1501	13.48	807.53	4.068	8.629
WCS002	CWI-INTEC	343985	4826058	1500	16.01	940.73	170.604	1.332
WCS004	CWI-INTEC	343979	4826058	1500	16.01	940.73	170.604	1.332
WCS006	CWI-INTEC	343973	4826 058	1500	16.01	940.73	170.604	1.332
785017	MFC	366301	4828336	1562	29.99	1000.13	91.535	0.833
768003	MFC	366241	4828182	1562	40.03	1000.13	0.003	1.001
686016	NRF	345273	4834554	1479	24.02	888.53	0.003	0.003
686017	NRF	345257	4834554	1479	24.02	888.53	0.003	0.003

Table 6. SOURCE RELEASE PARAMETERS USED IN IMPACT MODELING								
Source ID	Source Description	Easting (X) (m)	Northing (Y) (m)	Base Elev (m)	Stack Height (ft)	Temp (°F)	Exit Velocity (fps)	Stack Diameter (ft)
686018	NRF	345257	4834552	1479	25	888.53	0.003	0.003
686019	NRF	345273	4834552	1479	25	888.53	0.003	0.003
675010	SMC	361018	4857558	1460	16.01	969.53	0.003	0.003
679012	SMC	360901	4857565	1460	12.99	960.53	0.003	0.003

[a] Source characteristics for the growth component stacks were either treated as being modeled from an existing boiler stack or from a generic stack derived in a conservative fashion, and are described in detail in the modeling report, section 4.

3.2 Background Concentrations

Background concentrations were originally provided by INL and obtained from the Northwest International Air Quality Environmental Science and Technology Consortium (NW AIRQUEST) *Lookup 2009-2011 Design Values of Criteria Pollutants*[3]. These design value air pollutant levels are based on regional scale air pollution modeling of Washington, Oregon, and Idaho, with values influenced by monitoring data as a function of distance from the monitor. DEQ has determined that the NW AIRQUEST background values are reasonably representative of the INL, Idaho area. INL calculated average concentrations from a large number of receptors, as the modeling domain is a large area covering about 900 square miles. These background values are listed in Table 9 and have been added to maximum design concentrations to show compliance with the NAAQS.

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 Analyses

BAE performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the facility as described in the application. Results of the submitted 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 8 provides a brief description of parameters used in the modeling analyses.

3.3.2 Modeling protocol and Methodology

A modeling protocol was submitted to DEQ for this project on February 9, 2015. On February 24, 2015 DEQ issued a conditional modeling protocol approval notification with several comments. INL responded with comments on the conditions set forth by DEQ in the protocol. In particular, DEQ requested that INL incorporate building wake effects into their modeling process. DEQ responded with a revised modeling protocol approval on April 16, 2015. INL submitted an application on May 18, 2015. After two incomplete submittals, a final submitted application was determined complete on November 15, 2015.

Project-specific modeling and other required impact analyses were generally conducted using data and methods proposed in the protocol, discussed in post-application correspondence and as specified in the *Idaho Air Quality Modeling Guideline*[1].

Table 8. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
General Facility Location	Southeast Idaho	The facility is located in an area that is attainment or unclassified for all criteria air pollutants
Model	AERMOD	AERMOD version 15181 with the PRIME downwash algorithm,
Meteorological Data	GRID3 onsite data Idaho Falls surface data and Boise upper air data	The meteorological model input files for this project were provided by and recommended as most representative for this project by IDEQ, as described in the IDEQ modeling protocol and verified by IDEQ's approval of that protocol.
Terrain	Considered	See section 3.3.5 below
Building Downwash	Considered	BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
Receptor Grid	**Significant Impact Analyses**	
	Grid 1	500-meter spacing along the ambient air boundary and along all roadways with public access
	Grid 2	100-meter spacing for areas of possible maximum impacts, occurring at distances of 2000-3000 meters from nearest sources

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). 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 includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 15181 was used by BAE 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.

3.3.4 Meteorological Data

DEQ provided five years of meteorological data for the period 2000-2004, incorporating upper air data from Boise, Idaho, NWS surface data from Idaho Falls, and representative on site data collected by INL at the Grid 3 meteorological tower located within INL property. The GRID3 tower is part of the INL Mesowest network and is the most centrally located tower among the INL Site facilities. DEQ determined that these data are adequately representative of the meteorology in the INL facility for minor source permitting.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). DEQ provided final receptor files with derived elevations used 1 arc second data files (about 30-meter resolution), which is sufficient to adequately resolve terrain in the area for evaluating air pollution impacts resulting from emissions.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and

assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each 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 emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

DEQ reviewed the area surrounding the facility by using the web-based mapping program Google Earth, which uses the WGS84 datum. DEQ also overlaid modeling files with a digital photograph background images acquired from the 2013 ARCGIS NAIP (National Agriculture Imagery Program) data base. The immediate area is effectively flat with regard to dispersion modeling affects. Elevations in the modeling domain matched those indicated by the background images

3.3.6 Facility Layout

DEQ verified proper identification of buildings on the site by comparing a graphical representation of the modeling input file to aerial photographs on Google Earth. The modeled layout matched well with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

3.3.7 Effects of Building Downwash on Modeled Impacts

Potential downwash effects on emissions 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) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD. Extensive work was done by INL to provide adequate documentation of building downwash effects.

3.3.8 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. INL uses fence-lines, no-trespassing signs, and security guards; the existence of these features clearly precludes public access to the facility and defines the ambient boundary for the facility.

3.3.9 Receptor Network

Table 8 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[1]. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts, and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors.

3.3.10 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.

All point sources were below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 Impact Modeling Results

4.1 Results for NAAQS Significant Impact Level Analyses

Criteria pollutant emissions from the INL facility were modeled to evaluate compliance with the NAAQS. Because INL elected to not do assessment of SIL impacts, modeling was done with facility-wide emissions to show compliance with the NAAQS. Results of the NAAQS modeling analyses are listed in Table 9, and show that compliance has been demonstrated with the NAAQS for all the criteria pollutants.

Table 9. RESULTS FOR NAAQS ANALYSES

Pollutant	Averaging Period	Modeled Design Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
SO_2	1-hour	37.6[b]	4.1	41.7	196
	3-hour	21.3	4.6	25.9	1300
	Annual	0.36	0.32	0.68	80
NO_2	1-hour	168.0[c]	7.2	175.2	188
	Annual	2.42	0.83	3.25	100
CO	1-hour	132	2076	2208	40,000
	8-hour	35.9	797	832.9	10,000
PM_{10}	24-hour	3.58	59	52.58	150
$PM_{2.5}$	24-hour	3.58[d]	8.2	11.78	35
	Annual	0.20[e]	3.2	3.4	12

[a] Micrograms per cubic meter
[b] 99th percentile (average of high 4th high)
[c] 98th percentile (average oh high eight high); Tier 1 assessment (100% NO_2 to NOX conversion)
[d] Highest concentration
[e] Maximum Annual averaged over five year period

4.2 Results for TAPs Impact Analyses

Dispersion modeling is required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-specific emission increases exceeding emissions screening levels (ELs). The application identified no TAPs that required air impact modeling analysis. Therefore, a modeling assessment was not done to demonstrate compliance with the AAC.

5.0 Conclusions

The ambient air impact analyses and other air quality analyses submitted with the INL application demonstrated to DEQ's satisfaction that emissions from the proposed project will not cause or significantly contribute to a violation of any ambient air quality standard.

References:

1. *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.
2. *Memorandum :* Assessment of Ozone data collected at Hilex facility, 2005-2007, DEQ, November 2015
3. Air Quality Environmental Science and Technology Consortium (NW AIRQUEST). *Lookup 2009-2011 Design Values of Criteria Pollutants.* Available at: http://lar.wsu.edu/nw-airquest/lookup.html.

APPENDIX C – PERMIT HISTORY

INL Permits List - Updated version 6/10/16

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
MFC	Gloveboxes, Hoods	60891	P-2011.0113	1/31/12	1/31/2012	Initial Permit - IMCL	Status: Active	A/T
MFC	Gloveboxes, Hoods	60807	P-2011.0077	4/8/11	4/8/2011	Initial Permit - FMF	Status: Active	A/T
MFC	Gloveboxes, Hoods	60910	P-2011.0077	9/28/11	4/8/2011	Clarification of existing permit conditions	Letter issued by DEQ specifies exactly which HEPA filters are subjsct to this permit	L
ANL-W	Building Exhaust System, Air Cell System, Argon Cell System, Contaminated Liquid Collection System, Diesel Generators		0140-0022	12/5/89		Initial Permit		S
ANL-W	Pyrometallurgical Fuel Regeneration for the EBR-II		0140-0022	11/29/89		Conditional PTC for modifications to the Hot Fuel Examination Facility		S
ANL-W	Argon Cell System	88017	0140-0022	7/19/90		PTC Modification		S
ANL-W	Building Exhaust System, Air Cell System, Argon Cell System, Contaminated Liquid Collection System, Diesel Generators	P-9600128	0140-0022	10/28/96		PTC Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
ANL-W	Air Cell System, Hot Repair Area	P-000502	011-00022, formerly 0140-0022	6/26/00		PTC Modification	Reactivation of Hot Repair Area	S
ANL-W	Building Exhaust System, Air Cell System, Argon Cell System	P-000536	011-00022	5/4/01		PTC Modification	Status: superseded by PTC No. P-2007.0043. Administrative amendment to reflect current operating conditions	S
ANL-W	Building Exhaust System, Air Cell System, Argon Cell System	P-000536	011-00022	5/9/01		PTC Modification	Status: superseded by PTC No. P-2007.0043. Administrative corrections and clarifications to reflect current operating conditions and regulatory requirements	S
MFC (ANL-W)	Building Exhaust System, Air Cell System, Argon Cell System	P-2007.0043	P-2007.0043	6/22/07	6/22/2007	PTC Modification	Status: Superseded. This permit was superseded by P-2008.0073 issued on 6/10/08. This PTC was for new fuel fabrication capabilities, to delete 30-day and annual processing limits, to delete 10-15% headvy metal burnup requirment for fuel treatment.	S
MFC (ANL-W)	Building Exhaust System, Air Cell System, Argon Cell System	P-2008.0073	P-2008.0073	6/10/08	6/10/2008	PTC Revision to remove references to "inlet" HEPA filters that protect against backflow contamination but are not part of the exhaust/emmissions from this facility	Status: Active.	A/T
ANL-W	Plasma Hearth Process, Bench-Scale Experimental Unit		011-00022	2/2/96		Initial Permit	Status: S.	S
ANL-W	Plasma Hearth Process, Bench-Scale Experimental Unit		011-00022	5/6/96		PTC Modification	Status: S. Monitoring, Recordkeeping, and Reporting Requirements Added	S
ANL-W	Plasma Hearth Process, Bench-Scale Experimental Unit	P-9600128	011-00022	10/28/96		PTC Modification	Status: S. Emery 3004 may be used in place of DOP for HEPA Filter Testing	S

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
ANL-W	Plasma Hearth Process, Bench-Scale Experimental Unit		011-00022	3/7/03		PTC Termination	Status: PTC has been terminated. Equipment being dismantled, process eliminated	T
ANL-W	Binks Model #14-10 Exhaust Chamber		0140-0022	2/19/90		Initial Permit	Status: Superseded by PTC P-020503 issued 2/20/03.	S
ANL-W	Binks Model AA-530 (or equal) Exhaust Chamber		0140-0022	2/21/92		Modified PTC	Status: Superseded by PTC P-020503 issued 2/20/03	S
ANL-W	Binks Model #14-10 Exhaust Chamber		0140-0022	8/23/93		Modified PTC	Status: Superseded by PTC P-020503 issued 2/20/03	S
MFC	Materials and Fuels Complex (MFC)	P-020503	011-00022	2/20/03	2/20/2003	Modified PTC	Status: Active	A/T
ANL-W	One exempt generator			4/4/90	4/4/1990	PTC Exemption Determination	Generator is exempt under condition that it is not used more than 22 hr/yr	S
ANL-W	Sodium Melting and Draining Room, 799-009; Process Vent, 799-010; Roof Vents, 799-011/012; Caustic Storage Tank Vent, 799-013; Barrel Wash Pad, 799-014; Carbonate Process Vent, 799-015	P-950072	011-00022	9/29/95		Initial Permit		S
ANL-W	Sodium Melting and Draining Room, 799-009; Process Vent, 799-010; Roof Vents, 799-011/012; Caustic Storage Tank Vent, 799-013; Barrel Wash Pad, 799-014; Carbonate Process Vent, 799-015	P-950241	011-00022	2/13/96		PTC Modification	Radionuclide Emissions Limit Amendment	S
ANL-W	Sodium Melting and Draining Room, 799-009; Process Vent, 799-010; Roof Vents, 799-011/012; Caustic Storage Tank Vent, 799-013; Barrel Wash Pad, 799-014; Carbonate Process Vent, 799-015	P-9600128	011-00022	10/28/96		PTC Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
ANL-W	Sodium Melting and Draining Room, 799-009; Process Vent, 799-010; Roof Vents, 799-011/012; Caustic Storage Tank Vent, 799-013; Barrel Wash Pad, 799-014; Carbonate Process Vent, 799-015	P-970013	011-00022	3/28/97		PTC Modification	Control Equipment Modification	S
ANL-W	Sodium Melting and Draining Room, 799-009; Process Vent, 799-010; Roof Vents, 799-011/012; Caustic Storage Tank Vent, 799-013; Barrel Wash Pad, 799-014; Carbonate Process Vent, 799-015	P-000501	011-00022	5/12/00		PTC Modification	New HEPA Filter Media	S
ANL-W	Sodium Melting and Draining Room, 799-003; Process Vent, 799-010; Roof Vents, 799-011/012; Barrel Wash Pad, 799-014; Drum Filling and Storage Area Vent, 799-015; Sodium Tanks Vent, 799-016	P-000504	011-00022	9/26/00		PTC Modification	a Sodium Process Facility PTC issued on July 17, 2000. That permit was subsequently revised There is no record of this permit in State Office files. Letter amends language in a supreseded permit issued 2/14/97	S

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
CFA	Cleaver Brooks Spaceheating Boiler CB200-50-15		0340-0001	5/12/87		Initial Permit		S
CFA	Cleaver Brooks Spaceheating Boiler CB200-50-15		0340-0001	6/4/87		PTC Modification	Correct Building CFA 608 in Initial Permit to Correct Building, CFA 609 HQ/SRT	S
CFA	Cleaver Brooks Boiler CB-101-50		023-00001	12/5/95		PTC Modification	Status: Superseded by PTC No. P-060518. Modified PTC 0340-0001 for the pending Tier I OP and the latest INEEL PSD analysis. Boiler ID, emission factors, emission limits, and fuel use limit were changed.	S
CFA	Cleaver Brooks Boiler CB-101-50		023-00001	2/14/96		PTC Modification	Status: Superseded by PTC No. P-060518. Allow use of JP-4 & JP-8 fuels	S
CFA	Boiler CFA-609-005, Cleaver Brooks Boiler Model CB-101-50	P-060518	023-00001	1/10/07		PTC Modification	Status: Active. Increase allowable fuel input and PM	T
CFA	Boiler CFA-609-005, Cleaver Brooks Boiler Model CB-101-50	61122	P-060518	10/23/12		PTC Termination LTR	exists and now has an exemption instead of a permit.	T
General Site-Wide	All Emissions Units	T1-030520	T1-030520	6/28/05	6/28/2005	Initial Tier I (Title V) Operating Permit	Status: Superseded. This permit was superseded by T1-060508	S
General Site-Wide	All Emissions Units	T1-060508	T1-060508	6/6/06		Administrative Amendment; name changes, minor corrections	Status: Superseded. This permit was superseded by T1-060519	S
General Site-Wide	All Emissions Units	T1-060519	T1-060519	1/10/07		Administrative Amendment; incorporate P-060518 & P-060512	Status: Superseded. This permit was superseded by T1-060521 issued 10/23/07	S
General Site-Wide	All Emissions Units	T1-060521	T1-060521	10/23/07	10/23/2007	T1 Operating Permit Administrative Amendment; replaces T1-060519	Status: Superseded. This prmt was superseded by T1-2008.0144 issued 9-30-08	S
General Site-Wide	All Emissions Units	T1-2008.0144	T1-2008.0144	9/30/08	9/30/2008	Administrative Amendment; change TRA name to be Advanced Test Reactor Complex (ATR)	Status: Superseded. This prmt was superseded by T1-2009.0114 issued 10/30/09	S
General Site-Wide	All Emissions Units	T1-2009.0114	T1-2009.0114	10/30/09	10/30/2009	Administrative Amendment to incorporate PTC No. P-2008.0199 issued 8-31-09 for INTEC IWTU.	Status: Active, however, this permit will be superseded by Tier I renwal permit no. T1-2009.0148	S
General Site-Wide	All Emissions Units	T1-2009.0148	T1-2009.0148	draft-pending	draft- pending	Tier I Permit Renewal	This permit is currently in the draft permit stage.	S
ICPP	Two Coal-FiredAFBC Boilers		PSD-X81-11	6/5/81		PSD Permit Issued by EPA Initial Permit	This source has been removed from the facility.	Source Removed from site.

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
ICPP	Two Coal-FiredAFBC Boilers		PSD-X81-11	2/14/94		PSD Permit Modified by EPA	These boilers no longer exist at the INL, thererefore, the permit is no longer in effect	T
ICPP	Fluorinel and Storage Facility, Fuel Processing Restoration Facility, New Waste Calcining Facility, All Other Sources of NOx Emissions		0340-0001-300	5/20/88		Initial Permit.	Status: Superseded by P-020521 PTC issued 12-1-03.	S
ICPP	ANL-W Boilers 1, 2, 3, and 4	P-88079	0340-0001-300	8/11/89		PTC Modification	NOx Emission Limit Increases for ANL-W Boilers-P-2011.0124 issued 12/30/11 states these boilers removed from service and will no longer be operated. This permit served to	S
ICPP	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources		023-00001	11/17/94		PTC Modification	Updating Title of Permit, Permit Number, and Revising Sources	S
ICPP	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources		023-00001	2/13/95		PTC Modification	Removal of one piece of equipment, the FAST main ventilation filtration system	S
ICPP	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources	P-9600128	023-00001	10/28/96		PTC Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
ICPP	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources	P-970123	023-00001	2/20/98		PTC Modification	Amend NOx Sources due to Up-coming Closure of the Waste Calcining Facility	S
INTEC	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources	P-980062	023-00001	10/18/99		PTC Modification	Status: Superseded by P-020521 PTC issued 12-1-03. Administrative Amendments and to Change Name from Idaho Chemical Processing Plant to Idaho Nuclear Technology and Engineering Center	S
INTEC	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System, and INEL-Wide NOx Sources	P-020521	023-00001	12/1/03		PTC Modification	Status: Superseded by P-2011.0124. INTEC B-601, INTEC B-602, INTEC B-604, INTEC B-605, and CFA 668 B-31 have been removed. The NOx monitoring network was removed from service.	S
INTEC	Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System	60932	P-2011.0124	12/30/11	12/30/2011	PTC Modification	Nox sources that no longer exist were removed from permit	A
ICPP	Tanks VES-HBF-105, VES-HBF-104, and VES-HBF-103		0340-0001	8/1/88		Initial Permit		T
INTEC	Tanks VES-HBF-105, VES-HBF-104, and VES-HBF-103	P-000522	0340-0001	7/27/00		Permit Cancellation		T

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status	
ICPP	Hydrofluoric and Fluoboric Acid Bulk Storage Filtering and Associated Acid Transfers; Source Descriptions SCR-CS-169 stack, SCR-FG-180 Stack, and FAST stack	P-88054	0340-0001	3/12/90		Initial Permit	Status: Permit was terminated by letter issud by DEQ on 2/20/03.	S	
ICPP	Hydrofluoric and Fluoboric Acid Bulk Storage Filtering and Associated Acid Transfers; Source Descriptions SCR-CS-169 stack, SCR-FG-180 Stack, and FAST stack	P-88054	0340-0001	10/2/90		PTC Amendment	Status: Permit was terminated by letter issud by DEQ on 2/20/03	S	
ICPP	FAST stack		0340-0001	6/6/94		PTC Amendment	FAST Stack Monitor Filter Change Frequency from Daily to Monthly	T	
ICPP	Hydrofluoric and Fluoboric Acid Bulk Storage Filtering and Associated Acid Transfers; Source Descriptions SCR-CS-169 stack, SCR-FG-180 Stack, and FAST stack	P-020522	0340-0001	2/20/03		PTC Termination	DEQ letter was issued on 2/20/03 to terminate the Fluoric Acid Supply System PTC and its amendment issued on 3/12/90 and 10/2/90.	T	
ICPP	ICPP Pilot Plants: 10-cm Enclosed Calciner, 15-cm Enclosed Calciner, 30-cm Enclosed Calciner, Solvent Cleanup, Acid Fractionator Pilot Plant, FPR Evaporator, Electrolytic Dissolver, Solvent Extraction, PEW Evaporator, Cold Feed Makeup Dissolution Facility, Fluorinel Pilot PLant/Fountain Dissolver Mockup, Calcine Grinder Set-Up, Press Can Filling Set-up, Blending Transport Enclosure, High Bay Facility Storage and Mixing Tanks, Cold Zirconium Feed Storage Facility	P-901209	0340-0001	3/3/92		Initial Permit		S	
ICPP	ICPP Pilot Plants: 10-cm, 15-cm, and 30-cm Calciners; High Bay Facility Mixing Tanks	P-960032	023-00001	6/18/96		Permit Modification	Sources Modified, and permit number updated	S	
ICPP	ICPP Pilot Plants	P-960032		6/18/96		PTC Exemption Determination	Acid Fractionator, Solvent Extraction, Cold Feed Makeup Dissolution Facility, Calcine Grinder Setup, Blending Transport Enclosure, Gravity and Pneumatic Transport, High Bay Facility Storage Tanks, and Cold Zirconium Feed Storage Facility Pilot Plants all issued Exemptions	E	
ICPP	ICPP Pilot Plants: 10-cm, 15-cm, and 30-cm Calciners; High Bay Facility Mixing Tanks	P-960097	023-00001	8/8/96		Permit Modification	Administrative Amendments	S	
ICPP	ICPP Pilot Plants: 10-cm, 15-cm, and 30-cm Calciners; High Bay Facility Mixing Tanks	P-9600128	023-00001	10/28/96		Permit Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing. INL confirmed on 1/5/16 that this activity is no longer in operation.	A/T	FEC permit will cancel
ICPP	Rack Reconfiguration Project		023-00001	4/5/96		Initial Permit	Reconfiguration of FSA pools #1, #5, and #6, with all releases venting through FAST stack	T	
ICPP	Rack Reconfiguration Project	P-950228	023-00001	5/7/96		PTC Amendment	Administrative Changes	T	

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ICCP	Rack Reconfiguration Project	O-2010.0074	023-00001	7/29/10	7/29/2010	PTC Termination	Construction was complete and stopped in 1997. Tier I regulates sources under 40 CFR 61 Subpart H. PTC is expired and no longer necessary	T
ICPP	Flammable Liquids Area, Mixed Waste Area, Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area		023-00001	6/7/93		Initial Permit		S
ICPP	Flammable Liquids Area, Mixed Waste Area, Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area	P-930803	023-00001	11/17/93		Permit Modification	Administrative Amendment to Accurately Describe the Processes	S
ICPP	Flammable Liquids Area, Mixed Waste Area, Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area		023-00001	6/29/94		Permit Modification	Administrative Changes	S
ICPP	Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area		023-00001	11/7/94		Permit Modification	Administrative Changes	S
ICPP	Flammable Liquids Area, Mixed Waste Area, Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area		023-00001	7/7/95		Permit Modification	Change in source description of Hazardous Waste (Solid) Storage Area, and the Hazardous Waste Collection Area and Hazardous Waste (Liquid) Storage Area	S
ICPP	Flammable Liquids Area, Mixed Waste Area, Hazardous Waste (Solid) Storage Area, Hazardous Waste Collection Area, and Hazardous Waste (Liquid) Storage Area, Forklift/Mechanical Room and Supplies, Office Area, and Liquid Waste Unloading Area	P-9600128	023-00001	10/28/96		Permit Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
ICPP	Liquid Waste Unloading Area	P-970126	023-00001	4/4/98		Permit Modification	Status: PTC was termintated by DEQ letter issued on 7-18-07 (project No. 0-2007.0113). This permit replaced the earlier permit.	T

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status	
ICPP	Decontamination Area-Debris Treatment Facility	P-970025	023-00001	5/20/97		Initial Permit		T	
ICPP	Decontamination Area-Debris Treatment Facility	P-970104	023-00001	12/17/97		PTC Modification	Clarification of Emissions Units - Permit terminated based on DOE request	T	
INTEC	Distillation of sodium from Wastes	61181	P-2013.0023	8/30/13		Intial PTC		A/T	
INTEC	Oil-Fired Steam Generating Boiler	P-990104		8/27/99		Pre-Permit Construction Approval	Portable Boiler to be used to supply process and heating steam while Coal-Fired Steam Generating Facility is placed on standby	T	
INTEC	INTEC Portable Boiler Installation	P-990104	023-00001	9/29/99		Initial Permit	Removed from service- permit no longer effective. Refer to P-030505 issued 1/2/04	T	
INTEC	COM-YUI-616 Air Compressor	P-2007.0076	P-2007.0076	9/12/07	39337	Initial Permit	Permit terminated by DEQ on 4/24/13	T	
INTEC	Building CPP-606 Distillate Oi-Fired Boilers and INTEC Distillate Oil-Fired Portable Boiler	P-000500	023-00001	6/26/00		PTC Modification for PTC 023-00001 for "Idaho Chemical Processing Plant NOx Sources" and Initial Permit for PTC 023-00001 "INTEC Portable Boiler"		S	
INTEC	Building CPP-606, Four Distillate Oil-Fired Boilers	P-030505	P-030505	1/21/04		PTC Modification	Status: Superseded by P-2012.0053 issued 9/18/12. Removed portable boiler from service.	S	
INTEC	Building CPP-606, Four Distillate Oil-Fired Boilers	61100	P-2012.0053	9/18/12		PTC Modification	Status: Active. DEQ initiated permit Revision to remove EPA as recipient of the semi-annual boiler report.Modified permit issued 1/21/04	A/T	
INTEC	Integrated Waste Treatment Unit (IWTU)	P-060520	P-060520	5/3/07		Initial Permit	Status: Superseded by PTC No. P-2008.0199	S	
INTEC	Integrated Waste Treatment Unit (IWTU)	P-2008.0199	P-2008.0199	8/31/09	8/31/2009	PTC Modification	Status: Active. Change throughput and design changes prior to construction	A	
IRC	Radionuclide Sources	T1-010908	019-00048	10/29/05	10/29/2005	Initial Tier I Operating Permit		S	
IRC	T1 permit renewal-Radionuclide Sources	T1-050502	019-00048	11/15/06	11/15/2006			T	
IRC	Tier I operating permit	60863	T1-050502	5/5/11	5/5/2011	Tier I permit terminated since part 61 subpart H was never revised to require non-major sources to obtain a Title V operating permit.	Permit Terminated since the underlying basis for issuing a Tier I permit to this "minor source" doesn't exist.	T	
NRF	ZURN Temporary Steam Boiler		0340-0001	4/5/88		Initial Permit	INL informed DEQ on 1/5/16 that this emission unit is not active.	A/T	FEC jpermit will termin
NRF	Four exempt generators			4/4/90	4/4/1990	PTC Exemption Determination	Generators are exempt under condition that combined use of all four generators doesn't exceed 228 hr/yr	S	
NRF	Dry Cell Project Stack NRF-618-237		023-00001	1/29/93		Initial Permit		S	
NRF	Dry Cell Project Stack NRF-618-237		023-00001	5/24/96		PTC Modification	Eliminated Source Description, Modified Emission Limits, Edited Monitoring, Recordkeeping, and Reporting Requirements	S	

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NRF	Dry Cell Project Stack NRF-618-237	P-960096	023-00001	7/22/96		PTC Modification	Letter and tech memo amend pages 4 and 5 of permit, but no record found of attached pages	S
NRF	Dry Cell Project Stack NRF-618-237	P-9600128	023-00001	10/28/96		PTC Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
NRF	Dry Cell Project Stack NRF-618-237	P-990086	023-00001	2/9/00		PTC Modification	Source Files have Cover Letter, but no PTC Attached. Letter Issued from Idaho Falls Regional Office	S
NRF	Dry Cell Project Stack NRF-618-237	P-990086	023-00001	2/25/00		PTC Modification	PTC Issued on 2/9/2000 was not signed and had incorrect date on one page. This permit corrects these issues.	T
NRF	Dry Cell Project Stack NRF-618-237		023-00001	3/7/03		PTC Termination	Equipment installation not completed, project terminated	T
PBF	Waste Experimental Reduction Facility (WERF) and Waste Engineering Disposal Facility (WEDF)		0340-0001-11	10/21/87		Initial Permit		T
PBF	Waste Experimental Reduction Facility (WERF)	P-000542	023-00001	4/5/01		PTC Termination	(Although termination letter refers to PTC #023-00001, refers to permit dated 10/21/1987, which has still old number 0340-0001-11)	T
RWMC	WCF Utility Building Standby Diesel Engine Generator Stack, Boiler Stack WCF-B1-01, and Boiler Stack WCF-B1-02; WCF Process Building Exhaust Stack	P-940027	023-00001	10/7/94		Initial Permit	Transuranic Storage Area Waste Characterization Facility	S
RWMC	WCF Utility Building Standby Diesel Engine Generator Stack, Boiler Stack WCF-B1-01, and Boiler Stack WCF-B1-02; WCF Process Building Exhaust Stack		023-00001	2/2/95		PTC Modification	Modify Emissions Limits	S
RWMC	WCF Utility Building Standby Diesel Engine Generator Stack, Boiler Stack WCF-B1-01, and Boiler Stack WCF-B1-02; WCF Process Building Exhaust Stack	P-9600128	023-00001	10/28/96		PTC Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	T
RWMC	WCF Utility Building Standby Diesel Engine Generator Stack, Boiler Stack WCF-B1-01, and Boiler Stack WCF-B1-02; WCF Process Building Exhaust Stack	P-000540	023-00001	4/5/01		PTC Termination		T
AMWTP	Advanced Mixed Waste Treatment Facility-AM-BN-L-155		n/a	7/22/98		EPA Approval to construct the Advanced Mixed Waste Treatment Facility		L
AMWTP	Glovebox Ventilation System, Drum Line, Box Line	P-980040	023-00001	7/19/00		Initial Permit		S

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Matches DEQ and INL

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
AMWTP	Drum Waste Handling Enclosure, Drum Waste Packaging Glovebox, Box Lines, Supercompactor Gloveboxes, Special Case Waste Glovebox System, Boilers, and Hot Water Heater	P-020504	023-00001	6/7/02		PTC Modification	Status: Active. Pmt issued for Administrative Changes	A/T
AMWTP	AMWTF Box Lines	O-2009.0140	n/a	11/20/09	11/20/2009	Issued letter for interpretation of Permit Conditions 2.2 and 3.2 regarding box line throughput limits	Equivalent limits for "10 boxes per day" limit are specified. Also, interpretation provided regarding "waste volume" of containers used to transport waste to/from box lines.	L
AMWTP	Drum Waste Handling Enclosure, Drum Waste Packaging Glovebox, Box Lines, Supercompactor Gloveboxes, Special Case Waste Glovebox System, Boilers, and Hot Water Heater	P-020504	023-00001 (P-020504)	9/28/11	10/1/2011	DEQ letter transfers AMWTP PTC No. 023-00001 issued June 7, 2002 from BBWI to Idaho Treatment Group (ITG)	none	L
TSA-RE	Contamination Control Enclosure	61188	P-2011.0109	7/31/13		Modification to an existing permit to add a contamination control enclosure	Replaces P-2011.0109 issued 9/19/11	A/T
TSA-RE	Retrieval Enclosure, Waste Storage Facility		0340-0001	12/12/90		Initial Permit	Status: S	S
TSA-RE	Retrieval Enclosure, Waste Storage Facility		023-00001	8/17/94		Permit Modification	Status: S. Stack parameters, operating requirements, and emissions limitations changes	S
TSA-RE	Retrieval Enclosure, Waste Storage Facility		023-00001	11/30/94		Permit Modification	Status: S. Administrative Amendments	S
TSA-RE	Retrieval Enclosure, Waste Storage Facility	P-960155	023-00001	1/10/97		Permit Modification	Status: S. VOC emission permit limits and monitoring requirements eliminated	S
TSA-RE	Gas Burner Heating Unit, Emergency Generator Unit, Retrieval Diesel Enclosure Soil Vacuum	P-990135	023-00001	3/27/00		Permit Modification	Status: S. Supersedes earlier permit	S
TSA-RE	Gas Burner Heating Unit, Emergency Generator Unit, Retrieval Diesel Enclosure Soil Vacuum	P-990135	023-00001	10/13/00		Permit Modification	Status: S. Administrative Amendments	S
TSA-RE	Gas Burner Heating Unit, Emergency Generator Unit, Retrieval Diesel Enclosure Soil Vacuum	P-000533	023-00001	6/4/01		Permit Modification	Status: Superseded by PTC P-030542 issued 12/19/03. Administrative Amendments and Clarifications	S

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status	Matches DEQ and INL / Not on INL list
TSA-RE	Retrieval emissions; aggregate emissions for diesel engines in Two 115-horsepower forklifts, two 57-horsepower skid loaders, one 110-horsepower yard crane, one 80-horsepower tug, and one 360-horsepower soil vacuum; and propane heater	P-010510	023-00001	5/10/02		Permit Modification	Status: S. New Emissions Units	S	
TSA-RE	Retrieval emissions; aggregate emissions for diesel engines in Two 115-horsepower forklifts, two 57-horsepower skid loaders, one 110-horsepower yard crane, one 80-horsepower tug, and one 360-horsepower soil vacuum; and propane heater	P-020505	023-00001	7/12/02		Permit Modification	Status: S. Administrative Amendments and Clarifications	S	
TSA-RE	Retrieval emissions; aggregate emissions for diesel engines; and propane heater	P-020517	023-00001	1/27/03		Permit Modification	Status: S. Change in describing emissions units	S	
TSA-RE	TSA-RE standby generator	P-030542	P-030542	12/19/03		PTC Modification	Status: S. Transfer ownership from BBWI to BNFL	S	
TSA-RE	Excavators, skid loaders, conveyors, dump trucks, trailers, standby generator, building heater	P-060512	023-00001	8/29/06		PTC Modification and combines all previous TSA-RE Pmts into one & increase annual retrieval limit	Status: S. Superseded by P-2011.0109 issued 9/19/11	S	
TSA-RE	see above	X-2009.0133	023-00001	11/10/09	11/10/2009	PTC Exemption. This exemption is superseded by the modified PTC no. P-2011.0109 issued 9/19/11 and is no longer effective.	This PTC Exemption allows for a higher waste retrieval rate in TSA-RE than what is presented in the PTC. The retrieval rate is increased from 64,800 to 84,240 drum equivalents per year. The retrieval project is nearing completion so this is essentially a short term increase.	S	
TSA-RE	Retrieval vehicles, waste repackaging and treatment, standby generator, heaters	60855	P-2011.0109	9/19/11	9/19/2011	PTC Modification to add RCE and ICE to TSA-RE	Add Retrieval & Inner Contamination Enclosures (RCE and ICE) to TSA-RE; address completion of retrieval operations	S	
TSA-RE	Retrieval vehicles, waste repackaging and treatment, standby generator, heaters	60927	P-2011.0109	9/28/11	10/1/2011	DEQ letter transfers PTC from BBWI to Idaho Treatment Group (ITG)	none	L	
TAN	Classified Waste Multiple Chamber Incinerator Model CAI-100-D		0340-0001-000	3/11/86		Initial Permit		T	
TAN	Classified Waste Multiple Chamber Incinerator Model CAI-100-D		0340-00001-000	10/18/11	10/18/2011	PTC Termination	Operation of Incinerator has been permanently discontinued per 11-29-10 LTR from Jo Anna Stenzel, BAE. Also removed from PTC P-2011.0092 issued 10/18/11.	T	
TAN	Process Experimental Pilot Plant rotary kiln incinerator (PREPP Incinerator)		0340-0001-300	12/23/86		Initial Permit		T	
TAN	Secondary Containment Vessel Vent TAN 640-1		0340-0001	10/24/89		Initial Permit	On 1/5/16 DOE informed DEQ that this source is no longer active	A/T	FEC permit action will
TAN	2B Paint Process Spray Paint Booth, Drying Oven, and Curing Area	P-89083	0260-0030	3/27/90		Initial Permit		S	
TAN	2B Paint Process Spray Paint Booth, Drying Oven, and Curing Area	P-9600128	0260-0030	10/28/96		Permit Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S	

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TAN	2B Paint Process Spray Paint Booth, Drying Oven, and Curing Area			7/28/00	7/28/00	Permit Modification	The PTC requirements for TAN 629 are now incorporated into the SMC PTC. Refer to the PTC issued on 7/28/2000.	S
TAN	Research and Development Material Testing Facility	P-900809	0340-0001	12/21/90		Initial Permit		S
TAN	Research and Development Material Testing Facility Dismantlement of 20 Casks	P-931219	0340-0001	3/4/94		PTC Applicability Determination No PTC Modification Required	Determined that this project lies under the scope of the R&D permit	S
TAN	Research and Development Material Testing Facility	P-940237	023-00001	5/1/95		PTC Applicability Determination PTC Modification is Required	Shifting part of SMC Production to TAN-607, PTC Modification Required. (Note permit number was updated to 023-00001.)	S
TAN	Research and Development Material Testing Facility	P-9600128	023-00001	10/28/96		Permit Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S
TAN	Research and Development Material Testing Facility	P-970129	023-00001	3/20/98		PTC Cancellation		S
TAN	Research and Development Material Testing Facility	P-000521	023-00001	7/27/00		Confirmation of PTC Cancellation	Vacating Facility Completed	T
TAN	Specific Manufacturing Capabilities (SMC) Material Development Facility (MDF)			10/22/90		EPA permission to construct		L
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN 607 Welding Hood, Tan-607 Analytical Laboratory, TAN-629-Phase I, TAN-675 2B Waste Handling Process, TAN-677 Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment	P-88015	0340-0001	6/10/92		Initial Permit		S
TAN	Fuel Burning Equipment	P-930820	0340-0001	8/19/93		Permit Modification	Wording Change	S
TAN	TAN-005 and TAN 629-002	P-930714	0340-0001	9/20/93		Permit Modification	Emissions modification	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN 607 Welding Hood, Tan-607 Analytical Laboratory, TAN-629-Phase I, TAN-675 2B Waste Handling Process, TAN-677 Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment	P-9600128	0340-0001	10/28/96		Permit Modification	Emery 3004 may be used in place of DOP for HEPA Filter Testing	S

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN 607 Welding Hood, Tan-607 Analytical Laboratory, TAN-629-Phase I, TAN-675 2B Waste Handling Process, TAN-677 Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment		023-00001	2/14/97		Permit Modification	Note permit number change to 023-00001	S
TAN	Manufacture of Armor Assemblies TAN-629-Phase I, TAN-677 Welding Operations, TAN-679 Phase II	P-970129	023-00001	3/20/98		Permit Modification	Changes to Emissions Units	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN-629-Phase I, TAN-677 Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator	P-980128	023-00001	7/28/00		Permit Modification	Changes to Emissions Units	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN-629-Phase I, TAN-677 Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator	P-000514	023-00001	9/26/00		Permit Modification	Language Clarification	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN-629-Phase I, TAN-677 Metal Working, Cutting, and Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator, 2B Paint Process	P-020501	023-00001	6/19/02		Permit Modification	Changes to Emissions Units	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN-629-Phase I, TAN-677 Metal Working, Cutting, and Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator, 2B Paint Process	P-020501	023-00001	11/15/02		Permit Modification	Altered HEPA Filter Efficiency Testing procedures	S
TAN	Manufacture of Armor Assemblies TAN-606 Carpenter Shop, TAN-606 Paint Booth, TAN-629-Phase I, TAN-677 Metal Working, Cutting, and Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator, 2B Paint Process	P-020519	023-00001	1/8/03		Permit Modification	Boiler load requirement removed and requirements clarified.	S

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status
TAN	Manufacture of Armor Assemblies TAN-677 Metal Working, Cutting, and Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, Refuse Incinerator, 2B Paint Process	P-030501	023-00001	5/20/04		Permit Modification	Status: Superseded by P-2011.0092. TAN 606-005 Carpenter Shop, TAN 606-026, TAN 606-027 Paint Booth have ceased operations. TAN 629-013, and TAN 679-022, 023 and 024 were modified. Letter was issued by DEQ on 9/26/07 (Project No. 0-2007.0188) to clarify meaning of the term "10-hour shift".	S
TAN	Manufacture of Armor Assemblies TAN-677 Metal Working, Cutting, and Welding Operations, TAN-679 Phase II, TAN-681 Process Reclamation Facility, Fuel Burning Equipment, 2B Paint Process	60825	P-2011.0092	10/18/11	10/18/2011	Permit Modification.	Status: Active. Removed refuse incinerator, allows "any"distillate oil, LPG and natural gas fuel in boilers, and removes small permit limits and monitoring that are no longer necessary.	A/T
TAN	Replacement of #2 Fuel Boilers	P-920502	023-0001	7/24/92		Initial Permit		T
TAN	Replacement of #2 Fuel Boilers; TAN 603-PBG-76-98, Boilers #4 and #5	P-980036	023-0001	5/14/98		Permit Modification	Status: PTC was termintated by DEQ letter issued on 7-18-07 (project No. 0-2007.0114). Performance test required in initial permit has already been performed	T
TAN	Dewatering/Drying of Storage Pool Canisters	P-980048	023-00001	7/16/98		Initial Permit	(Note that cover page project is mis-typed as CPP-1619, Waste Storage Facility)	S
TAN	Dewatering/Drying of Storage Pool Canisters	P-990126	023-00001	11/9/99		Permit Modification		S
TAN	Dewatering/Drying of Storage Pool Canisters	P-000526	023-00001	10/17/00		Permit Modification		T
TAN	Dewatering/Drying of Storage Pool Canisters	P-020511	023-00001	8/28/02		PTC Termination		T
TRA	Calcine Solids Retrieval Pilot Plant	P-901209	0340-0001	10/10/91		Initial Permit		T
TRA	Calcine Solids Retrieval Pilot Plant	P-000541	0340-0001	4/5/01		PTC Cancellation	Plant never became operational and not plans to operate it in the future.	T
TRA	TRA Evaporation Pond	P-88089	0340-0001	10/26/90		Initial Permit		S
TRA	TRA Evaporation Pond	P-930703	0340-0001	8/5/93		Permit Modification	Change Emissions requirements	S
TRA	TRA Evaporation Pond		0340-0001	11/15/93		Permit Modification	Discharge of Purge Water allowed within the limits of the existing permit	S
TRA	TRA Evaporation Pond	P-950178	0340-0001	12/13/95		Permit Modification	Revise Process Description, allow alternative technologies for monitoring, alter pond level and effluent requirements	S
TRA	TRA Evaporation Pond	P-010509	023-00001	9/9/02		Permit Modification	Status: Active. Warm Wastewater Evapoeration Pond	A

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Area	Emissions Units	Project Number	Permit Number	Action Date	Effective Date	Action	Notes	Status	Matches DEQ and INL / Not on INL list
TRA	Power/Back-up Generators for TRA/ATR	P-000534	P-000534	5/18/04		Initial Permit	Status: Active. Limit NOx PTC to less than a 39 TPY increase for three electrical generators	A/T	FEC permit needs to te

APPENDIX D – FEDERAL REGULATIONS

ATTACHMENT FRA-3

40 CFR Part 60 Subpart JJJJ Regulatory Review

E-CFR DATA IS CURRENT AS OF MARCH 31, 2015

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 §60.4231l. 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 §60.4231l 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:

$$ER = \frac{C_d \times 1.912 \times 10^{-3} \times Q \times T}{HP - hr} \quad \text{(Eq. 1)}$$

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:

$$ER = \frac{C_d \times 1.164 \times 10^{-3} \times Q \times T}{HP - hr} \quad \text{(Eq. 2)}$$

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:

$$ER = \frac{C_d \times 1.833 \times 10^{-3} \times Q \times T}{HP - hr} \quad \text{(Eq. 3)}$$

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.

$$RF_i = \frac{C_{iM}}{C_{iA}} \quad \text{(Eq. 4)}$$

Where:

RF_i = Response factor of compound i when measured with EPA Method 25A.

C_{iM} = Measured concentration of compound i in ppmv as carbon.

C_{iA} = True concentration of compound i in ppmv as carbon.

$$C_{iav} = RF_i \times C_{imv} \quad \text{(Eq. 5)}$$

Where:

C_{icor} = Concentration of compound i corrected to the value that would have been measured by EPA Method 25A, ppmv as carbon.

C_{imea} = Concentration of compound i measured by EPA Method 320, ppmv as carbon.

$C_{Peq} = 0.6098 \times C_{icor}$ (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.

(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)&(e) because the INL owns and operates a stationary SI ICE that is less than 25 HP.

[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[c]	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 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]	(b) Measurements to determine O_2 concentration must be made at the same time as 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, or ASTM Method D 6348-03[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)[e], Method 320 of 40 CFR part 63, appendix A, 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)[e]	(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 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, or ASTM Method D 6348-03[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)[e], Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348-03[e]	(d) Results of this test consist of the average of the three 1-hour or longer runs.
	c. limit the concentration of VOC in the stationary SI internal	i. Select the sampling port location and the number/location of traverse points at the exhaust of the	(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

	combustion engine exhaust	stationary internal combustion engine;		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)[e]	(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 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	(4) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, 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.

		location; and		
		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 methane cutter as described in 40 CFR 1065.265, Method 18 of 40 CFR part 60, appendix A-6[c], Method 320 of 40 CFR part 63, appendix A, or ASTM Method D 6348-03[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*).

[d]You may use ASTM D6420-99 (2004), Test Method for Determination of Gaseous Organic Compounds by Direct Interface Gas Chromatography/Mass Spectrometry as an alternative to EPA Method 18 for measuring total nonmethane organic. ASTM D6420-99(2004) incorporated by reference; see 40 CFR 60.17.

[e]Incorporated by reference; see 40 CFR 60.17.

[79 FR 11253, Feb. 27, 2014]

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	

40 CFR Part 61 Subpart H Regulatory Review

Subpart H—National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities

§61.90 Designation of facilities.

The provisions of this subpart apply to operations at any facility owned or operated by the Department of Energy that emits any radionuclide other than radon-222 and radon-220 into the air, except that this subpart does not apply to disposal at facilities subject to 40 CFR part 191, subpart B or 40 CFR part 192.

§61.91 Definitions.

As used in this subpart, all terms not defined here have the meaning given them in the Clean Air Act or 40 CFR part 61, subpart A. The following terms shall have the following specific meanings:

(a) *Effective dose equivalent* means the sum of the products of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man. The unit of the effective dose equivalent is the rem. For purposes of this subpart, doses caused by radon-222 and its respective decay products formed after the radon is released from the facility are not included. The method for calculating effective dose equivalent and the definition of reference man are outlined in the International Commission on Radiological Protection's Publication No. 26.

(b) *Facility* means all buildings, structures and operations on one contiguous site.

(c) *Radionuclide* means a type of atom which spontaneously undergoes radioactive decay.

(d) *Residence* means any home, house, apartment building, or other place of dwelling which is occupied during any portion of the relevant year.

§61.92 Standard.

Emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr.

INL is an affected source and emissions of radionuclides (except radon) shall comply with the standard.

§61.93 Emission monitoring and test procedures.

All of these provisions are applicable to INL and the requirements are included by reference in the FEC permit.

(a) To determine compliance with the standard, radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated using EPA approved sampling procedures, computer models CAP-88 or AIRDOS-PC, or other procedures for which EPA has granted

prior approval. DOE facilities for which the maximally exposed individual lives within 3 kilometers of all sources of emissions in the facility, may use EPA's COMPLY model and associated procedures for determining dose for purposes of compliance.

(b) Radionuclides emission rates from existing point sources (stacks or vents) shall be measured in accordance with the following requirements or with the requirements of paragraph (c) of this section, or other procedures for which EPA has granted prior approval:

(1) Effluent flow rate measurements shall be made using the following methods:

(i) Reference Method 2 of appendix A to part 60 of this chapter shall be used to determine velocity and volumetric flow rates for stacks and large vents.

(ii) Reference Method 2A of appendix A to part 60 of this chapter shall be used to measure flow rates through pipes and small vents.

(iii) The frequency of the flow rate measurements shall depend upon the variability of the effluent flow rate. For variable flow rates, continuous or frequent flow rate measurements shall be made. For relatively constant flow rates only periodic measurements are necessary.

(2) Radionuclides shall be directly monitored or extracted, collected and measured using the following methods:

(i) Reference Method 1 of appendix A to part 60 of this chapter shall be used to select monitoring or sampling sites.

(ii) The effluent stream shall be directly monitored continuously with an in-line detector or representative samples of the effluent stream shall be withdrawn continuously from the sampling site following the guidance presented in ANSIN13.1-1969 "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities" (including the guidance presented in appendix A of ANSIN13.1) (incorporated by reference—see §61.18). The requirements for continuous sampling are applicable to batch processes when the unit is in operation. Periodic sampling (grab samples) may be used only with EPA's prior approval. Such approval may be granted in cases where continuous sampling is not practical and radionuclide emission rates are relatively constant. In such cases, grab samples shall be collected with sufficient frequency so as to provide a representative sample of the emissions.

(iii) Radionuclides shall be collected and measured using procedures based on the principles of measurement described in appendix B, Method 114. Use of methods based on principles of measurement different from those described in appendix B, Method 114 must have prior approval from the Administrator. EPA reserves the right to approve measurement procedures.

(iv) A quality assurance program shall be conducted that meets the performance requirements described in appendix B, Method 114.

(3) When it is impractical to measure the effluent flow rate at an existing source in accordance with the requirements of paragraph (b)(1) of this section or to monitor or sample an effluent stream at an existing source in accordance with the site selection and sample extraction requirements of paragraph (b)(2) of this section, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures provided that:

(i) It can be shown that the requirements of paragraph (b) (1) or (2) of this section are impractical for the effluent stream.

(ii) The alternative procedure will not significantly underestimate the emissions.

(iii) The alternative procedure is fully documented.

(iv) The owner or operator has received prior approval from EPA.

(4)(i) Radionuclide emission measurements in conformance with the requirements of paragraph (b) of this section shall be made at all release points which have a potential to discharge radionuclides into the air in quantities which could cause an effective dose equivalent in excess of 1% of the standard. All radionuclides which could contribute greater than 10% of the potential effective dose equivalent for a release point shall be measured. With prior EPA approval, DOE may determine these emissions through alternative procedures. For other release points which have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.

(ii) To determine whether a release point is subject to the emission measurement requirements of paragraph (b) of this section, it is necessary to evaluate the potential for radionuclide emissions for that release point. In evaluating the potential of a release point to discharge radionuclides into the air for the purposes of this section, the estimated radionuclide release rates shall be based on the discharge of the effluent stream that would result if all pollution control equipment did not exist, but the facilities operations were otherwise normal.

(5) Environmental measurements of radionuclide air concentrations at critical receptor locations may be used as an alternative to air dispersion calculations in demonstrating compliance with the standard if the owner or operator meets the following criteria:

(i) The air at the point of measurement shall be continuously sampled for collection of radionuclides.

(ii) Those radionuclides released from the facility, which are the major contributors to the effective dose equivalent must be collected and measured as part of the environmental measurement program.

(iii) Radionuclide concentrations which would cause an effective dose equivalent of 10% of the standard shall be readily detectable and distinguishable from background.

(iv) Net measured radionuclide concentrations shall be compared to the concentration levels in Table 2 of appendix E to determine compliance with the standard. In the case of multiple radionuclides being released from a facility, compliance shall be demonstrated if the value for all radionuclides is less than

the concentration level in Table 2, and the sum of the fractions that result when each measured concentration value is divided by the value in Table 2 for each radionuclide is less than 1.

(v) A quality assurance program shall be conducted that meets the performance requirements described in appendix B, Method 114.

(vi) Use of environmental measurements to demonstrate compliance with the standard is subject to prior approval of EPA. Applications for approval shall include a detailed description of the sampling and analytical methodology and show how the above criteria will be met.

(c) Radionuclide emission rates from new point sources (stacks or vents) as defined in subpart A shall be measured in accordance with the following requirements, or other procedures for which EPA has granted prior approval:

(1) Effluent flow rate measurements shall be made using the following methods:

(i) ANSI/HPS N13.1-1999 "Sampling and Monitoring Releases of Airborne Radioactive Substances from the Stacks and Ducts of Nuclear Facilities' (incorporated by reference—see §61.18) shall be used to determine velocity and volumetric flow rates for stacks and large vents.

(ii) ANSI/HPS N13.1-1999 shall be used to measure flow rates through pipes and small vents.

(iii) The frequency of the flow rate measurements shall depend upon variability of the effluent flow rate. For variable flow rates, continuous or frequent flow rate measurements shall be made. For relatively constant flow rates only periodic measurements are necessary.

(2) Radionuclide shall be directly monitored or extracted, collected and measured using the following methods:

(i) ANSI/HPS N13.1-1999 shall be used to select monitoring or sampling sites.

(ii) The effluent stream shall be directly monitored continuously with an in-line detector or representative samples of the effluent stream shall be withdrawn continuously from the sampling site following the guidance presented in ANSI/HPS N13.1-1999. The requirements for continuous sampling are applicable to batch processes when the unit is in operation. Periodic sampling (grab samples) may be used only with EPA's prior approval. Such approval may be granted in cases where continuous sampling is not practical and radionuclide emission rates are relatively constant. In such cases, grab samples shall be collected with sufficient frequency so as to provide a representative sample of the emissions.

(iii) Radionuclides shall be collected and measured using procedures based on the principles of measurement described in appendix B, Method 114 of this part. Use of methods based on principles of measurement different from those described in appendix B, Method 114 of this part must have prior approval from the Administrator. EPA reserves the right to approve measurement procedures.

(iv) A quality assurance program shall be conducted that meets the performance requirements described in ANSI/HPS N13.1-1999.

(d) When it is impractical to measure the effluent flow rate at a source in accordance with the requirements of paragraph (b)(1) or (c) of this section or to monitor or sample an effluent stream at a source in accordance with the site selection and sample extraction requirements of paragraph (b)(2) or (c) of this section, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures provided that:

(1) It can be shown that the requirements of paragraph (b)(1) or (2) or (c) of this section are impractical for the effluent stream.

(2) The alternative procedure will not significantly underestimate the emissions.

(3) The alternative procedure is fully documented.

(4) The owner or operator has received prior approval from EPA.

(e) Radionuclide emission measurements in conformance with the requirements of paragraph (b) or (c) of this section shall be made at all release points that have a potential to discharge radionuclides into the air in quantities that could cause an effective dose equivalent in excess of 1% of the standard. All radionuclides that could contribute greater than 10% of the potential effective dose equivalent for a release point shall be measured. With prior EPA approval, DOE may determine these emissions through alternative procedures. For other release points that have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.

(f) To determine whether a release point is subject to the emission measurement requirements of paragraph (b) or (c) of this section, it is necessary to evaluate the potential for radionuclide emissions for that release point. In evaluating the potential of a release point to discharge radionuclides into the air for the purposes of this section, the estimated radionuclide release rates shall be based on the discharge of the effluent stream that would result if all pollution control equipment did not exist, but the facilities operations were otherwise normal.

(g) Environmental measurements of radionuclide air concentrations at critical receptor locations may be used as an alternative to air dispersion calculations in demonstrating compliance with the standard if the owner or operator meets the following criteria:

(1) The air at the point of measurement shall be continuously sampled for collection of radionuclides.

(2) Those radionuclides released from the facility that are the major contributors to the effective dose equivalent must be collected and measured as part of the environmental measurement program.

(3) Radionuclide concentrations that would cause an effective dose equivalent of 10% of the standard shall be readily detectable and distinguishable from background.

(4) Net measured radionuclide concentrations shall be compared to the concentration levels in Table 2 appendix E of this part to determine compliance with the standard. In the case of multiple radionuclides being released from a facility, compliance shall be demonstrated if the value for all radionuclides is less

than the concentration level in Table 2 of appendix E of this part, and the sum of the fractions that result when each measured concentration value is divided by the value in Table 2 of appendix E of this part for each radionuclide is less than 1.

(5) A quality assurance program shall be conducted that meets the performance requirements described in appendix B, Method 114 of this part.

(6) Use of environmental measurements to demonstrate compliance with the standard is subject to prior approval of EPA. Applications for approval shall include a detailed description of the sampling and analytical methodology and show how the above criteria will be met.

[54 FR 51695, Dec. 15, 1989, as amended at 65 FR 62156, Oct. 17, 2000; 67 FR 57166, Sept. 9, 2002]

§61.94 Compliance and reporting.

All of these provisions are applicable to INL and the requirements are included by reference in the FEC permit.

(a) Compliance with this standard shall be determined by calculating the highest effective dose equivalent to any member of the public at any offsite point where there is a residence, school, business or office. The owners or operators of each facility shall submit an annual report to both EPA headquarters and the appropriate regional office by June 30 which includes the results of the monitoring as recorded in DOE's Effluent Information System and the dose calculations required by §61.93(a) for the previous calendar year.

(b) In addition to the requirements of paragraph (a) of this section, an annual report shall include the following information:

(1) The name and location of the facility.

(2) A list of the radioactive materials used at the facility.

(3) A description of the handling and processing that the radioactive materials undergo at the facility.

(4) A list of the stacks or vents or other points where radioactive materials are released to the atmosphere.

(5) A description of the effluent controls that are used on each stack, vent, or other release point and an estimate of the efficiency of each control device.

(6) Distances from the points of release to the nearest residence, school, business or office and the nearest farms producing vegetables, milk, and meat.

(7) The values used for all other user-supplied input parameters for the computer models (e.g., meteorological data) and the source of these data.

(8) A brief description of all construction and modifications which were completed in the calendar year for which the report is prepared, but for which the requirement to apply for approval to construct or modify was waived under §61.96 and associated documentation developed by DOE to support the waiver. EPA reserves the right to require that DOE send to EPA all the information that normally would be required in an application to construct or modify, following receipt of the description and supporting documentation.

(9) Each report shall be signed and dated by a corporate officer or public official in charge of the facility and contain the following declaration immediately above the signature line: "I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. See, 18 U.S.C. 1001."

(c) If the facility is not in compliance with the emission limits of §61.92 in the calendar year covered by the report, then the facility must commence reporting to the Administrator on a monthly basis the information listed in paragraph (b) of this section, for the preceding month. These reports will start the month immediately following the submittal of the annual report for the year in noncompliance and will be due 30 days following the end of each month. This increased level of reporting will continue until the Administrator has determined that the monthly reports are no longer necessary. In addition to all the information required in paragraph (b) of this section, monthly reports shall also include the following information:

(1) All controls or other changes in operation of the facility that will be or are being installed to bring the facility into compliance.

(2) If the facility is under a judicial or administrative enforcement decree, the report will describe the facilities performance under the terms of the decree.

(d) In those instances where the information requested is classified, such information will be made available to EPA separate from the report and will be handled and controlled according to applicable security and classification regulations and requirements.

§61.95 Recordkeeping requirements.

All of these provisions are applicable to INL and the requirements are included by reference in the FEC permit.

All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept

at the site of the facility for at least five years and, upon request, be made available for inspection by the Administrator, or his authorized representative.

§61.96 Applications to construct or modify.

All of these provisions are applicable to INL and the requirements are included by reference in the FEC permit.

(a) In addition to any activity that is defined as construction under 40 CFR part 61, subpart A, any fabrication, erection or installation of a new building or structure within a facility that emits radionuclides is also defined as new construction for purposes of 40 CFR part 61, subpart A.

(b) An application for approval under §61.07 or notification of startup under §61.09 does not need to be filed for any new construction of or modification within an existing facility if the effective dose equivalent, caused by all emissions from the new construction or modification, is less than 1% of the standard prescribed in §61.92. For purposes of this paragraph the effective dose equivalent shall be calculated using the source term derived using appendix D as input to the dispersion and other computer models described in §61.93. DOE may, with prior approval from EPA, use another procedure for estimating the source term for use in this paragraph. A facility is eligible for this exemption only if, based on its last annual report, the facility is in compliance with this subpart.

(c) Conditions to approvals granted under §61.08 will not contain requirements for post approval reporting on operating conditions beyond those specified in §61.94.

§61.97 Exemption from the reporting and testing requirements of 40 CFR 61.10.

All facilities designated under this subpart are exempt from the reporting requirements of 40 CFR 61.10.

Attachment FRA-1

40 CFR Part 60 Subpart Dc Regulatory Review

Data is current as of June 30, 2016
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

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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 Boiler #4 is a new boiler planned for installation later in 2016. It will have a maximum heat input capacity of 29.3 MMBtu/hr. It is 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 Boiler #4 is a distillate oil-fired boiler 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 Boiler #4 will be installed after February 28, 2005, combusts oil that contains no more than 0.50 weight percent sulfur, and does not use post-combustion technology to reduce PM or SO2 emissions. Therefore it is not subject to the PM limit in this section per 60.43c(e)(4). Since its heat input capacity is less than 30 MMBtu/hr, it is 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:

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

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:

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

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 Boiler #4 will demonstrate compliance by 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 Boiler #4 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 Boiler #4 is not subject to this section since it is 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.

(l) 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 Boiler #4 is 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]

40 CFR Part 63 Subpart ZZZZ Regulatory Review

E-CFR DATA IS CURRENT AS OF August 24, 2016

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:

$$F_o = \frac{0.209\ F_d}{F_c} \quad \text{(Eq. 2)}$$

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_o = 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:

$$X_{CO2} = \frac{5.9}{F_o} \quad \text{(Eq. 3)}$$

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:

$$C_{adj} = C_d \frac{X_{CO2}}{\%CO_2} \quad \text{(Eq. 4)}$$

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 b. Limit the concentration of formaldehyde in the stationary RICE exhaust to 350 ppbvd or less at 15 percent O_2	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]

[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 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.	Comply with any operating limitations approved by the Administrator.

[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 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 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]
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 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.[3]

	c. Inspect all hoses and belts every 500 hours of operation or annually, whichever comes first, and replace as necessary.[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 which combusts landfill or digester gas equivalent to 10 percent or more of the gross heat input on an	Limit concentration of CO in the stationary RICE exhaust to 177 ppmvd or less at 15 percent O_2.	

annual basis

[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 more of the gross heat input on an annual basis	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.	

[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	Limit or reduce CO emissions and not	Conduct subsequent performance tests every

stationary RICE	using a CEMS	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;	(1) Method 3 or 3A or 3B of 40 CFR part 60, appendix A-2, or	(b) Measurements to determine O_2 must be made at the same time as the

		and	ASTM Method D6522-00 (Reapproved 2005)[80] (heated probe not necessary)	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[8]	(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	(1) Method 320 or 323 of 40 CFR part 63,	(a) Formaldehyde concentration must be at 15

		formaldehyde percent reduction requirement, measure formaldehyde at the inlet and the outlet of the control device	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	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 sampling port location; 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 and location as the measurements for formaldehyde or CO concentration.

	iii. Measure moisture content of the stationary 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)[a][b], 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	a. Reduce CO emissions and using oxidation catalyst,	i. The average reduction of emissions of CO determined from the initial performance test achieves the required

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	and using a CPMS	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	a. Reduce CO	i. You have installed a CEMS to

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	emissions, and using a CEMS	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	a. Reduce CO emissions or limit the concentration of CO in the stationary RICE exhaust, and using a	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

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	CEMS	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-	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

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		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 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	i. Semiannually according to the requirements in §63.6650(b).
		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	Report	a. The fuel flow rate of each fuel and the heating values that were	i. Annually, according to the requirements in

combusts landfill gas or digester gas equivalent to 10 percent or more of the gross heat input on an annual basis		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	§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 that §63.8(e) only applies as specified in §63.6645.	Except for §63.8(e)(5)(ii), which applies to COMS.
§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) only applies as specified in §63.6645.	Except that §63.9(b)(3) is reserved.
§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 Except that §63.9(g) only applies as specified in §63.6645.	If alternative is in use.

§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.

40 CFR Part 60 Subpart IIII Regulatory Review

E-CFR DATA IS CURRENT AS OF FEBRUARY 5, 2015

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) Areas of Alaska not accessible by the Federal Aid Highway System (FAHS); 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.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37967, June 28, 2011]

§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) Areas of Alaska not accessible by the FAHS; 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]

§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?

The INL is not subject to §60.4204 because the INL does not own or operate non-emergency engines.

(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.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37968, June 28, 2011]

§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(a)&(i) because the INL is subject to this subpart.

The INL is not subject to §60.4208(b-h) because the INL does not operate engines non-emergency CI ICE.

[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 they are not subject to §60.4204 which is for non-emergency engines.

[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.

[71 FR 39172, July 11, 2006, as amended at 76 FR 37969, June 28, 2011]

§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.

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&iii)&(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]

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:\\fserob1\graphics\pdfs\er11jy06.000.pdf

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:\\fserob1\graphics\pdfs\er11jy06.001.pdf

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.\\fserob1\graphics\pdfs\er11jy06.002.pdf

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:\\fserob1\graphics\pdfs\er11jy06.003.pdf

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:\\fserob1\graphics\pdfs\er11jy06.004.pdf

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:\\fserob1\graphics\pdfs\er11jy06.005.pdf

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:\\fserob1\graphics\pdfs\er11jy06.006.pdf

Where:

ER = Emission rate in grams per KW-hour.

C_d = Measured NO_X concentration in ppm.

1.912×10^{-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:\\fserob1\graphics\pdfs\er11jy06.007.pdf

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.

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]

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 areas of Alaska not accessible by the FAHS 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 sections §§60.4201(f) and 60.4202(g) of this subpart.

(c) Manufacturers, owners and operators of stationary CI ICE that are located in areas of Alaska not accessible by the FAHS 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 areas of Alaska not accessible by the FAHS.

(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 areas of Alaska not accessible by the FAHS 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]

§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.

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.

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]

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	(c) Measurements to determine moisture content must be made at the same time as the measurements for NO_X concentration.

			reference, see §60.17)	
		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	(2) Method 4 of 40 CFR part 60, appendix A-3, Method 320 of 40 CFR part 63, appendix A, or	(c) Measurements to determine moisture content must be made at the same time as the measurement for NO_X concentration.

		sampling port location; and	ASTM D 6348-03 (incorporated by reference, see §60.17)	
		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	(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.

		location;		
		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.***

E-CFR DATA IS CURRENT AS OF JUNE 9, 2017

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) is subject to this part because INL is designated as an area source in accordance with Voluntary Consent Order- Case No. E-2015.0018, 2015AAJ394 issued by the Idaho Department of Environmental Quality on December 11. 2015 and owns and operates new and existing 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, an INL facility, operates a new affected source and will construct a new boiler in 2017 and that meets 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 meet 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 is subject to §63.11196.(c) of this subpart. New boilers at INL must achieve compliance with this regulation upon startup.

INL compliance date requirements for existing boilers are cited in §63.11210 (j)(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.*

The new INL boilers will be oil-fired with a heat input capacity of greater than 10 MMBtu/hr. They are not subject to numerical emission limits in accordance with §63.11210(f). New boilers will burn only ultra-low sulfur 0.0015 weight percent fuel.

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 has no boilers that are required to comply with numerical emission limits as exempted in §63.11210(f).

[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 (j)(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 meets the applicable criteria under §63.11210(j)(1&3).

New boilers at INL will be subject to §63.11210(f),(g),(j)(2). New boilers will burn only ultra-low sulfur 0.0015 weight percent fuel, so instead of meeting emission limits in Table 1, compliance will be demonstrated by monitoring and recording the type of fuel used in the boiler on a monthly basis.

[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. New boilers will use monitoring and recording of fuel type to demonstrate compliance with emission limits in accordance with §63.11210(f).

(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). New boilers at INL will be subject to §63.11214(b).

[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.

[76 FR 15591, Mar. 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.

$$\text{30-day average} = \frac{\Sigma_{i=1}^{n} Hpvi}{n} \qquad \text{(Eq. 3)}$$

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 the energy assessment requirement and/or 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 (as 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 this 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 existing boilers 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)(4)(5),(d),(g)(1&2). New boilers are subject to §63.11225(a)(1),(2),(4)(i,v,vi),(b)(1),(2)(i,ii),(3),(c)(1),(2)(i),(4),(5),(d).

[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 are included in this definition. A dry scrubber is a dry control system.

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 for *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 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.

[76 FR 15591, Mar. 21, 2011, as amended at 78 FR 7513, Feb. 1, 2013; 81 FR 61328, Sept. 14, 2016]

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.

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 will comply with §63.11210(f).

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 63129, 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 operated 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 63129, 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.***

APPENDIX E – 40 CFR 63 SUBPART ZZZZ COMPLIANCE DATES

Subpart ZZZZ Compliance Dates for Major Sources of HAP.

§63.6595 When do I have to comply with this subpart?

(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.

The above listed dates are potentially applicable MACT compliance dates, however based on the emission inventory provided by INL the source was actually an area source of emissions on these dates.

(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.

INL has certified in the application that they do have one "new" (constructed on or after 12/19/02) RICE emergency RICE greater than 500 brake HP which was installed before August 16, 2004. However, in accordance with40 CFR 63.6600(c) there are no substantive emissions or operating limitations for emergency RICE greater than 500 brake HP at major sources. Additionally, the fuel requirements of 63.6604(a) do not apply to emergency engines. Therefore, EPA's once-in-always in policy does not apply because there are no substantive requirements for this engine.

(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.

INL has certified in the application that they do have one "new" (constructed on or after 12/19/02) emergency[1] RICE greater than 500 brake HP that started up April 6, 2005. However, in accordance with40 CFR 63.6600(c) there are no substantive emissions or operating limitations for emergency RICE greater than 500 brake HP at major sources. Additionally, the fuel requirements of 63.6604(a) do not apply to emergency engines. Therefore, EPA's once-in-always in policy does not apply because there are no substantive requirements for this engine.

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[1] Mark Verdorn, INL confirmed during a July 6, 2017 telephone call that the engine is an emergency RICE as is certified in the application.

None of the engines have been reconstructed after this date.

(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.

INL is an area source of HAP emissions on and after 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.

INL is an area source of HAP emissions on and after January 18, 2008.

(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.

INL has not had a HAP facility classification change from area source to a major source.

(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.

Notification requirements are not considered "substantive" applicable requirements for EPA's once-in-always-in policy.

APPENDIX F- INL HAP INVENTORY 2006-2016

Maximum Uncontrolled PTE
INL Boilers

Facility	Rated Capacity (per boiler)	Design/ Permited Capacity Consumption Rate[a]		1,1,1-Trichloro-ethane (lbs)	Arsenic (lbs)	Benzene (lbs)	Beryllium (lbs)	Cadmium (lbs)	Chromium (lbs)	Ethyl Benzene (lbs)	Formaldehyde[b] (lbs)	Lead (lbs)	Manganese (lbs)	Mercury (lbs)
	(MMBtu/hr)	(gal/yr)	Emission Factor[b, c, d] (lb/1000gal)	2.36E-04	5.45E-04	2.14E-04	4.09E-04	4.09E-04	4.09E-04	6.36E-05	4.80E-02	1.23E-03	8.18E-04	4.09E-04
CFA-608	1.5	93,732		2.21E-02	5.11E-02	2.01E-02	3.83E-02	3.83E-02	3.83E-02	5.96E-03	4.50E+00	1.15E-01	7.67E-02	3.83E-02
CFA-609	2.1	131,400		3.10E-02	7.16E-02	2.81E-02	5.37E-02	5.37E-02	5.37E-02	8.36E-03	6.31E+00	1.62E-01	1.07E-01	5.37E-02
CFA-671-007 & 008	7.8	1,331,520		3.14E-01	7.26E-01	2.85E-01	5.45E-01	5.45E-01	5.45E-01	8.47E-02	6.39E+01	1.64E+00	1.09E+00	5.45E-01
CPP-606-061, 062, 063, and 064	36.4	7,568,640		1.79E+00	4.12E+00	1.62E+00	3.10E+00	3.10E+00	3.10E+00	4.81E-01	3.63E+02	9.31E+00	6.19E+00	3.10E+00
MFC-768-022 and 027[e]	23.5	2,943,360		6.95E-01	1.60E+00	6.30E-01	1.20E+00	1.20E+00	1.20E+00	1.87E-01	1.41E+02	3.62E+00	2.41E+00	1.20E+00
MFC-768-034[f]	26.2	1,638,120		3.87E-01	8.93E-01	3.51E-01	6.70E-01	6.70E-01	6.70E-01	1.04E-01	7.86E+01	2.01E+00	1.34E+00	6.70E-01
NRF Boiler 1 - 3	52.4	12,351,600		2.91E+00	6.73E+00	2.64E+00	5.05E+00	5.05E+00	5.05E+00	7.86E-01	5.93E+02	1.52E+01	1.01E+01	5.05E+00
TAN 679-067, 068	25	2,210,000		5.22E-01	1.20E+00	4.73E-01	9.04E-01	9.04E-01	9.04E-01	1.41E-01	1.06E+02	2.72E+00	1.81E+00	9.04E-01
		Total (Tons/yr)	2012 to 2016	2.80E-03	6.45E-03	2.53E-03	4.84E-03	4.84E-03	4.84E-03	7.53E-04	5.68E-01	1.46E-02	9.69E-03	4.84E-03
			2011	2.99E-03	6.90E-03	2.71E-03	5.18E-03	5.18E-03	5.18E-03	8.05E-04	6.08E-01	1.56E-02	1.04E-02	5.18E-03
			2006 to 2010	3.34E-03	7.70E-03	3.02E-03	5.78E-03	5.78E-03	5.78E-03	8.99E-04	6.78E-01	1.74E-02	1.16E-02	5.78E-03

Conversion Factors:		
Heating Value of Fuel Oil	19300	Btu/lb
Density of Fuel Oil	0.85	
Water, lbs/gal	8.33	

[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 1.3-8 Emission Factors for Speciated Organic Compounds from Fuel Oil Combustion

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

[d] AP-42: Table 1.3.10 Emission Factors for Trace Elements from Distillate Fuel Oil Combustion Sources: Oil Fired Boilers, For SO2, emission factor based on fuel containing 15 ppm sulfur by weight.

[e] 2006 to 2010

[f] 2006 to 2011

Maximum Uncontrolled PTE
INL Boilers

Facility	Naphthalene (lbs)	Nickel (lbs)	POM[b] (lbs)	Selenium (lbs)	Toluene (lbs)	Xylene (lbs)
	1.13E-03	4.09E-04	3.30E-03	2.04E-03	6.20E-03	1.09E-04
CFA-608	1.06E-01	3.83E-02	3.09E-01	1.91E-01	5.81E-01	1.02E-02
CFA-609	1.48E-01	5.37E-02	4.34E-01	2.68E-01	8.15E-01	1.43E-02
CFA-671-007 & 008	1.50E+00	5.45E-01	4.39E+00	2.72E+00	8.26E+00	1.45E-01
CPP-606-061, 062, 063, and 064	8.55E+00	3.10E+00	2.50E+01	1.54E+01	4.69E+01	8.25E-01
MFC-768-022 and 027[e]	3.33E+00	1.20E+00	9.71E+00	6.00E+00	1.82E+01	3.21E-01
MFC-768-034[f]	1.85E+00	6.70E-01	5.41E+00	3.34E+00	1.02E+01	1.79E-01
NRF Boiler 1 - 3	1.40E+01	5.05E+00	4.08E+01	2.52E+01	7.66E+01	1.35E+00
TAN 679-067, 068	2.50E+00	9.04E-01	7.29E+00	4.51E+00	1.37E+01	2.41E-01
	1.34E-02	4.84E-03	3.91E-02	2.42E-02	7.34E-02	1.29E-03
	1.43E-02	5.18E-03	4.18E-02	2.58E-02	7.85E-02	1.38E-03
	1.60E-02	5.78E-03	4.66E-02	2.88E-02	8.76E-02	1.54E-03

Maximum Uncontrolled PTE
INL Emergency ICE

				1,3-Butadiene (lbs)		Acetaldehyde (lbs)	Acrolein (lbs)	Benzene (lbs)		
	Emission Factor (lb/MMBtu)[a]			3.91E-05		7.67E-04	9.25E-05	9.33E-04		
Emergency ICE ≤ 600 hp										
Annual Fuel usage (gallons/yr)	390697			2.14E+00		4.20E+01	5.06E+00	5.10E+01		
	Emission Factor (lb/MMBtu)[b,c]					2.52E-05	7.88E-06	7.76E-04		
Emergency ICE > 600 hp										
Annual Fuel usage (gallons/yr)	1018067					3.59E+00	1.12E+00	1.11E+02		
	Total (tons)			1.07E-03		2.28E-02	3.09E-03	8.08E-02		

Heating Value of Fuel Oil	140000	Btu/gal

		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)
	Emission Factor (lb/MMBtu)[d]	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
Propane (gallons/yr)	24162	5.56E-02	3.36E-02	1.46E+00	2.79E-02	6.13E+00	5.78E+00	3.47E+00	3.89E-02	2.84E-02
Natural Gas (ft^3/yr)	905000.0	2.46E-02	1.49E-02	6.45E-01	1.24E-02	2.71E+00	2.56E+00	1.54E+00	1.72E-02	1.26E-02
	Total (tons)	4.01E-05	2.43E-05	1.05E-03	2.01E-05	4.42E-03	4.17E-03	2.51E-03	2.81E-05	2.05E-05

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

	1,1,2,2-Tetra-chloroethane (tons)	1,1,2-Trichloro-ethane (tons)	1,3-Butadiene (tons)	1,3-Dichloro-propene (tons)	Acetaldehyde (tons)	Acrolein (tons)	Benzene (tons)	Carbon Tetra-chloride (tons)	Chloro-benzene (tons)
All ICE - Total	4.01E-05	2.43E-05	2.12E-03	2.01E-05	2.72E-02	7.26E-03	8.33E-02	2.81E-05	2.05E-05

a AP-42: Table 3.3-2 Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engine
b AP-42: Table 3.4-3 Speciated Organic Compound Emission Factors for Large Uncontrolled Stationary Diesel Engines: Large Stationary Diesel And All Stationary Di

c AP-42: Table 3.4-4 PAH Emission Factors for Large Uncontrolled Stationary Diesel Engines: Large Stationary Diesel And All Stationary Dual-fuel Engine
d AP-42: Table 3.2-3 Uncontrolled Emission Factors for 4-Stroke Rich-Burn Engines: Natural Gas-fired Reciprocating Engines

Maximum Uncontrolled PTE
INL Emergency ICE

								Formaldehyde (lbs)	
	Emission Factor (lb/MMBtu)[a]							1.18E-03	
Emergency ICE ≤ 600 hp									
Annual Fuel usage (gallons/yr)	390697							6.45E+01	
	Emission Factor (lb/MMBtu)[b,c]							7.89E-05	
Emergency ICE > 600 hp									
Annual Fuel usage (gallons/yr)	1018067							1.12E+01	
	Total (tons)							3.79E-02	

		Chloroform (lbs)	1,1-Dichloroethane (lbs)	1,2-Dichloroethane (lbs)	1,2-Dichloro-propane (lbs)	Ethyl-benzene (lbs)	Ethylene Dibromide (lbs)	Formaldehyde (lbs)	Methanol (lbs)
	Emission Factor (lb/MMBtu)[d]	1.37E-05	1.13E-05	1.13E-05	1.30E-05	2.48E-05	2.13E-05	2.05E-02	3.06E-03
Propane (gallons/yr)	24162	3.01E-02	2.48E-02	2.48E-02	2.86E-02	5.45E-02	4.68E-02	4.51E+01	6.73E+00
Natural Gas (ft^3/yr)	905000.0	1.33E-02	1.10E-02	1.10E-02	1.26E-02	2.41E-02	2.07E-02	1.99E+01	2.98E+00
	Total (tons)	2.17E-05	1.79E-05	1.79E-05	2.06E-05	3.93E-05	3.38E-05	3.25E-02	4.85E-03

	Chloroform (tons)	1,1-Dichloroethane (tons)	1,2-Dichloroethane (tons)	1,2-Dichloro-propane (tons)	Ethylbenzene (tons)	Ethylene Dibromide (tons)	Formaldehyde (tons)	Methanol (tons)
All ICE - Total	2.17E-05	1.79E-05	1.79E-05	2.06E-05	3.93E-05	3.38E-05	7.04E-02	4.85E-03

ual-fuel Engine

Maximum Uncontrolled PTE
INL Emergency ICE

			Naphthalene (lbs)	PAH (lbs)		Toluene (lbs)		Xylenes (lbs)
	Emission Factor (lb/MMBtu)[a]		8.48E-05	1.68E-04		4.09E-04		2.85E-04
Emergency ICE ≤ 600 hp								
Annual Fuel usage (gallons/yr)	390697		4.64E+00	9.19E+00		2.24E+01		1.56E+01
	Emission Factor (lb/MMBtu)[b,c]		1.30E-04	2.12E-04		2.81E-04		1.93E-04
Emergency ICE > 600 hp								
Annual Fuel usage (gallons/yr)	1018067		1.85E+01	3.02E+01		4.01E+01		2.75E+01
	Total (tons)		1.16E-02	1.97E-02		3.12E-02		2.15E-02

		Methylene Chloride (lbs)	Naphthalene (lbs)	PAH (lbs)	Styrene (lbs)	Toluene (lbs)	Vinyl Chloride (lbs)	Xylene (lbs)
	Emission Factor (lb/MMBtu)[d]	4.12E-05	9.71E-05	1.41E-04	1.19E-05	5.58E-04	7.18E-06	1.95E-04
Propane (gallons/yr)	24162	9.06E-02	2.13E-01	3.10E-01	2.62E-02	1.23E+00	1.58E-02	4.29E-01
Natural Gas (ft^3/yr)	905000.0	4.01E-02	9.45E-02	1.37E-01	1.16E-02	5.43E-01	6.99E-03	1.90E-01
	Total (tons)	6.53E-05	1.54E-04	2.24E-04	1.89E-05	8.85E-04	1.14E-05	3.09E-04

	Methylene Chloride (tons)	Naphthalene (tons)	PAH (tons)	Styrene (tons)	Toluene (tons)	Vinyl Chloride (tons)	Xylene (tons)
All ICE - Total	6.53E-05	1.17E-02	1.99E-02	1.89E-05	3.21E-02	1.14E-05	2.19E-02

Maximum Uncontrolled PTE
Emergency ICE Fuel Usage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Annual Fuel Consumption (gal or ft^3)/yr
Engines ≤ 600 hp					
AMWTP	S3-GEN 1001	225	11.00	gal/hr	5500.0
AMWTP	BGEN-232-001	380	16.80	gal/hr	8400.0
AMWTP	BGEN-RCE-001	115	4.90	gal/hr	26460.0
ATR Complex	609-M-87	250	13.10	gal/hr	6550.0
ATR Complex	619-10	558	26.00	gal/hr	13000.0
ATR Complex	633-M-1	315	16.10	gal/hr	8050.0
ATR Complex	680-M-1	250	11.10	gal/hr	5550.0
ATR Complex	688-M-1	368	20.00	gal/hr	10000.0
ATR Complex	688-M-2	368	20.00	gal/hr	10000.0
CFA	TAN-687	66	3.26	gal/hr	1630.0
CFA	CFA-609-001	166	8.33	gal/hr	4165.0
CFA	CFA-1603-001	196	10.00	gal/hr	5000.0
CFA	CFA-1603-002	196	10.00	gal/hr	5000.0
CFA	PER-638-004	196	10.00	gal/hr	5000.0
CFA	TAN-665-002	310	14.00	gal/hr	7000.0
CFA	TAN-610-002	310	14.00	gal/hr	7000.0
CFA	B8-601	69	2.81	gal/hr	1405.0
CFA	B27-601	69	2.81	gal/hr	1405.0
CFA	CFA-668-001	345	16.40	gal/hr	8200.0
CFA	ARA-632-001	217	10.9	gal/hr	5450.0
INTEC	MOT-YDA-202	87	4.50	gal/hr	2250.0
INTEC	P-UTI-608	340	17.59	gal/hr	8795.0
INTEC	P-UTI-673	370	19.15	gal/hr	9575.0
INTEC	P-UTI-672	370	19.15	gal/hr	9575.0
INTEC	COM-UTI-616	460	23.80	gal/hr	11900.0
RWMC	EFW-ENG-4301	140	7.24	gal/hr	3620.0
RWMC	S GEN-RE501	157	8.12	gal/hr	4060.0
RWMC	EFW-ENG-3901	255	13.20	gal/hr	6600.0
RWMC	S-GEN-301	398	20.61	gal/hr	10305.0
RWMC	BA-CMP-T1101	28	1.45	gal/hr	12702.0
RWMC	S-GEN-1	~398	19.00	gal/hr	9500.0
RWMC	HV-GEN-RE301	364	8.20	gal/hr	4100.0
RWMC	S-GEN-RE401	364	8.20	gal/hr	4100.0
RWMC	S-GEN-RE701	364	8.20	gal/hr	4100.0
RWMC	S-GEN-RE801	364	8.20	gal/hr	4100.0
MFC	ANL- 798--008	27	1.70	gal/hr	850.0
MFC	ANL-720-018	46	2.80	gal/hr	1400.0
MFC	ANL-725	46	2.80	gal/hr	1400.0
MFC	ANL-754-003	77	4.00	gal/hr	2000.0
MFC	ANL-704-015	86	4.00	gal/hr	2000.0
MFC	ANL-785-016	110	5.00	gal/hr	2500.0
MFC	ANL-701-009	143	9.40	gal/hr	4700.0
MFC	ANL- 774-001	166	9.00	gal/hr	4500.0
MFC	ANL-720-017	173	9.00	gal/hr	4500.0
MFC	ANL-768-028	173	9.00	gal/hr	4500.0
MFC	ANL-1728	230	10.40	gal/hr	5200.0
MFC	ANL-752A-001	390	20.00	gal/hr	10000.0
MFC	ANL-756	450	22.70	gal/hr	11350.0
MFC	ANL-792A-002	450	21.00	gal/hr	10500.0
MFC	ANL-707-002	460	21.00	gal/hr	10500.0
MFC	ANL-709-008	475	24.00	gal/hr	12000.0
MFC	ANL-709-016	475	24.00	gal/hr	12000.0
MFC	ANL-785-017	525	28.00	gal/hr	14000.0
MFC	ANL-787	286	10.60	gal/hr	5300.0
MFC	ANL-1740	237	12.00	gal/hr	6000.0
SMC	TAN 675-010	598	30.90	gal/hr	15450.0
					390697.0

Maximum Uncontrolled PTE
Emergency ICE Fuel Usage

Facility	Engine ID	Size (hp)	Fuel Rate	Rate Units	Annual Fuel Consumption (gal or ft^3)/yr
Liquified Natural Gas					
CFA	CFA-1611	220	1810.00	ft3/hr	905000.0
					905000.0
Propane					
CFA	GE-B28601	61	8.40	gal/hr	4200.0
CFA	TAN-601	55	6.11	gal/hr	3055.0
RWMC	S-GEN-T1401	15	1.93	gal/hr	16906.8
					24161.8
Engines > 600 hp					
AMWTP	S1-GEN-SA01	745	39.40	gal/hr	19700.0
AMWTP	BGEN-812-001	755	27.10	gal/hr	13550.0
AMWTP	BGEN-812-002	900	44.20	gal/hr	22100.0
ATR Complex	670-M-42	2118	544522	gal/yr	544522
ATR Complex	670-M-43	2118			
ATR Complex	674-M-6	2132			
ATR Complex	786-M-1	2593	123.10	gal/hr	61550.0
INTEC	GEN-WCS-002	2304	119.23	gal/hr	59615.0
INTEC	GEN-WCS-004	2304	119.23	gal/hr	59615.0
INTEC	GEN-WCS-006	2304	119.23	gal/hr	59615.0
MFC	ANL-768-003	741	32.00	gal/hr	16000.0
NRF	686-016	1445	69.70	gal/hr	34850.0
NRF	686-017	1445	69.70	gal/hr	34850.0
NRF	686-018	1445	69.70	gal/hr	34850.0
NRF	686-019	1445	69.70	gal/hr	34850.0
SMC	TAN 679-012	890	44.80	gal/hr	22400.0
					1018067.0

Note: All emissions for emergency engines are calculated using the 500 hour exemption criteria in IDAPA 58.01.01.222.d with the exception of ATR Complex diesels 670-M-24, 670-M-43 and 674-M-6 which use permit limits contained in DEQ PTC P-000534.

Maximum Uncontrolled PTE
INTEC Stack Emissions

	INTEC Main Stack[a]				CPP-659/666 Repack Operations Emissions[c]	INTEC Stacks Total
HAP	LET&D[b] (lbs/yr)	PEWE[b] (lbs/yr)	ETS[b] (lbs/yr)	Emissions (lb/yr)	Emissions (lb/yr)	Emissions (Tons/yr)
1,1,1-Trichloroethane	2.07E-02	1.37E-03	5.56E-02	7.76E-02	1.72E-02	4.74E-05
1,1,2,2-Tetrachloroethane	2.95E-02	1.03E-04	6.74E-02	9.70E-02	2.76E-04	4.86E-05
1,1,2-Trichloroethane	4.25E-02	1.03E-04	5.00E-02	9.26E-02		4.63E-05
1,1-Dichloroethane	1.83E-02	2.92E-04	4.38E-02	6.24E-02		3.12E-05
1,1-Dichloroethylene					4.17E-02	2.09E-05
1,2,4-Trichlorobenzene	2.95E-02	1.03E-04	1.99E-01	2.29E-01		1.14E-04
1,2-Dibromo-3-chloropropane	8.27E-02	2.58E-04	8.34E-02	1.66E-01		8.31E-05
1,2-Dichloroethane	2.31E-02	8.06E-05	4.65E-02	6.97E-02	2.76E-02	4.86E-05
1,2-Dichloropropane	2.01E-02	7.15E-05	3.82E-02	5.84E-02		2.92E-05
1,2-Diphenylhydrazine	1.40E-01	2.81E-04	1.25E-01	2.65E-01		1.32E-04
1,4-Dichlorobenzene	2.60E-02	1.12E-04	2.01E-01	2.27E-01		1.13E-04
2,4,5-Trichlorophenol	2.24E-01	7.43E-04	2.29E-01	4.54E-01		2.27E-04
2,4,6-Trichlorophenol	2.31E-01	4.49E-04	1.67E-01	3.98E-01		1.99E-04
2,4-Dinitrophenol	1.06E+00	8.96E-03	2.22E+00	3.29E+00		1.64E-03
2,4-Dinitrotoluene	2.73E-01	3.47E-04	1.53E-01	4.26E-01		2.13E-04
4-Nitrophenol	1.15E+00	1.73E-03	5.77E-01	1.73E+00		8.66E-04
Acetaldehyde	3.68E+00	5.84E-03		3.69E+00		1.84E-03
Acetophenone	3.54E-01	1.17E-03	3.75E-01	7.30E-01		3.65E-04
Acrylonitrile	5.08E-01	1.63E-03	8.34E-01	1.34E+00		6.72E-04
Aniline	1.72E+00	3.63E-03	1.18E+00	2.90E+00		1.45E-03
Antimony	3.83E-01	2.24E-05	3.68E-02	4.20E-01		2.10E-04
Arsenic	1.53E-01	2.59E-05	1.25E-02	1.65E-01	1.08E-11	8.27E-05
Benzene	5.18E-02	8.68E-04	1.11E-01	1.64E-01	1.45E-01	1.54E-04
Benzidine	6.60E+00	2.07E-02	6.32E+00	1.29E+01		6.47E-03
Beryllium	9.93E-02	1.67E-05	5.14E-03	1.04E-01		5.22E-05
bis(2-Chloroethyl)ether			1.25E-01	1.25E-01		6.25E-05
bis(2-Ethylhexyl)phthalate			1.67E+00	1.67E+00		8.34E-04
Bromoform	3.66E-02	1.03E-04	5.28E-02	8.95E-02		4.48E-05
Bromomethane	1.48E-01	1.38E-04	6.74E-02	2.15E-01		1.08E-04
Cadmium	2.97E-02	9.24E-06	5.35E-03	3.50E-02	7.00E-10	1.75E-05
Carbon disulfide	1.95E-02	6.61E-05	3.75E-01	3.95E-01		1.97E-04
Carbon tetrachloride	5.38E-02	7.02E-05	4.65E-02	1.00E-01	1.42E-01	1.21E-04
Chlorobenzene	6.33E-02	6.22E-05	2.78E-02	9.12E-02		4.56E-05
Chloroethane	6.50E-02	3.02E-04	5.83E-02	1.24E-01		6.18E-05
Chloroform	5.73E-01	5.24E-04	1.18E-01	6.92E-01	2.06E+00	1.38E-03
Chloromethane	4.67E-01	1.86E-04	8.34E-01	1.30E+00		6.50E-04
Chromium	3.69E+01	1.97E-04	3.96E-02	3.69E+01	1.59E-10	1.85E-02
Cobalt	3.30E-01	5.66E-05	2.15E-02	3.52E-01		1.76E-04
Cyanide compounds					1.79E-14	8.95E-18
Dibenzofuran	2.60E-01	3.11E-04	1.32E-01	3.93E-01		1.96E-04
Dimethyl phthalate	1.26E-01	2.76E-04	1.25E-01	2.51E-01		1.26E-04
Ethyl benzene	1.83E-02	5.24E-05	3.64E+00	3.66E+00		1.83E-03
Hexachlorobenzene	2.31E-01	3.11E-04	1.25E-01	3.57E-01		1.78E-04
Hexachlorobutadiene	2.24E-02	6.79E-05	2.27E-01	2.50E-01		1.25E-04
Hexachlorocyclopentadiene	9.24E-01	5.18E-03	1.39E+00	2.32E+00		1.16E-03
Hexachloroethane	1.79E-01	3.97E-04	1.60E-01	3.39E-01		1.69E-04
Hexane	1.94E-02	1.88E-04	1.25E-01	1.45E-01		7.23E-05
Isophorone	2.90E-01	1.22E-03	1.04E-02	3.02E-01		1.51E-04
Lead	2.03E-01	1.60E-05	5.56E-01	7.59E-01	7.00E-09	3.79E-04
Manganese	5.56E+00	2.82E-05	9.72E-01	6.54E+00		3.27E-03
Mercury	4.74E+00	6.29E-04	5.07E+00	9.82E+00	2.22E-11	4.91E-03
Methylene chloride	3.63E+00	6.79E-03	1.32E-01	3.76E+00	2.73E-02	1.90E-03
Naphthalene	1.98E-01	1.03E-04	6.11E-02	2.59E-01		1.30E-04
Nickel	2.11E+02	3.29E-04	1.32E-01	2.11E+02	6.22E-11	1.06E-01
Nitrobenzene	2.05E-01	1.39E-04	3.96E-02	2.45E-01		1.22E-04
N-Nitrosodimethylamine	1.65E+01	3.29E-04	1.60E-01	1.67E+01		8.35E-03
Pentachloronitrobenzene	2.31E-01	9.31E-04	1.18E-01	3.50E-01		1.75E-04
Pentachlorophenol	9.93E-01	3.11E-04	2.29E-02	1.02E+00		5.08E-04
Pentane	2.36E-03		1.25E-01	1.27E-01		6.37E-05

Maximum Uncontrolled PTE
INTEC Stack Emissions

	INTEC Main Stack[a]				CPP-659/666 Repack Operations Emissions[c]	INTEC Stacks Total
HAP	LET&D[b] (lbs/yr)	PEWE[b] (lbs/yr)	ETS[b] (lbs/yr)	Emissions (lb/yr)	Emissions (lb/yr)	Emissions (Tons/yr)
Phenol	2.60E-01	5.01E-04	2.64E+00	2.90E+00		1.45E-03
Phosphorus	2.17E+01	9.38E-04	5.83E-01	2.23E+01		1.12E-02
Polychlorinated biphenyls					5.40E-13	2.70E-16
Selenium	1.35E-01	2.60E-05	2.57E-02	1.61E-01	2.98E-12	8.06E-05
Styrene	2.01E-02	7.64E-05	2.29E-02	4.31E-02		2.15E-05
Tetrachloroethylene					1.72E-02	8.60E-06
Toluene	2.95E-02	6.85E-03	8.34E-02	1.20E-01	1.72E-02	6.85E-05
Trichloroethylene					2.98E-03	1.49E-06
Vinyl chloride	3.84E-02	6.61E-05	5.28E-02	9.13E-02		4.56E-05
Xylene	6.50E-02	2.11E-04	1.55E-01	2.20E-01		1.10E-04

a. Information regarding the maximum emission rate (g/s) for volatile organic compounds was obtained from Calendar Year 2012 Tier I Emissions for CPP-708-001 Main Stack for CH2M-WG Idaho, EDF-10447, January 2013

b. Emissions (lb/yr) are calculated as follows: [Maximum emission rate (g/s)] x [1 lb/454 g] x [3600 sec/1 hr] x [8760 hrs/yr].

c. See Excel file "CY13 HAP Emissions_CPP-659 & CPP-666.xlsx" contained in Supporting Information files. CY13 information is considered representative for CY12 and is on the conservative high end for annual emissions.

CERCLA Operable Unit OCVZ VVET Manufacture of HCl, CAS # 7647-01-0[a]				
CY	**HCl, lbs**	**Actual Emissions HCl, tons**	**Run Time, %**	**PTE HCl, tons**
CY06	6,411	3.21	87.6	3.66
CY07	4,972	2.49	93.1	2.67
CY08	3,735	1.87	97.3	1.92
CY09	3,259	1.63	94.1	1.73
CY10	3,294	1.65	97.6	1.69
CY11	1,565	0.78	97.7	0.80
CY12	1,183	0.59	97.6	0.61
CY13	1,568	0.78	98.9	0.79
CY14	1,314	0.66	99.9	0.66
CY15	1,148	0.57	98.6	0.58
CY16	2,958	1.48	99.9	1.48

a. Fiscal Year Annual Letter Reports for Operable Unit 7-13/14 Operations and Maintenance, D. Cresap

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Maximum Uncontrolled PTE
WMF-1617 Fuel Burning-Toxics

Pollutant	Emission Factor[a] (lb/MMBtu)	Emission Factor[b] (lb/hp-hr)	Total engine load[c,d] (hp)	Potential Maximum Emissions[e] (Tons/yr)
Total Fuel Burning Equipment				
Benzene	9.33E-04	6.53E-06	804	3.36E-03
Toluene	4.09E-04	2.86E-06	804	1.47E-03
Xylenes	2.85E-04	2.00E-06	804	1.03E-03
1,3-Butadiene	3.91E-05	2.74E-07	804	1.41E-04
Formaldehyde	1.18E-03	8.26E-06	804	4.25E-03
Acetaldehyde	7.67E-04	5.37E-06	804	2.76E-03
Acrolein	9.25E-05	6.48E-07	804	3.33E-04
Polyaromatic hydrocarbons	1.68E-04	1.18E-06	804	6.07E-04

a. Emission factors obtained from AP-42, Chapter 3, "Stationary Internal Combustion Engines," Section 3.3, "Gasoline and Diesel Industrial Engines (Final Section, Supplement B, October 1996)," Table 3.3-2 (EPA 2009). MMBtu is million Btu.

b. Emission factor (lb/hp-hr) calculated using an average brake-specific horsepower rating of 7,000 Btu/hp-hr (EPA 1998, Table 3.3-1) to convert from lb/MMBtu (Note: MMBtu is million Btu) to hp-hr using the following equation: [emission factor (lb/MMBtu)] * [1 MMBtu/1E+06 Btu] * [7,000 Btu/hp-hr].

c. Excavators are 1998 Gradall XL5200 excavators: Cummins 6BTA 5.9 turbo-charged diesel engine, Tier I (165 hp at 2,000 rpm). The telehandlers (TH-103), 115-hp Tier II John Deere engine. No engines are greater than 600 hp.

d. EDF-10259 - Air Permit Applicability Determination for WMF-1617 RCRA Drum Repackaging Project, Table 5.

e. Annual emission based on controlled run time of 1280 hours. EDF-10259, Table 4.

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Maximum Uncontrolled PTE
WMF-1617 TSDF Treatment

Pollutant	HAP Concentration Per Drum[a] (ppmv)	Emissions Tons/yr)[b]
1,1,1-Trichloroethane	23000	3.81E-02
1,1-Dichloroethane	2	3.31E-06
1,1-Dichloroethylene	100	1.66E-04
1,2-Dichloroethane	22.6	3.74E-05
1,4-Dichlorobenzene	10000	1.66E-02
2,4-Dinitrotoluene	10000	1.66E-02
Benzene	100	1.66E-04
Beryllium	10000	1.66E-02
Carbon disulfide	0.5	8.28E-07
Carbon tetrachloride	100000	1.66E-01
Chloroform	500	8.28E-04
Cresol	10000	1.66E-02
Ethyl benzene	4	6.62E-06
Hexachlorobenzene	0.564	9.34E-07
Hexachloroethane	10000	1.66E-02
Methanol	10000	1.66E-02
Methylene chloride	10000	1.66E-02
Nitrobenzene	8	1.32E-05
Pentachlorophenol	10000	1.66E-02
Polychlorinated biphenyls (PCBs)	150000	2.48E-01
Tetrachloroethylene	30	4.97E-05
Toluene	2	3.31E-06
Trichloroethylene	10	1.66E-05
Xylenes	4	6.62E-06

a. EDF-10259 Revision 0, Air Permit Applicability Determination for WMF-1617 RCRA Drum Repackaging Project, Table

b. Emissions calculated from the following formula;

Emissions = drums/yr x lb/drum x 1 ton/2000 lb x ppmv x emission factor x

Where: maximum drums/yr = 17520

lb/drum = 525

EF[c] (lb/lb) = 0.00036

c. EPA's Compilation of Air Pollutant Emission Factors, AP-42, Fifth Edition, Table 4.7-1

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TSA-RE (Retrieval/Inner Contamination Enclosure and Cargo Contamination Enclosure) - Emissions									
Pollutant	Worst Case Overall wt%[a]	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)	Total Emissions (Unabated) (Tons/yr)	Pollutant	Worst Case Non-Debris wt%[b]
Total VOCs (lb/hr)		**9.10E-05**	**2.23E-06**	**6.30E-03**	**1.00E-04**	**6.49E-03**		**Total VOCs (lb/hr)**	
Total PM (lb/hr)		**8.40E-03**	**2.06E-04**	**8.40E-04**	**9.24E-03**	**1.87E-02**		**Total PM (lb/hr)**	
1,1,1-Trichloroethane	2.3	2.09E-06	5.13E-08	1.45E-04	2.30E-06	1.49E-04	6.54E-04	1,1,1-Trichloroethane	15
1,1,2,2-Tetrachloroethane	0.00001	9.10E-12	2.23E-13	6.30E-10	1.00E-11	6.49E-10	2.84E-09	1,1,2,2-Tetrachloroethane	0
1,1-Dichloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	1,1-Dichloroethane	1
1,1-Dichloroethylene	0.01	9.10E-09	2.23E-10	6.30E-07	1.00E-08	6.49E-07	2.84E-06	1,1-Dichloroethylene	1
1,2-Dichloroethane	0.00226	2.06E-09	5.04E-11	1.42E-07	2.26E-09	1.47E-07	6.43E-07	1,2-Dichloroethane	1
1,2-Dichloropropane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	1,2-Dichloropropane	
1,4-Dichlorobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	1,4-Dichlorobenzene	
2,2,4-Trimethyl pentane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	2,2,4-Trimethyl pentane	
2,4-Dinitrotoluene	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	8.18E-04	2,4-Dinitrotoluene	
2-Butanone	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	2-Butanone	1
Arsenic	0.86	7.22E-05	1.77E-06	7.22E-06	7.95E-05	1.61E-04	7.04E-04	Arsenic	1
Benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Benzene	1
Beryllium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	8.18E-04	Beryllium	1
Cadmium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	8.18E-04	Cadmium	1
Carbon tetrachloride	0.78	7.10E-07	1.74E-08	4.91E-05	7.80E-07	5.06E-05	2.22E-04	Carbon tetrachloride[c]	5
Chlorobenzene	0.00005	4.55E-11	1.12E-12	3.15E-09	5.00E-11	3.25E-09	1.42E-08	Chlorobenzene	1
Chloroform	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Chloroform	1
Chromium	0.24	2.02E-05	4.94E-07	2.02E-06	2.22E-05	4.48E-05	1.96E-04	Chromium	1
Cresols (m, p & o)	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Cresols (m, p & o)	
Cyanide	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	8.18E-04	Cyanide	1
Ethyl benzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Ethyl benzene	1
Hexachlorobenzene	0.0000564	5.13E-11	1.26E-12	3.55E-09	5.64E-11	3.66E-09	1.60E-08	Hexachlorobenzene	
Hexachloroethane	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Hexachloroethane	
Lead	25	2.10E-03	5.15E-05	2.10E-04	2.31E-03	4.67E-03	2.05E-02	Lead	1
Mercury	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Mercury	2.5
Methanol	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Methanol	0.003
Methyl isobutyl ketone	0.00007	6.37E-11	1.56E-12	4.41E-09	7.00E-11	4.55E-09	1.99E-08	Methyl isobutyl ketone	
Methylene chloride	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Methylene chloride	0.07
Nickel								Nickel	1
Nitrobenzene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Nitrobenzene	1
Polychlorinated Biphenyls	15	1.26E-03	3.09E-05	1.26E-04	1.39E-03	2.80E-03	1.23E-02	Polychlorinated Biphenyls	
Selenium	1	8.40E-05	2.06E-06	8.40E-06	9.24E-05	1.87E-04	8.18E-04	Selenium	1
Tetrachloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Tetrachloroethylene	1

Toluene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Toluene	1
Trichloroethylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Trichloroethylene	1
Xylene	1	9.10E-07	2.23E-08	6.30E-05	1.00E-06	6.49E-05	2.84E-04	Xylene	0.005

a. Application to Construct an Air Pollution Emitting Facility: The Transuranic Storage Area – Retrieval Enclosure, Permit to Construct No. P-2011-0109; April 2013

b. Air Quality Permitting Technical Memorandum, Permit to Construct No. 023-00001 - Advanced Mixed Waste Treatment Facility, Michael Stambulis; May 21,2002.

AMWTF Emissions							
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 (Tons/yr)	AMWTP Total (Tons/yr)
	4.93E-04	**1.74E-03**	**1.72E-03**	**1.77E-04**	**4.13E-03**		
	5.30E-09	**1.90E-08**	**1.80E-08**	**4.90E-12**	**4.23E-08**		
1	4.93E-06	1.74E-05	1.72E-05	2.66E-05	6.6E-05	2.89E-04	9.44E-04
1	4.93E-06	1.74E-05	1.72E-05	0.00E+00	4.0E-05	1.73E-04	1.73E-04
0	0.00E+00	0.00E+00	0.00E+00	1.77E-06	1.8E-06	7.75E-06	2.92E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	1.84E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	1.82E-04
							2.84E-04
							2.84E-04
							2.84E-04
							8.18E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	1.85E-09	7.04E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	1.85E-09	8.18E-04
1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	1.85E-09	8.18E-04
1	4.93E-06	1.74E-05	1.72E-05	8.85E-06	4.8E-05	2.12E-04	4.34E-04
0	0.00E+00	0.00E+00	0.00E+00	1.77E-06	1.8E-06	7.75E-06	7.77E-06
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	1.85E-09	1.96E-04
							2.84E-04
0	0.00E+00	0.00E+00	0.00E+00	4.90E-14	4.9E-14	2.15E-13	8.18E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
							1.60E-08
							2.84E-04
25	1.33E-09	4.75E-09	4.50E-09	4.90E-14	1.1E-08	4.63E-08	2.05E-02
1	4.93E-06	1.74E-05	1.72E-05	4.43E-06	4.4E-05	1.93E-04	4.77E-04
1	4.93E-06	1.74E-05	1.72E-05	5.31E-09	4.0E-05	1.73E-04	4.58E-04
							1.99E-08
1	4.93E-06	1.74E-05	1.72E-05	1.24E-07	4.0E-05	1.74E-04	4.58E-04
0	0.00E+00	0.00E+00	0.00E+00	4.90E-14	4.9E-14	2.15E-13	2.15E-13
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
							1.23E-02
1	5.30E-11	1.90E-10	1.80E-10	4.90E-14	4.2E-10	1.85E-09	8.18E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04

1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
1	4.93E-06	1.74E-05	1.72E-05	1.77E-06	4.1E-05	1.81E-04	4.65E-04
1	4.93E-06	1.74E-05	1.72E-05	8.85E-09	4.0E-05	1.7E-04	4.58E-04

Intentionally Blank

Maximum Uncontrolled PTE

2006-2016 SDA Fugitive[a]

Gas / Pollutant	2006 Emission Rate[b] (tons/year)	2007 Emission Rate[b] (tons/year)	2008 Emission Rate[b] (tons/year)	2009 Emission Rate[b] (tons/year)	2010 Emission Rate[b] (tons/year)	2011 Emission Rate[b] (tons/year)	2012 Emission Rate[b] (tons/year)	2013 Emission Rate[b] (tons/year)	2014 Emission Rate[b] (tons/year)	2015 Emission Rate[b] (tons/year)	2016 Emission Rate[b] (tons/year)
1,1,1-Trichloroethane	3.84E-05	3.65E-05	3.47E-05	3.30E-05	3.14E-05	2.99E-05	2.84E-05	2.71E-05	2.57E-05	2.45E-05	2.33E-05
1,1,2,2-Tetrachloroethane	1.11E-04	1.05E-04	1.00E-04	9.53E-05	9.06E-05	8.62E-05	8.20E-05	7.80E-05	7.42E-05	7.06E-05	6.71E-05
1,1-Dichloroethane	1.42E-04	1.35E-04	1.29E-04	1.23E-04	1.17E-04	1.11E-04	1.05E-04	1.00E-04	9.54E-05	9.08E-05	8.64E-05
1,1-Dichloroethene	1.16E-05	1.11E-05	1.05E-05	1.00E-05	9.52E-06	9.05E-06	8.61E-06	8.19E-06	7.79E-06	7.41E-06	7.05E-06
1,2-Dichloroethane	2.43E-05	2.31E-05	2.20E-05	2.09E-05	1.99E-05	1.89E-05	1.80E-05	1.71E-05	1.63E-05	1.55E-05	1.48E-05
1,2-Dichloropropane	1.22E-05	1.16E-05	1.10E-05	1.05E-05	9.98E-06	9.49E-06	9.03E-06	8.59E-06	8.17E-06	7.77E-06	7.39E-06
1,4-Dichlorobenzene	1.85E-05	1.76E-05	1.67E-05	1.59E-05	1.52E-05	1.44E-05	1.37E-05	1.30E-05	1.24E-05	1.18E-05	1.12E-05
Acrylonitrile	2.00E-04	1.91E-04	1.81E-04	1.72E-04	1.64E-04	1.56E-04	1.48E-04	1.41E-04	1.34E-04	1.28E-04	1.22E-04
Benzene	6.04E-04	5.75E-04	5.47E-04	5.20E-04	4.95E-04	4.70E-04	4.47E-04	4.26E-04	4.05E-04	3.85E-04	3.66E-04
Carbon disulfide	2.65E-05	2.52E-05	2.39E-05	2.28E-05	2.17E-05	2.06E-05	1.96E-05	1.87E-05	1.77E-05	1.69E-05	1.61E-05
Carbon tetrachloride	5.79E+00	5.51E+00	5.24E+00	4.98E+00	4.74E+00	4.51E+00	4.29E+00	4.08E+00	3.88E+00	3.69E+00	3.51E+00
Carbonyl sulfide	1.76E-05	1.68E-05	1.60E-05	1.52E-05	1.44E-05	1.37E-05	1.31E-05	1.24E-05	1.18E-05	1.13E-05	1.07E-05
Chlorobenzene	1.69E-05	1.60E-05	1.53E-05	1.45E-05	1.38E-05	1.31E-05	1.25E-05	1.19E-05	1.13E-05	1.08E-05	1.02E-05
Chloroform	2.15E-06	2.04E-06	1.94E-06	1.85E-06	1.76E-06	1.67E-06	1.59E-06	1.51E-06	1.44E-06	1.37E-06	1.30E-06
Chloromethane	3.63E-05	3.45E-05	3.29E-05	3.13E-05	2.97E-05	2.83E-05	2.69E-05	2.56E-05	2.43E-05	2.32E-05	2.20E-05
Ethylbenzene	2.93E-04	2.78E-04	2.65E-04	2.52E-04	2.40E-04	2.28E-04	2.17E-04	2.06E-04	1.96E-04	1.87E-04	1.78E-04
Chloroethane	5.03E-05	4.78E-05	4.55E-05	4.33E-05	4.12E-05	3.92E-05	3.72E-05	3.54E-05	3.37E-05	3.21E-05	3.05E-05
Ethylene dibromide	1.13E-07	1.07E-07	1.02E-07	9.69E-08	9.22E-08	8.77E-08	8.34E-08	7.94E-08	7.55E-08	7.18E-08	6.83E-08
Hexane	3.41E-04	3.24E-04	3.09E-04	2.93E-04	2.79E-04	2.66E-04	2.53E-04	2.40E-04	2.29E-04	2.17E-04	2.07E-04
Mercury	3.49E-08	3.32E-08	3.16E-08	3.00E-08	2.86E-08	2.72E-08	2.58E-08	2.46E-08	2.34E-08	2.22E-08	2.12E-08
Methyl isobutyl ketone	1.14E-04	1.09E-04	1.03E-04	9.82E-05	9.34E-05	8.88E-05	8.45E-05	8.04E-05	7.65E-05	7.27E-05	6.92E-05
Methylene chloride	7.13E-04	6.78E-04	6.45E-04	6.14E-04	5.84E-04	5.55E-04	5.28E-04	5.02E-04	4.78E-04	4.55E-04	4.32E-04
Tetrachloroethylene	3.68E-04	3.50E-04	3.33E-04	3.17E-04	3.01E-04	2.86E-04	2.72E-04	2.59E-04	2.47E-04	2.35E-04	2.23E-04
Toluene	1.15E-02	1.10E-02	1.04E-02	9.93E-03	9.45E-03	8.99E-03	8.55E-03	8.13E-03	7.74E-03	7.36E-03	7.00E-03
Trichloroethene	2.21E-04	2.10E-04	2.00E-04	1.90E-04	1.81E-04	1.72E-04	1.63E-04	1.55E-04	1.48E-04	1.41E-04	1.34E-04
Vinyl chloride	2.73E-04	2.60E-04	2.47E-04	2.35E-04	2.24E-04	2.13E-04	2.03E-04	1.93E-04	1.83E-04	1.74E-04	1.66E-04
Xylenes	7.64E-04	7.26E-04	6.91E-04	6.57E-04	6.25E-04	5.95E-04	5.66E-04	5.38E-04	5.12E-04	4.87E-04	4.63E-04

a. Ground surface gaseous volatile organic compound (VOC) emissions (fluxes) to the atmosphere from the Subsurface Disposal Area (SDA) at the Idaho National Laboratory due to historic waste burial.

b. EPA, 2005, Landfill Gas Emissions Model (LandGEM) Version 3.02 User's Guide, EPA-600/R-05/047, U.S. Environmental Protection Agency.

Intentionally Blank

Maximum Uncontrolled PTE
IWTU PTE 2011-16

P-2008.0199, Maximum liquid waste throughput:	1,114,000	gallons
P-2008.0199, Maximum liquid waste throughput rate:	3.5	gpm
Projected actual liquid waste throughput rate:	2.5	gpm
DNT-299-07 L&V Report for SDG H00106004012X: Maximum mercury concentration	1.31E+06	µg/L
Molecular weight of mercury	200.59	g/gmol
Conversion factors	3.785	L/gal
	60	min/hr
	453.6	g/lb

[1] P-2008.0199 August 31, 2009, Statement of Basis Table 3.2 and Tables 2 and 3 of EDF-6495, Rev. 2

[2] P-2008.0199 August 31, 2009, Appendix B, Table 1, Page 2: PM_{10} controlled emissions:	3.92E-08	tons/year
[3] EDF-6495 Table 2, Lead abated emissions:	6.51E-12	tons/year
[4] P-2008.0199 August 31, 2009, Table 3.2, Lead unabated emissions:	7.24E-05	tons/year

Emission Point: STK-SRE-140 Stack (Based upon 2.5 gpm feed rate)								Emiss		
Month/Year	Liquid Waste to be Processed, gals @ 2.5 gpm	Liquid Surrogate Processed, gals @ 2.5 gpm	SO_2 (tons)	NO_x (tons)	CO (tons)	PM (tons)	VOCs, as TOCs (tons)	Month/Year	Hydrochloric acid	Arsenic Compounds (inorganic including arsine)
Abated Emission Rates, lbs/hr @ 2.5 gpm			2.73E+00	8.85E+00	1.64E-01	1.06E-08	0.00E+00	**Emission Rates, lbs/hr @ 2.5 gpm**	9.36E-01	3.35E-04
Abated Emission Rates[1], lbs/hr @ 3.5 gpm			3.83E+00	1.24E+01	2.30E-01	1.48E-08	0.00E+00	**Emission Rates[1], lbs/hr @ 3.5 gpm**	1.31E+00	4.69E-04
								Unabated Emission Rates[1], lbs/hr @ 3.5 gpm	1.31	4.69E-04
PTE[1], tons			10.15	32.86	0.61	0.436	0.0	**PTE[1,4], tons**	3.47E+00	1.24E-03
Unabated Emission Factor, lbs/gal liquid waste processed			1.82E-02	5.90E-02	1.10E-03	7.83E-04	0.00E+00	**Unabated Emission Factor, lbs/gal liquid waste processed**	6.24E-03	2.23E-06
Abated Emission Factor, lbs/gal liquid waste processed[2]						7.04E-11		**Abated Emission Factor, lbs/gal liquid waste processed[3]**		
Abated Emission Factor			0	0	0	0.9997	0	**Abated Emission Factor (est.)**	0	0
Dec, 14	0	36,553.60	3.33E-01	1.08E+00	2.00E-02	1.29E-09	0.00E+00	Dec, 14	1.14E-01	4.08E-05
Jan, 15	0	22,154.40	2.02E-01	6.54E-01	1.21E-02	7.80E-10	0.00E+00	Jan, 15	6.91E-02	2.47E-05
Feb, 15	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	Feb, 15	0.00E+00	0.00E+00
Mar, 15	104,400	10,000.00	1.04E+00	3.37E+00	6.26E-02	4.03E-09	0.00E+00	Mar, 15	3.57E-01	1.28E-04
Apr, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	Apr, 15	3.37E-01	1.21E-04

Maximum Uncontrolled PTE
IWTU PTE 2011-16

May, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	May, 15	3.48E-01	1.25E-04
June, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	June, 15	3.37E-01	1.21E-04
July, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	July, 15	3.48E-01	1.25E-04
Aug,15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Aug,15	3.48E-01	1.25E-04
Sept, 15	108,000	0	9.84E-01	3.19E+00	5.91E-02	3.80E-09	0.00E+00	Sept, 15	3.37E-01	1.21E-04
Oct, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Oct, 15	3.48E-01	1.25E-04
Nov, 15	111,600	0	1.02E+00	3.29E+00	6.11E-02	3.93E-09	0.00E+00	Nov, 15	3.48E-01	1.25E-04
Dec, 15	58,892	0	5.37E-01	1.74E+00	3.22E-02	2.07E-09	0.00E+00	Dec, 15	1.84E-01	6.58E-05
Total (gal, tons)	1,114,000	68,708	10.15	32.86	0.61	0.00	0.00	Total (tons)	3.47E+00	1.24E-03
								Total (lbs)	6.95E+03	2.49E+00

Assume surrogate has same chemical composition as liquid waste, exclusive of radionuclides.
Assume surrogate usage does not count as part of liquid waste feed permitted quantity for P-2008.0199.

sion Point: STK-SRE-140 Stack (Based upon 2.5 gpm feed rate)

Beryllium Compounds	Cadmium Compounds	Chromium Compounds	Lead Compounds[1]	Mercury Compounds	Nickel Compounds	Selenium Compounds
1.07E-04	1.94E-01	3.64E-01	1.75E-12	1.64E+00	1.84E-01	4.99E-05
1.50E-04	2.71E-01	5.10E-01	2.45E-12	2.30E+00	2.58E-01	6.98E-05
1.50E-04	2.71E-01	0.51	2.73E-05	2.30E+00	2.58E-01	6.98E-05
3.98E-04	7.19E-01	1.35E+00	7.24E-05	6.09E+00	6.84E-01	1.85E-04
7.14E-07	1.29E-03	2.43E-03	1.30E-07	1.09E-02	1.23E-03	3.32E-07
			1.17E-14			
0	0	0	0	0	0	0
1.31E-05	2.36E-02	4.44E-02	2.38E-06	2.00E-01	2.25E-02	6.07E-06
7.91E-06	1.43E-02	2.69E-02	1.44E-06	1.21E-01	1.36E-02	3.68E-06
0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
4.09E-05	7.38E-02	1.39E-01	7.43E-06	6.25E-01	7.03E-02	1.90E-05
3.86E-05	6.97E-02	1.31E-01	7.02E-06	5.90E-01	6.63E-02	1.79E-05

3.99E-05	7.20E-02	1.36E-01	7.25E-06	6.10E-01	6.86E-02	1.85E-05
3.86E-05	6.97E-02	1.31E-01	7.02E-06	5.90E-01	6.63E-02	1.79E-05
3.99E-05	7.20E-02	1.36E-01	7.25E-06	6.10E-01	6.86E-02	1.85E-05
3.99E-05	7.20E-02	1.36E-01	7.25E-06	6.10E-01	6.86E-02	1.85E-05
3.86E-05	6.97E-02	1.31E-01	7.02E-06	5.90E-01	6.63E-02	1.79E-05
3.99E-05	7.20E-02	1.36E-01	7.25E-06	6.10E-01	6.86E-02	1.85E-05
3.99E-05	7.20E-02	1.36E-01	7.25E-06	6.10E-01	6.86E-02	1.85E-05
2.10E-05	3.80E-02	7.15E-02	3.83E-06	3.22E-01	3.62E-02	9.79E-06
3.98E-04	7.19E-01	1.35E+00	7.24E-05	6.09E+00	6.84E-01	1.85E-04
7.96E-01	1.44E+03	2.71E+03	1.45E-01	1.22E+04	1.37E+03	3.70E-01

Intentionally Blank

Maximum Uncontrolled PTE
CPP-662 Plasma Cutter

Emission Rate

Metal	1/2" Stainless Steel (lbs/hr)	1/4" Stainless Steel (lbs/hr)	1/2" Carbon Steel (lbs/hr)	1/4" Carbon Steel (lbs/hr)	1/2" Aluminum (lbs/hr)	1/4" Aluminum (lbs/hr)	Maximum Emission Rate (lb/hr)	Annual Emissions (Tons)
Antimony		9.99E-05	5.95E-05	2.78E-05	6.07E-05		9.99E-05	4.38E-04
Arsenic	1.05E-04	1.91E-03	1.76E-04	1.23E-03	1.64E-03		1.91E-03	8.37E-03
Cadmium		2.16E-05	1.18E-05	2.35E-05	7.48E-07		2.35E-05	1.03E-04
Chromium (plus Cr (VI) [from Kura])	5.85E-02	8.18E-02	3.58E-04	3.36E-04	2.65E-04	2.89E-04	8.18E-02	3.58E-01
Manganese	7.09E-02	5.09E-03	1.50E-02	9.83E-03	3.76E-04	1.52E-04	7.09E-02	3.11E-01
Nickel	3.05E-02	5.47E-02	4.04E-04	4.28E-04	7.03E-05	3.06E-04	5.47E-02	2.40E-01
Selenium	5.11E-05		8.45E-05	4.58E-05	3.87E-06	1.25E-05	8.45E-05	3.70E-04

Year = 8760 hrs
Ton = 2000 lbs

Intentionally Blank

Maximum Uncontrolled PTE
2013 - 2016 INTEC Spray Booth

Emission Rate

	Paint		Lacquer Thinner		
HAP	Maximum percent by weight (%)	Emission Rate[a] (lb/hr)	Maximum percent by weight (%)	Emission Rate (lb/hr) at 12 gal/day	Emissions (Tons/yr)
Ethyl benzene	1%	0.06	5%	0.02	0.327405
Xylene (o-, m-, p-isomers)	5%	0.29	20%	0.07	1.56585

Density
Paint = 13 lb/gal
Lacquer Thinner = 7 lb/gal

Year = 8760 hrs
Ton = 2000 lbs
Paint/Thinner Usage = 12 gal/day

Percent Product Used=
Paint = 90%
Lacquer Thinner = 10%

a. 100% of HAP is assumed released

Intentionally Blank

TAN Air Stripper Treatment Unit and New Pump and Treat Facility
HAPs Maximum PTE Rates

	Emission Rates (lb/hr)		
Pollutant	Air Stripper	New P&T	Emissions (ton/yr)
Tetrachloroethylene	3.00E-03	5.52E-03	3.73E-02
Trichloroethene	7.50E-02	1.15E-01	8.32E-01
Vinyl Chloride	1.28E-03	4.06E-04	7.38E-03

Year =	8760 hrs
Ton =	2000 lbs

Intentionally Blank

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	3.34E-03		4.74E-05			3.81E-02	9.44E-04	3.84E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	1.11E-04	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.42E-04	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	1.16E-05	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	2.43E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	1.22E-05	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.85E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					2.00E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	7.70E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	3.02E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	6.04E-04	
Benzidine			6.47E-03						
Beryllium	5.78E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	5.78E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		2.65E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	5.79E+00	
Carbonyl sulfide								1.76E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.69E-05	
Chloroethane			6.18E-05					5.03E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	2.15E-06	
Chloromethane			6.50E-04					3.63E-05	
Chromium	5.78E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	8.99E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.93E-04	
Ethylene Dibromide		3.38E-05						1.13E-07	
Formaldehyde	6.78E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					3.41E-04	

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
Hydrochloric Acid				3.66E+00					
Isophorone			1.51E-04						
Lead	1.74E-02		3.79E-04				2.05E-02		
Manganese	1.16E-02		3.27E-03						3.11E-01
Mercury	5.78E-03		4.91E-03				4.77E-04	3.49E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	1.14E-04	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	7.13E-04	
Naphthalene	1.60E-02	1.17E-02	1.30E-04						
Nickel	5.78E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	4.66E-02	1.99E-02			6.07E-04				
Selenium	2.88E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	3.68E-04	
Toluene	8.76E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	1.15E-02	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	2.21E-04	
Vinyl Chloride		1.14E-05	4.56E-05					2.73E-04	
Xylene	1.54E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	7.64E-04	

Carbon t

OU 1-07B (tons)	Total (tons)
	4.24E-02
	3.73E-04
	7.06E-05
	4.87E-04
	3.82E-04
	1.14E-04
	8.31E-05
	3.10E-04
	3.46E-04
	1.32E-04
	2.26E-03
	2.01E-05
	1.70E-02
	2.84E-04
	2.27E-04
	1.99E-04
	1.64E-03
	1.76E-02
	8.66E-04
	3.18E-02
	3.65E-04
	7.60E-03
	8.72E-04
	1.45E-03
	6.47E-04
	1.69E-02
	9.11E-02
	6.47E-03
	2.32E-02
	6.25E-05
	8.34E-04
	4.48E-05
	1.08E-04
	6.72E-03
	2.25E-04
	5.96E+00
	1.76E-05
	9.07E-05
	1.12E-04
	2.69E-03
	6.87E-04
	3.83E-01
	1.76E-04
	1.68E-02
	8.18E-04
	1.96E-04
	1.26E-04
	3.53E-03
	3.39E-05
	7.53E-01
	1.79E-04
	1.25E-04
	1.16E-03
	1.70E-02
	4.13E-04

OU 1-07B (tons)	Total (tons)
	3.66E+00
	1.51E-04
	3.82E-02
	3.25E-01
	1.12E-02
	2.19E-02
	1.14E-04
	1.97E-02
	2.78E-02
	3.51E-01
	6.01E-04
	8.35E-03
	2.61E-01
	1.75E-04
	1.71E-02
	6.37E-05
	1.45E-03
	1.12E-02
	6.72E-02
	3.01E-02
	4.04E-05
3.73E-02	3.82E-02
	1.33E-01
8.32E-01	8.33E-01
7.38E-03	7.72E-03
	2.58E-02
HAP Total	1.33E+01
etrachloride	5.96E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	3.34E-03		4.74E-05			3.81E-02	9.44E-04	3.65E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	1.05E-04	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.35E-04	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	1.11E-05	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	2.31E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	1.16E-05	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.76E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					1.91E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	7.70E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	3.02E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	5.75E-04	
Benzidine			6.47E-03						
Beryllium	5.78E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	5.78E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		2.52E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	5.51E+00	
Carbonyl sulfide								1.68E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.60E-05	
Chloroethane			6.18E-05					4.78E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	2.04E-06	
Chloromethane			6.50E-04					3.45E-05	
Chromium	5.78E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	8.99E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.78E-04	
Ethylene Dibromide		3.38E-05						1.07E-07	
Formaldehyde	6.78E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					3.24E-04	

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
Hydrochloric Acid				2.67E+00					
Isophorone			1.51E-04						
Lead	1.74E-02		3.79E-04				2.05E-02		
Manganese	1.16E-02		3.27E-03						3.11E-01
Mercury	5.78E-03		4.91E-03				4.77E-04	3.32E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	1.09E-04	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	6.78E-04	
Naphthalene	1.60E-02	1.17E-02	1.30E-04						
Nickel	5.78E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	4.66E-02	1.99E-02			6.07E-04				
Selenium	2.88E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	3.50E-04	
Toluene	8.76E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	1.10E-02	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	2.10E-04	
Vinyl Chloride		1.14E-05	4.56E-05					2.60E-04	
Xylene	1.54E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	7.26E-04	

Carbon te

OU 1-07B (tons)	Total (tons)
	4.24E-02
	3.67E-04
	7.06E-05
	4.80E-04
	3.81E-04
	1.14E-04
	8.31E-05
	3.09E-04
	3.46E-04
	1.32E-04
	2.26E-03
	2.01E-05
	1.70E-02
	2.84E-04
	2.27E-04
	1.99E-04
	1.64E-03
	1.76E-02
	8.66E-04
	3.18E-02
	3.65E-04
	7.60E-03
	8.62E-04
	1.45E-03
	6.47E-04
	1.69E-02
	9.11E-02
	6.47E-03
	2.32E-02
	6.25E-05
	8.34E-04
	4.48E-05
	1.08E-04
	6.72E-03
	2.23E-04
	5.67E+00
	1.68E-05
	8.99E-05
	1.10E-04
	2.69E-03
	6.85E-04
	3.83E-01
	1.76E-04
	1.68E-02
	8.18E-04
	1.96E-04
	1.26E-04
	3.52E-03
	3.39E-05
	7.53E-01
	1.79E-04
	1.25E-04
	1.16E-03
	1.70E-02
	3.97E-04

OU 1-07B (tons)	Total (tons)
	2.67E+00
	1.51E-04
	3.82E-02
	3.25E-01
	1.12E-02
	2.19E-02
	1.09E-04
	1.97E-02
	2.78E-02
	3.51E-01
	6.01E-04
	8.35E-03
	2.61E-01
	1.75E-04
	1.71E-02
	6.37E-05
	1.45E-03
	1.12E-02
	6.72E-02
	3.01E-02
	4.04E-05
3.73E-02	3.82E-02
	1.33E-01
8.32E-01	8.33E-01
7.38E-03	7.70E-03
	2.57E-02
HAP Total	1.20E+01
etrachloride	5.67E+00

Maximum Uncontrolled PTE
2008 INL HAP Summary

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
1,1,1-Trichloroethane	3.34E-03		4.74E-05			3.81E-02	9.44E-04	3.47E-05
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	1.00E-04
1,1,2-Trichloroethane		2.43E-05	4.63E-05					
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.29E-04
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	1.05E-05
1,2,4-Trichlorobenzene			1.14E-04					
1,2-Dibromo-3-chloropropane			8.31E-05					
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	2.20E-05
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	1.10E-05
1,2-Diphenylhydrazine			1.32E-04					
1,3-Butadiene		2.12E-03			1.41E-04			
1,3-Dichloropropene		2.01E-05						
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.67E-05
2,2,4-Trimethyl pentane							2.84E-04	
2,4,5-Trichlorophenol			2.27E-04					
2,4,6-Trichlorophenol			1.99E-04					
2,4-Dinitrophenol			1.64E-03					
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04	
4-Nitrophenol			8.66E-04					
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03			
Acetophenone			3.65E-04					
Acrolein		7.26E-03			3.33E-04			
Acrylonitrile			6.72E-04					1.81E-04
Aniline			1.45E-03					
Antimony			2.10E-04					
Arsenic	7.70E-03		8.27E-05				7.04E-04	
Benzene	3.02E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	5.47E-04
Benzidine			6.47E-03					
Beryllium	5.78E-03		5.22E-05			1.66E-02	8.18E-04	
bis(2-Chloroethyl)ether			6.25E-05					
bis(2-Ethylhexyl)phthalate			8.34E-04					
Bromoform			4.48E-05					
Bromomethane			1.08E-04					
Cadmium	5.78E-03		1.75E-05				8.18E-04	
Carbon disulfide			1.97E-04			8.28E-07		2.39E-05
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	5.24E+00
Carbonyl sulfide								1.60E-05
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.53E-05
Chloroethane			6.18E-05					4.55E-05
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.94E-06
Chloromethane			6.50E-04					3.29E-05
Chromium	5.78E-03		1.85E-02				1.96E-04	
Cobalt			1.76E-04					
Cresols (m, p & o)						1.66E-02	2.84E-04	
Cyanide			8.95E-18				8.18E-04	
Dibenzofuran			1.96E-04					
Dimethyl phthalate			1.26E-04					
Ethyl Benzene	8.99E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.65E-04
Ethylene Dibromide		3.38E-05						1.02E-07
Formaldehyde	6.78E-01	7.04E-02			4.25E-03			
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08	
Hexachlorobutadiene			1.25E-04					
Hexachlorocyclopentadiene			1.16E-03					
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04	
Hexane			7.23E-05					3.09E-04

Maximum Uncontrolled PTE
2008 INL HAP Summary

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
Hydrochloric Acid				1.92E+00				
Isophorone			1.51E-04					
Lead	1.74E-02		3.79E-04				2.05E-02	
Manganese	1.16E-02		3.27E-03					
Mercury	5.78E-03		4.91E-03				4.77E-04	3.16E-08
Methanol		4.85E-03				1.66E-02	4.58E-04	
Methyl isobutyl ketone							1.99E-08	1.03E-04
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	6.45E-04
Naphthalene	1.60E-02	1.17E-02	1.30E-04					
Nickel	5.78E-03		1.06E-01				2.15E-13	
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04	
N-Nitrosodimethylamine			8.35E-03					
PCBs			2.70E-16			2.48E-01	1.23E-02	
Pentachloronitrobenzene			1.75E-04					
Pentachlorophenol			5.08E-04			1.66E-02		
Pentane			6.37E-05					
Phenol			1.45E-03					
Phosphorus			1.12E-02					
POM	4.66E-02	1.99E-02			6.07E-04			
Selenium	2.88E-02		8.06E-05				8.18E-04	
Styrene		1.89E-05	2.15E-05					
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	3.33E-04
Toluene	8.76E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	1.04E-02
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	2.00E-04
Vinyl Chloride		1.14E-05	4.56E-05					2.47E-04
Xylene	1.54E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	6.91E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	Total (tons)
		4.24E-02
		3.62E-04
		7.06E-05
		4.73E-04
		3.81E-04
		1.14E-04
		8.31E-05
		3.08E-04
		3.45E-04
		1.32E-04
		2.26E-03
		2.01E-05
		1.70E-02
		2.84E-04
		2.27E-04
		1.99E-04
		1.64E-03
		1.76E-02
		8.66E-04
		3.18E-02
		3.65E-04
		7.60E-03
		8.53E-04
		1.45E-03
4.38E-04		6.47E-04
8.37E-03		1.69E-02
		9.10E-02
		6.47E-03
		2.32E-02
		6.25E-05
		8.34E-04
		4.48E-05
		1.08E-04
1.03E-04		6.72E-03
		2.22E-04
		5.41E+00
		1.60E-05
		8.91E-05
		1.07E-04
		2.69E-03
		6.83E-04
3.58E-01		3.83E-01
		1.76E-04
		1.68E-02
		8.18E-04
		1.96E-04
		1.26E-04
		3.51E-03
		3.39E-05
		7.53E-01
		1.79E-04
		1.25E-04
		1.16E-03
		1.70E-02
		3.81E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	Total (tons)
		1.92E+00
		1.51E-04
		3.82E-02
3.11E-01		3.25E-01
		1.12E-02
		2.19E-02
		1.03E-04
		1.96E-02
		2.78E-02
2.40E-01		3.51E-01
		6.01E-04
		8.35E-03
		2.61E-01
		1.75E-04
		1.71E-02
		6.37E-05
		1.45E-03
		1.12E-02
		6.72E-02
3.70E-04		3.01E-02
		4.04E-05
	3.73E-02	3.82E-02
		1.32E-01
	8.32E-01	8.33E-01
	7.38E-03	7.69E-03
		2.57E-02
	HAP Total	1.10E+01
	Carbon tetrachloride	5.41E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
1,1,1-Trichloroethane	3.34E-03		4.74E-05			3.81E-02	9.44E-04	3.30E-05
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	9.53E-05
1,1,2-Trichloroethane		2.43E-05	4.63E-05					
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.23E-04
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	1.00E-05
1,2,4-Trichlorobenzene			1.14E-04					
1,2-Dibromo-3-chloropropane			8.31E-05					
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	2.09E-05
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	1.05E-05
1,2-Diphenylhydrazine			1.32E-04					
1,3-Butadiene		2.12E-03			1.41E-04			
1,3-Dichloropropene		2.01E-05						
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.59E-05
2,2,4-Trimethyl pentane							2.84E-04	
2,4,5-Trichlorophenol			2.27E-04					
2,4,6-Trichlorophenol			1.99E-04					
2,4-Dinitrophenol			1.64E-03					
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04	
4-Nitrophenol			8.66E-04					
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03			
Acetophenone			3.65E-04					
Acrolein		7.26E-03			3.33E-04			
Acrylonitrile			6.72E-04					1.72E-04
Aniline			1.45E-03					
Antimony			2.10E-04					
Arsenic	7.70E-03		8.27E-05				7.04E-04	
Benzene	3.02E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	5.20E-04
Benzidine			6.47E-03					
Beryllium	5.78E-03		5.22E-05			1.66E-02	8.18E-04	
bis(2-Chloroethyl)ether			6.25E-05					
bis(2-Ethylhexyl)phthalate			8.34E-04					
Bromoform			4.48E-05					
Bromomethane			1.08E-04					
Cadmium	5.78E-03		1.75E-05				8.18E-04	
Carbon disulfide			1.97E-04			8.28E-07		2.28E-05
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	4.98E+00
Carbonyl sulfide								1.52E-05
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.45E-05
Chloroethane			6.18E-05					4.33E-05
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.85E-06
Chloromethane			6.50E-04					3.13E-05
Chromium	5.78E-03		1.85E-02				1.96E-04	
Cobalt			1.76E-04					
Cresols (m, p & o)						1.66E-02	2.84E-04	
Cyanide			8.95E-18				8.18E-04	
Dibenzofuran			1.96E-04					
Dimethyl phthalate			1.26E-04					
Ethyl Benzene	8.99E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.52E-04
Ethylene Dibromide		3.38E-05						9.69E-08
Formaldehyde	6.78E-01	7.04E-02			4.25E-03			
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08	
Hexachlorobutadiene			1.25E-04					
Hexachlorocyclopentadiene			1.16E-03					
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04	
Hexane			7.23E-05					2.93E-04

Hydrochloric Acid				1.73E+00				
Isophorone			1.51E-04					
Lead	1.74E-02		3.79E-04				2.05E-02	
Manganese	1.16E-02		3.27E-03					
Mercury	5.78E-03		4.91E-03				4.77E-04	3.00E-08
Methanol		4.85E-03				1.66E-02	4.58E-04	
Methyl isobutyl ketone							1.99E-08	9.82E-05
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	6.14E-04
Naphthalene	1.60E-02	1.17E-02	1.30E-04					
Nickel	5.78E-03		1.06E-01				2.15E-13	
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04	
N-Nitrosodimethylamine			8.35E-03					
PCBs			2.70E-16			2.48E-01	1.23E-02	
Pentachloronitrobenzene			1.75E-04					
Pentachlorophenol			5.08E-04			1.66E-02		
Pentane			6.37E-05					
Phenol			1.45E-03					
Phosphorus			1.12E-02					
POM	4.66E-02	1.99E-02			6.07E-04			
Selenium	2.88E-02		8.06E-05				8.18E-04	
Styrene		1.89E-05	2.15E-05					
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	3.17E-04
Toluene	8.76E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	9.93E-03
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.90E-04
Vinyl Chloride		1.14E-05	4.56E-05					2.35E-04
Xylene	1.54E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	6.57E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	Total (tons)
		4.24E-02
		3.57E-04
		7.06E-05
		4.67E-04
		3.80E-04
		1.14E-04
		8.31E-05
		3.06E-04
		3.45E-04
		1.32E-04
		2.26E-03
		2.01E-05
		1.70E-02
		2.84E-04
		2.27E-04
		1.99E-04
		1.64E-03
		1.76E-02
		8.66E-04
		3.18E-02
		3.65E-04
		7.60E-03
		8.44E-04
		1.45E-03
4.38E-04		6.47E-04
8.37E-03		1.69E-02
		9.10E-02
		6.47E-03
		2.32E-02
		6.25E-05
		8.34E-04
		4.48E-05
		1.08E-04
1.03E-04		6.72E-03
		2.21E-04
		5.15E+00
		1.52E-05
		8.83E-05
		1.05E-04
		2.69E-03
		6.82E-04
3.58E-01		3.83E-01
		1.76E-04
		1.68E-02
		8.18E-04
		1.96E-04
		1.26E-04
		3.49E-03
		3.39E-05
		7.53E-01
		1.79E-04
		1.25E-04
		1.16E-03
		1.70E-02
		3.66E-04

		1.73E+00
		1.51E-04
		3.82E-02
3.11E-01		3.25E-01
		1.12E-02
		2.19E-02
		9.82E-05
		1.96E-02
		2.78E-02
2.40E-01		3.51E-01
		6.01E-04
		8.35E-03
		2.61E-01
		1.75E-04
		1.71E-02
		6.37E-05
		1.45E-03
		1.12E-02
		6.72E-02
3.70E-04		3.01E-02
		4.04E-05
	3.73E-02	3.82E-02
		1.32E-01
	8.32E-01	8.33E-01
	7.38E-03	7.68E-03
		2.57E-02
	HAP Total	1.06E+01
	Carbon tetrachloride	5.15E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
1,1,1-Trichloroethane	3.34E-03		4.74E-05			3.81E-02	9.44E-04	3.14E-05
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	9.06E-05
1,1,2-Trichloroethane		2.43E-05	4.63E-05					
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.17E-04
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	9.52E-06
1,2,4-Trichlorobenzene			1.14E-04					
1,2-Dibromo-3-chloropropane			8.31E-05					
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.99E-05
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	9.98E-06
1,2-Diphenylhydrazine			1.32E-04					
1,3-Butadiene		2.12E-03			1.41E-04			
1,3-Dichloropropene		2.01E-05						
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.52E-05
2,2,4-Trimethyl pentane							2.84E-04	
2,4,5-Trichlorophenol			2.27E-04					
2,4,6-Trichlorophenol			1.99E-04					
2,4-Dinitrophenol			1.64E-03					
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04	
4-Nitrophenol			8.66E-04					
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03			
Acetophenone			3.65E-04					
Acrolein		7.26E-03			3.33E-04			
Acrylonitrile			6.72E-04					1.64E-04
Aniline			1.45E-03					
Antimony			2.10E-04					
Arsenic	7.70E-03		8.27E-05				7.04E-04	
Benzene	3.02E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	4.95E-04
Benzidine			6.47E-03					
Beryllium	5.78E-03		5.22E-05			1.66E-02	8.18E-04	
bis(2-Chloroethyl)ether			6.25E-05					
bis(2-Ethylhexyl)phthalate			8.34E-04					
Bromoform			4.48E-05					
Bromomethane			1.08E-04					
Cadmium	5.78E-03		1.75E-05				8.18E-04	
Carbon disulfide			1.97E-04			8.28E-07		2.17E-05
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	4.74E+00
Carbonyl sulfide								1.44E-05
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.38E-05
Chloroethane			6.18E-05					4.12E-05
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.76E-06
Chloromethane			6.50E-04					2.97E-05
Chromium	5.78E-03		1.85E-02				1.96E-04	
Cobalt			1.76E-04					
Cresols (m, p & o)						1.66E-02	2.84E-04	
Cyanide			8.95E-18				8.18E-04	
Dibenzofuran			1.96E-04					
Dimethyl phthalate			1.26E-04					
Ethyl Benzene	8.99E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.40E-04
Ethylene Dibromide		3.38E-05						9.22E-08
Formaldehyde	6.78E-01	7.04E-02			4.25E-03			
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08	
Hexachlorobutadiene			1.25E-04					
Hexachlorocyclopentadiene			1.16E-03					
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04	
Hexane			7.23E-05					2.79E-04

Hydrochloric Acid				1.69E+00				
Isophorone			1.51E-04					
Lead	1.74E-02		3.79E-04				2.05E-02	
Manganese	1.16E-02		3.27E-03					
Mercury	5.78E-03		4.91E-03				4.77E-04	2.86E-08
Methanol		4.85E-03				1.66E-02	4.58E-04	
Methyl isobutyl ketone							1.99E-08	9.34E-05
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	5.84E-04
Naphthalene	1.60E-02	1.17E-02	1.30E-04					
Nickel	5.78E-03		1.06E-01				2.15E-13	
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04	
N-Nitrosodimethylamine			8.35E-03					
PCBs			2.70E-16			2.48E-01	1.23E-02	
Pentachloronitrobenzene			1.75E-04					
Pentachlorophenol			5.08E-04			1.66E-02		
Pentane			6.37E-05					
Phenol			1.45E-03					
Phosphorus			1.12E-02					
POM	4.66E-02	1.99E-02			6.07E-04			
Selenium	2.88E-02		8.06E-05				8.18E-04	
Styrene		1.89E-05	2.15E-05					
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	3.01E-04
Toluene	8.76E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	9.45E-03
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.81E-04
Vinyl Chloride		1.14E-05	4.56E-05					2.24E-04
Xylene	1.54E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	6.25E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	Total (tons)
		4.24E-02
		3.53E-04
		7.06E-05
		4.61E-04
		3.80E-04
		1.14E-04
		8.31E-05
		3.05E-04
		3.44E-04
		1.32E-04
		2.26E-03
		2.01E-05
		1.70E-02
		2.84E-04
		2.27E-04
		1.99E-04
		1.64E-03
		1.76E-02
		8.66E-04
		3.18E-02
		3.65E-04
		7.60E-03
		8.36E-04
		1.45E-03
4.38E-04		6.47E-04
8.37E-03		1.69E-02
		9.10E-02
		6.47E-03
		2.32E-02
		6.25E-05
		8.34E-04
		4.48E-05
		1.08E-04
1.03E-04		6.72E-03
		2.20E-04
		4.91E+00
		1.44E-05
		8.76E-05
		1.03E-04
		2.69E-03
		6.80E-04
3.58E-01		3.83E-01
		1.76E-04
		1.68E-02
		8.18E-04
		1.96E-04
		1.26E-04
		3.48E-03
		3.39E-05
		7.53E-01
		1.79E-04
		1.25E-04
		1.16E-03
		1.70E-02
		3.51E-04

		1.69E+00
		1.51E-04
		3.82E-02
3.11E-01		3.25E-01
		1.12E-02
		2.19E-02
		9.34E-05
		1.96E-02
		2.78E-02
2.40E-01		3.51E-01
		6.01E-04
		8.35E-03
		2.61E-01
		1.75E-04
		1.71E-02
		6.37E-05
		1.45E-03
		1.12E-02
		6.72E-02
3.70E-04		3.01E-02
		4.04E-05
	3.73E-02	3.81E-02
		1.31E-01
	8.32E-01	8.33E-01
	7.38E-03	7.67E-03
		2.56E-02
	HAP Total	1.03E+01
	Carbon tetrachloride	4.91E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
1,1,1-Trichloroethane	2.99E-03		4.74E-05			3.81E-02	9.44E-04	2.99E-05
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	8.62E-05
1,1,2-Trichloroethane		2.43E-05	4.63E-05					
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.11E-04
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	9.05E-06
1,2,4-Trichlorobenzene			1.14E-04					
1,2-Dibromo-3-chloropropane			8.31E-05					
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.89E-05
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	9.49E-06
1,2-Diphenylhydrazine			1.32E-04					
1,3-Butadiene		2.12E-03			1.41E-04			
1,3-Dichloropropene		2.01E-05						
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.44E-05
2,2,4-Trimethyl pentane							2.84E-04	
2,4,5-Trichlorophenol			2.27E-04					
2,4,6-Trichlorophenol			1.99E-04					
2,4-Dinitrophenol			1.64E-03					
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04	
4-Nitrophenol			8.66E-04					
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03			
Acetophenone			3.65E-04					
Acrolein		7.26E-03			3.33E-04			
Acrylonitrile			6.72E-04					1.56E-04
Aniline			1.45E-03					
Antimony			2.10E-04					
Arsenic	6.90E-03		8.27E-05				7.04E-04	
Benzene	2.71E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	4.70E-04
Benzidine			6.47E-03					
Beryllium	5.18E-03		5.22E-05			1.66E-02	8.18E-04	
bis(2-Chloroethyl)ether			6.25E-05					
bis(2-Ethylhexyl)phthalate			8.34E-04					
Bromoform			4.48E-05					
Bromomethane			1.08E-04					
Cadmium	5.18E-03		1.75E-05				8.18E-04	
Carbon disulfide			1.97E-04			8.28E-07		2.06E-05
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	4.51E+00
Carbonyl sulfide								1.37E-05
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.31E-05
Chloroethane			6.18E-05					3.92E-05
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.67E-06
Chloromethane			6.50E-04					2.83E-05
Chromium	5.18E-03		1.85E-02				1.96E-04	
Cobalt			1.76E-04					
Cresols (m, p & o)						1.66E-02	2.84E-04	
Cyanide			8.95E-18				8.18E-04	
Dibenzofuran			1.96E-04					
Dimethyl phthalate			1.26E-04					
Ethyl Benzene	8.05E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.28E-04
Ethylene Dibromide		3.38E-05						8.77E-08
Formaldehyde	6.08E-01	7.04E-02			4.25E-03			
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08	
Hexachlorobutadiene			1.25E-04					
Hexachlorocyclopentadiene			1.16E-03					
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04	
Hexane			7.23E-05					2.66E-04

Hydrochloric Acid				8.01E-01				
Isophorone			1.51E-04					
Lead	1.56E-02		3.79E-04				2.05E-02	
Manganese	1.04E-02		3.27E-03					
Mercury	5.18E-03		4.91E-03				4.77E-04	2.72E-08
Methanol		4.85E-03				1.66E-02	4.58E-04	
Methyl isobutyl ketone							1.99E-08	8.88E-05
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	5.55E-04
Naphthalene	1.43E-02	1.17E-02	1.30E-04					
Nickel	5.18E-03		1.06E-01				2.15E-13	
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04	
N-Nitrosodimethylamine			8.35E-03					
PCBs			2.70E-16			2.48E-01	1.23E-02	
Pentachloronitrobenzene			1.75E-04					
Pentachlorophenol			5.08E-04			1.66E-02		
Pentane			6.37E-05					
Phenol			1.45E-03					
Phosphorus			1.12E-02					
POM	4.18E-02	1.99E-02			6.07E-04			
Selenium	2.58E-02		8.06E-05				8.18E-04	
Styrene		1.89E-05	2.15E-05					
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.86E-04
Toluene	7.85E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	8.99E-03
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.72E-04
Vinyl Chloride		1.14E-05	4.56E-05					2.13E-04
Xylene	1.38E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	5.95E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.21E-02
			3.48E-04
			7.06E-05
			4.55E-04
			3.79E-04
			1.14E-04
			8.31E-05
			3.04E-04
			3.44E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			8.28E-04
			1.45E-03
4.38E-04			6.47E-04
8.37E-03		1.24E-03	1.73E-02
			9.06E-02
			6.47E-03
		3.98E-04	2.30E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
1.03E-04		7.19E-01	7.25E-01
			2.19E-04
			4.68E+00
			1.37E-05
			8.70E-05
			1.01E-04
			2.69E-03
			6.79E-04
3.58E-01		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
			3.38E-03
			3.39E-05
			6.82E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			3.38E-04

		3.47E+00	4.28E+00
			1.51E-04
		7.24E-05	3.65E-02
3.11E-01			3.24E-01
		6.09E+00	6.10E+00
			2.19E-02
			8.89E-05
			1.95E-02
			2.62E-02
2.40E-01		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			6.23E-02
3.70E-04		1.85E-04	2.73E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.22E-01
	8.32E-01		8.33E-01
	7.38E-03		7.65E-03
			2.54E-02
		HAP Total	2.14E+01
		Mercury	6.10E+00

Maximum Uncontrolled PTE
2012 INL HAP Summary

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)
1,1,1-Trichloroethane	2.80E-03		4.74E-05			3.81E-02	9.44E-04	2.84E-05
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	8.20E-05
1,1,2-Trichloroethane		2.43E-05	4.63E-05					
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.05E-04
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	8.61E-06
1,2,4-Trichlorobenzene			1.14E-04					
1,2-Dibromo-3-chloropropane			8.31E-05					
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.80E-05
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	9.03E-06
1,2-Diphenylhydrazine			1.32E-04					
1,3-Butadiene		2.12E-03			1.41E-04			
1,3-Dichloropropene		2.01E-05						
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.37E-05
2,2,4-Trimethyl pentane							2.84E-04	
2,4,5-Trichlorophenol			2.27E-04					
2,4,6-Trichlorophenol			1.99E-04					
2,4-Dinitrophenol			1.64E-03					
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04	
4-Nitrophenol			8.66E-04					
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03			
Acetophenone			3.65E-04					
Acrolein		7.26E-03			3.33E-04			
Acrylonitrile			6.72E-04					1.48E-04
Aniline			1.45E-03					
Antimony			2.10E-04					
Arsenic	6.45E-03		8.27E-05				7.04E-04	
Benzene	2.53E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	4.47E-04
Benzidine			6.47E-03					
Beryllium	4.84E-03		5.22E-05			1.66E-02	8.18E-04	
bis(2-Chloroethyl)ether			6.25E-05					
bis(2-Ethylhexyl)phthalate			8.34E-04					
Bromoform			4.48E-05					
Bromomethane			1.08E-04					
Cadmium	4.84E-03		1.75E-05				8.18E-04	
Carbon disulfide			1.97E-04			8.28E-07		1.96E-05
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	4.29E+00
Carbonyl sulfide								1.31E-05
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.25E-05
Chloroethane			6.18E-05					3.72E-05
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.59E-06
Chloromethane			6.50E-04					2.69E-05
Chromium	4.84E-03		1.85E-02				1.96E-04	
Cobalt			1.76E-04					
Cresols (m, p & o)						1.66E-02	2.84E-04	
Cyanide			8.95E-18				8.18E-04	
Dibenzofuran			1.96E-04					
Dimethyl phthalate			1.26E-04					
Ethyl Benzene	7.53E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.17E-04
Ethylene Dibromide		3.38E-05						8.34E-08
Formaldehyde	5.68E-01	7.04E-02			4.25E-03			
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08	
Hexachlorobutadiene			1.25E-04					
Hexachlorocyclopentadiene			1.16E-03					
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04	
Hexane			7.23E-05					2.53E-04

Hydrochloric Acid				6.06E-01				
Isophorone			1.51E-04					
Lead	1.46E-02		3.79E-04				2.05E-02	
Manganese	9.69E-03		3.27E-03					
Mercury	4.84E-03		4.91E-03				4.77E-04	2.58E-08
Methanol		4.85E-03				1.66E-02	4.58E-04	
Methyl isobutyl ketone							1.99E-08	8.45E-05
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	5.28E-04
Naphthalene	1.34E-02	1.17E-02	1.30E-04					
Nickel	4.84E-03		1.06E-01				2.15E-13	
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04	
N-Nitrosodimethylamine			8.35E-03					
PCBs			2.70E-16			2.48E-01	1.23E-02	
Pentachloronitrobenzene			1.75E-04					
Pentachlorophenol			5.08E-04			1.66E-02		
Pentane			6.37E-05					
Phenol			1.45E-03					
Phosphorus			1.12E-02					
POM	3.91E-02	1.99E-02			6.07E-04			
Selenium	2.42E-02		8.06E-05				8.18E-04	
Styrene		1.89E-05	2.15E-05					
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.72E-04
Toluene	7.34E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	8.55E-03
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.63E-04
Vinyl Chloride		1.14E-05	4.56E-05					2.03E-04
Xylene	1.29E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	5.66E-04

CPP-662 Plasma Cutter (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.19E-02
			3.44E-04
			7.06E-05
			4.50E-04
			3.79E-04
			1.14E-04
			8.31E-05
			3.04E-04
			3.43E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			8.20E-04
			1.45E-03
4.38E-04			6.47E-04
8.37E-03		1.24E-03	1.69E-02
			9.05E-02
			6.47E-03
		3.98E-04	2.27E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
1.03E-04		7.19E-01	7.25E-01
			2.18E-04
			4.46E+00
			1.31E-05
			8.63E-05
			9.91E-05
			2.69E-03
			6.77E-04
3.58E-01		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
			3.31E-03
			3.39E-05
			6.43E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			3.25E-04

		3.47E+00	4.08E+00
			1.51E-04
		7.24E-05	3.55E-02
3.11E-01			3.23E-01
		6.09E+00	6.10E+00
			2.19E-02
			8.45E-05
			1.95E-02
			2.53E-02
2.40E-01		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			5.96E-02
3.70E-04		1.85E-04	2.56E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.16E-01
	8.32E-01		8.33E-01
	7.38E-03		7.64E-03
			2.53E-02
		HAP Total	2.09E+01
		Mercury	6.10E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	2.80E-03		4.74E-05			3.81E-02	9.44E-04	2.71E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	7.80E-05	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	1.00E-04	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	8.19E-06	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.71E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	8.59E-06	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.30E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					1.41E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	6.45E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	2.53E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	4.26E-04	
Benzidine			6.47E-03						
Beryllium	4.84E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	4.84E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		1.87E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	4.08E+00	
Carbonyl sulfide								1.24E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.19E-05	
Chloroethane			6.18E-05					3.54E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.51E-06	
Chloromethane			6.50E-04					2.56E-05	
Chromium	4.84E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	7.53E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	2.06E-04	
Ethylene Dibromide		3.38E-05						7.94E-08	
Formaldehyde	5.68E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					2.40E-04	

Hydrochloric Acid				7.93E-01					
Isophorone			1.51E-04						
Lead	1.46E-02		3.79E-04				2.05E-02		
Manganese	9.69E-03		3.27E-03						3.11E-01
Mercury	4.84E-03		4.91E-03				4.77E-04	2.46E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	8.04E-05	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	5.02E-04	
Naphthalene	1.34E-02	1.17E-02	1.30E-04						
Nickel	4.84E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	3.91E-02	1.99E-02			6.07E-04				
Selenium	2.42E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.59E-04	
Toluene	7.34E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	8.13E-03	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.55E-04	
Vinyl Chloride		1.14E-05	4.56E-05					1.93E-04	
Xylene	1.29E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	5.38E-04	

INTEC Spray Booth (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.19E-02
			3.40E-04
			7.06E-05
			4.45E-04
			3.78E-04
			1.14E-04
			8.31E-05
			3.03E-04
			3.43E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			8.13E-04
			1.45E-03
			6.47E-04
		1.24E-03	1.69E-02
			9.04E-02
			6.47E-03
		3.98E-04	2.27E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
		7.19E-01	7.25E-01
			2.17E-04
			4.25E+00
			1.24E-05
			8.57E-05
			9.73E-05
			2.69E-03
			6.76E-04
		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
3.27E-01			3.31E-01
			3.39E-05
			6.43E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			3.13E-04

		3.47E+00	4.27E+00
			1.51E-04
		7.24E-05	3.55E-02
			3.23E-01
		6.09E+00	6.10E+00
			2.19E-02
			8.04E-05
			1.95E-02
			2.53E-02
		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			5.96E-02
		1.85E-04	2.56E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.16E-01
	8.32E-01		8.33E-01
	7.38E-03		7.63E-03
1.57E+00			1.59E+00
		HAP Total	2.28E+01
		Mercury	6.10E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	2.80E-03		4.74E-05			3.81E-02	9.44E-04	2.57E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	7.42E-05	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	9.54E-05	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	7.79E-06	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.63E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	8.17E-06	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.24E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					1.34E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	6.45E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	2.53E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	4.05E-04	
Benzidine			6.47E-03						
Beryllium	4.84E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	4.84E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		1.77E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	3.88E+00	
Carbonyl sulfide								1.18E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.13E-05	
Chloroethane			6.18E-05					3.37E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.44E-06	
Chloromethane			6.50E-04					2.43E-05	
Chromium	4.84E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	7.53E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	1.96E-04	
Ethylene Dibromide		3.38E-05						7.55E-08	
Formaldehyde	5.68E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					2.29E-04	

Hydrochloric Acid				6.58E-01					
Isophorone			1.51E-04						
Lead	1.46E-02		3.79E-04				2.05E-02		
Manganese	9.69E-03		3.27E-03						3.11E-01
Mercury	4.84E-03		4.91E-03				4.77E-04	2.34E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	7.65E-05	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	4.78E-04	
Naphthalene	1.34E-02	1.17E-02	1.30E-04						
Nickel	4.84E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	3.91E-02	1.99E-02			6.07E-04				
Selenium	2.42E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.47E-04	
Toluene	7.34E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	7.74E-03	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.48E-04	
Vinyl Chloride		1.14E-05	4.56E-05					1.83E-04	
Xylene	1.29E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	5.12E-04	

INTEC Spray Booth (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.19E-02
			3.36E-04
			7.06E-05
			4.40E-04
			3.78E-04
			1.14E-04
			8.31E-05
			3.02E-04
			3.42E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			8.06E-04
			1.45E-03
			6.47E-04
		1.24E-03	1.69E-02
			9.04E-02
			6.47E-03
		3.98E-04	2.27E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
		7.19E-01	7.25E-01
			2.16E-04
			4.05E+00
			1.18E-05
			8.51E-05
			9.55E-05
			2.69E-03
			6.75E-04
		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
3.27E-01			3.31E-01
			3.39E-05
			6.43E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			3.01E-04

		3.47E+00	4.13E+00
			1.51E-04
		7.24E-05	3.55E-02
			3.23E-01
		6.09E+00	6.10E+00
			2.19E-02
			7.65E-05
			1.95E-02
			2.53E-02
		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			5.96E-02
		1.85E-04	2.56E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.15E-01
	8.32E-01		8.33E-01
	7.38E-03		7.63E-03
1.57E+00			1.59E+00
		HAP Total	2.24E+01
		Mercury	6.10E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	2.80E-03		4.74E-05			3.81E-02	9.44E-04	2.45E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	7.06E-05	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	9.08E-05	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	7.41E-06	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.55E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	7.77E-06	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.18E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					1.28E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	6.45E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	2.53E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	3.85E-04	
Benzidine			6.47E-03						
Beryllium	4.84E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	4.84E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		1.69E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	3.69E+00	
Carbonyl sulfide								1.13E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.08E-05	
Chloroethane			6.18E-05					3.21E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.37E-06	
Chloromethane			6.50E-04					2.32E-05	
Chromium	4.84E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	7.53E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	1.87E-04	
Ethylene Dibromide		3.38E-05						7.18E-08	
Formaldehyde	5.68E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					2.17E-04	

Hydrochloric Acid				5.82E-01					
Isophorone			1.51E-04						
Lead	1.46E-02		3.79E-04				2.05E-02		
Manganese	9.69E-03		3.27E-03						3.11E-01
Mercury	4.84E-03		4.91E-03				4.77E-04	2.22E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	7.27E-05	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	4.55E-04	
Naphthalene	1.34E-02	1.17E-02	1.30E-04						
Nickel	4.84E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	3.91E-02	1.99E-02			6.07E-04				
Selenium	2.42E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.35E-04	
Toluene	7.34E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	7.36E-03	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.41E-04	
Vinyl Chloride		1.14E-05	4.56E-05					1.74E-04	
Xylene	1.29E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	4.87E-04	

INTEC Spray Booth (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.19E-02
			3.32E-04
			7.06E-05
			4.35E-04
			3.78E-04
			1.14E-04
			8.31E-05
			3.01E-04
			3.42E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			8.00E-04
			1.45E-03
			6.47E-04
		1.24E-03	1.69E-02
			9.04E-02
			6.47E-03
		3.98E-04	2.27E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
		7.19E-01	7.25E-01
			2.15E-04
			3.86E+00
			1.13E-05
			8.46E-05
			9.39E-05
			2.69E-03
			6.73E-04
		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
3.27E-01			3.31E-01
			3.38E-05
			6.43E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			2.90E-04

		3.47E+00	4.06E+00
			1.51E-04
		7.24E-05	3.55E-02
			3.23E-01
		6.09E+00	6.10E+00
			2.19E-02
			7.28E-05
			1.94E-02
			2.53E-02
		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			5.96E-02
		1.85E-04	2.56E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.15E-01
	8.32E-01		8.33E-01
	7.38E-03		7.62E-03
1.57E+00			1.59E+00
		HAP Total	2.22E+01
		Mercury	6.10E+00

Hazardous Air Pollutants	INL Boilers (tons)	Emergency ICE (tons)	INTEC Stacks (tons)	OU 7-08 (tons)	WMF-1617 Fuel (tons)	WMF-1617 Waste (tons)	AMWTP (tons)	SDA Fugitive Emissions (tons)	CPP-662 Plasma Cutter (tons)
1,1,1-Trichloroethane	2.80E-03		4.74E-05			3.81E-02	9.44E-04	2.33E-05	
1,1,2,2-Tetrachloroethane		4.01E-05	4.86E-05				1.73E-04	6.71E-05	
1,1,2-Trichloroethane		2.43E-05	4.63E-05						
1,1-Dichloroethane		1.79E-05	3.12E-05			3.31E-06	2.92E-04	8.64E-05	
1,1-Dichloroethylene			2.09E-05			1.66E-04	1.84E-04	7.05E-06	
1,2,4-Trichlorobenzene			1.14E-04						
1,2-Dibromo-3-chloropropane			8.31E-05						
1,2-Dichloroethane		1.79E-05	4.86E-05			3.74E-05	1.82E-04	1.48E-05	
1,2-Dichloropropane		2.06E-05	2.92E-05				2.84E-04	7.39E-06	
1,2-Diphenylhydrazine			1.32E-04						
1,3-Butadiene		2.12E-03			1.41E-04				
1,3-Dichloropropene		2.01E-05							
1,4-Dichlorobenzene			1.13E-04			1.66E-02	2.84E-04	1.12E-05	
2,2,4-Trimethyl pentane							2.84E-04		
2,4,5-Trichlorophenol			2.27E-04						
2,4,6-Trichlorophenol			1.99E-04						
2,4-Dinitrophenol			1.64E-03						
2,4-Dinitrotoluene			2.13E-04			1.66E-02	8.18E-04		
4-Nitrophenol			8.66E-04						
Acetaldehyde		2.72E-02	1.84E-03		2.76E-03				
Acetophenone			3.65E-04						
Acrolein		7.26E-03			3.33E-04				
Acrylonitrile			6.72E-04					1.22E-04	
Aniline			1.45E-03						
Antimony			2.10E-04						4.38E-04
Arsenic	6.45E-03		8.27E-05				7.04E-04		8.37E-03
Benzene	2.53E-03	8.33E-02	1.54E-04		3.36E-03	1.66E-04	4.65E-04	3.66E-04	
Benzidine			6.47E-03						
Beryllium	4.84E-03		5.22E-05			1.66E-02	8.18E-04		
bis(2-Chloroethyl)ether			6.25E-05						
bis(2-Ethylhexyl)phthalate			8.34E-04						
Bromoform			4.48E-05						
Bromomethane			1.08E-04						
Cadmium	4.84E-03		1.75E-05				8.18E-04		1.03E-04
Carbon disulfide			1.97E-04			8.28E-07		1.61E-05	
Carbon tetrachloride		2.81E-05	1.21E-04			1.66E-01	4.34E-04	3.51E+00	
Carbonyl sulfide								1.07E-05	
Chlorobenzene		2.05E-05	4.56E-05				7.77E-06	1.02E-05	
Chloroethane			6.18E-05					3.05E-05	
Chloroform		2.17E-05	1.38E-03			8.28E-04	4.65E-04	1.30E-06	
Chloromethane			6.50E-04					2.20E-05	
Chromium	4.84E-03		1.85E-02				1.96E-04		3.58E-01
Cobalt			1.76E-04						
Cresols (m, p & o)						1.66E-02	2.84E-04		
Cyanide			8.95E-18				8.18E-04		
Dibenzofuran			1.96E-04						
Dimethyl phthalate			1.26E-04						
Ethyl Benzene	7.53E-04	3.93E-05	1.83E-03			6.62E-06	4.65E-04	1.78E-04	
Ethylene Dibromide		3.38E-05						6.83E-08	
Formaldehyde	5.68E-01	7.04E-02			4.25E-03				
Hexachlorobenzene			1.78E-04			9.34E-07	1.60E-08		
Hexachlorobutadiene			1.25E-04						
Hexachlorocyclopentadiene			1.16E-03						
Hexachloroethane			1.69E-04			1.66E-02	2.84E-04		
Hexane			7.23E-05					2.07E-04	

Hydrochloric Acid				1.48E+00					
Isophorone			1.51E-04						
Lead	1.46E-02		3.79E-04				2.05E-02		
Manganese	9.69E-03		3.27E-03						3.11E-01
Mercury	4.84E-03		4.91E-03				4.77E-04	2.12E-08	
Methanol		4.85E-03				1.66E-02	4.58E-04		
Methyl isobutyl ketone							1.99E-08	6.92E-05	
Methylene chloride		6.53E-05	1.90E-03			1.66E-02	4.58E-04	4.32E-04	
Naphthalene	1.34E-02	1.17E-02	1.30E-04						
Nickel	4.84E-03		1.06E-01				2.15E-13		2.40E-01
Nitrobenzene			1.22E-04			1.32E-05	4.65E-04		
N-Nitrosodimethylamine			8.35E-03						
PCBs			2.70E-16			2.48E-01	1.23E-02		
Pentachloronitrobenzene			1.75E-04						
Pentachlorophenol			5.08E-04			1.66E-02			
Pentane			6.37E-05						
Phenol			1.45E-03						
Phosphorus			1.12E-02						
POM	3.91E-02	1.99E-02			6.07E-04				
Selenium	2.42E-02		8.06E-05				8.18E-04		3.70E-04
Styrene		1.89E-05	2.15E-05						
Tetrachloroethylene			8.60E-06			4.97E-05	4.65E-04	2.23E-04	
Toluene	7.34E-02	3.21E-02	6.85E-05		1.47E-03	3.31E-06	4.65E-04	7.00E-03	
Trichloroethylene			1.49E-06			1.66E-05	4.65E-04	1.34E-04	
Vinyl Chloride		1.14E-05	4.56E-05					1.66E-04	
Xylene	1.29E-03	2.19E-02	1.10E-04		1.03E-03	6.62E-06	4.58E-04	4.63E-04	

INTEC Spray Booth (tons)	OU 1-07B (tons)	IWTU (tons)	Total (tons)
			4.19E-02
			3.29E-04
			7.06E-05
			4.31E-04
			3.77E-04
			1.14E-04
			8.31E-05
			3.00E-04
			3.42E-04
			1.32E-04
			2.26E-03
			2.01E-05
			1.70E-02
			2.84E-04
			2.27E-04
			1.99E-04
			1.64E-03
			1.76E-02
			8.66E-04
			3.18E-02
			3.65E-04
			7.60E-03
			7.93E-04
			1.45E-03
			6.47E-04
		1.24E-03	1.69E-02
			9.04E-02
			6.47E-03
		3.98E-04	2.27E-02
			6.25E-05
			8.34E-04
			4.48E-05
			1.08E-04
		7.19E-01	7.25E-01
			2.14E-04
			3.68E+00
			1.07E-05
			8.41E-05
			9.23E-05
			2.69E-03
			6.72E-04
		1.35E+00	1.73E+00
			1.76E-04
			1.68E-02
			8.18E-04
			1.96E-04
			1.26E-04
3.27E-01			3.31E-01
			3.38E-05
			6.43E-01
			1.79E-04
			1.25E-04
			1.16E-03
			1.70E-02
			2.79E-04

		3.47E+00	4.96E+00
			1.51E-04
		7.24E-05	3.55E-02
			3.23E-01
		6.09E+00	6.10E+00
			2.19E-02
			6.92E-05
			1.94E-02
			2.53E-02
		6.84E-01	1.03E+00
			6.01E-04
			8.35E-03
			2.61E-01
			1.75E-04
			1.71E-02
			6.37E-05
			1.45E-03
			1.12E-02
			5.96E-02
		1.85E-04	2.56E-02
			4.04E-05
	3.73E-02		3.81E-02
			1.15E-01
	8.32E-01		8.33E-01
	7.38E-03		7.61E-03
1.57E+00			1.59E+00
		HAP Total	2.29E+01
		Mercury	6.10E+00

Hazardous Air Pollutants	2006 (tons)	2007 (tons)	2008 (tons)	2009 (tons)	2010 (tons)	2011 (tons)	2012 (tons)
1,1,1-Trichloroethane	4.24E-02	4.24E-02	4.24E-02	4.24E-02	4.24E-02	4.21E-02	4.19E-02
1,1,2,2-Tetrachloroethane	3.73E-04	3.67E-04	3.62E-04	3.57E-04	3.53E-04	3.48E-04	3.44E-04
1,1,2-Trichloroethane	7.06E-05	7.06E-05	7.06E-05	7.06E-05	7.06E-05	7.06E-05	7.06E-05
1,1-Dichloroethane	4.87E-04	4.80E-04	4.73E-04	4.67E-04	4.61E-04	4.55E-04	4.50E-04
1,1-Dichloroethylene	3.82E-04	3.81E-04	3.81E-04	3.80E-04	3.80E-04	3.79E-04	3.79E-04
1,2,4-Trichlorobenzene	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04	1.14E-04
1,2-Dibromo-3-chloropropane	8.31E-05	8.31E-05	8.31E-05	8.31E-05	8.31E-05	8.31E-05	8.31E-05
1,2-Dichloroethane	3.10E-04	3.09E-04	3.08E-04	3.06E-04	3.05E-04	3.04E-04	3.04E-04
1,2-Dichloropropane	3.46E-04	3.46E-04	3.45E-04	3.45E-04	3.44E-04	3.44E-04	3.43E-04
1,2-Diphenylhydrazine	1.32E-04	1.32E-04	1.32E-04	1.32E-04	1.32E-04	1.32E-04	1.32E-04
1,3-Butadiene	2.26E-03	2.26E-03	2.26E-03	2.26E-03	2.26E-03	2.26E-03	2.26E-03
1,3-Dichloropropene	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05	2.01E-05
1,4-Dichlorobenzene	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02
2,2,4-Trimethyl pentane	2.84E-04	2.84E-04	2.84E-04	2.84E-04	2.84E-04	2.84E-04	2.84E-04
2,4,5-Trichlorophenol	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04	2.27E-04
2,4,6-Trichlorophenol	1.99E-04	1.99E-04	1.99E-04	1.99E-04	1.99E-04	1.99E-04	1.99E-04
2,4-Dinitrophenol	1.64E-03	1.64E-03	1.64E-03	1.64E-03	1.64E-03	1.64E-03	1.64E-03
2,4-Dinitrotoluene	1.76E-02	1.76E-02	1.76E-02	1.76E-02	1.76E-02	1.76E-02	1.76E-02
4-Nitrophenol	8.66E-04	8.66E-04	8.66E-04	8.66E-04	8.66E-04	8.66E-04	8.66E-04
Acetaldehyde	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02	3.18E-02
Acetophenone	3.65E-04	3.65E-04	3.65E-04	3.65E-04	3.65E-04	3.65E-04	3.65E-04
Acrolein	7.60E-03	7.60E-03	7.60E-03	7.60E-03	7.60E-03	7.60E-03	7.60E-03
Acrylonitrile	8.72E-04	8.62E-04	8.53E-04	8.44E-04	8.36E-04	8.28E-04	8.20E-04
Aniline	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03
Antimony	6.47E-04	6.47E-04	6.47E-04	6.47E-04	6.47E-04	6.47E-04	6.47E-04
Arsenic	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.69E-02	1.73E-02	1.69E-02
Benzene	9.11E-02	9.11E-02	9.10E-02	9.10E-02	9.10E-02	9.06E-02	9.05E-02
Benzidine	6.47E-03	6.47E-03	6.47E-03	6.47E-03	6.47E-03	6.47E-03	6.47E-03
Beryllium	2.32E-02	2.32E-02	2.32E-02	2.32E-02	2.32E-02	2.30E-02	2.27E-02
bis(2-Chloroethyl)ether	6.25E-05	6.25E-05	6.25E-05	6.25E-05	6.25E-05	6.25E-05	6.25E-05
bis(2-Ethylhexyl)phthalate	8.34E-04	8.34E-04	8.34E-04	8.34E-04	8.34E-04	8.34E-04	8.34E-04
Bromoform	4.48E-05	4.48E-05	4.48E-05	4.48E-05	4.48E-05	4.48E-05	4.48E-05
Bromomethane	1.08E-04	1.08E-04	1.08E-04	1.08E-04	1.08E-04	1.08E-04	1.08E-04
Cadmium	6.72E-03	6.72E-03	6.72E-03	6.72E-03	6.72E-03	7.25E-01	7.25E-01
Carbon disulfide	2.25E-04	2.23E-04	2.22E-04	2.21E-04	2.20E-04	2.19E-04	2.18E-04
Carbon tetrachloride	5.96E+00	5.67E+00	5.41E+00	5.15E+00	4.91E+00	4.68E+00	4.46E+00
Carbonyl sulfide	1.76E-05	1.68E-05	1.60E-05	1.52E-05	1.44E-05	1.37E-05	1.31E-05
Chlorobenzene	9.07E-05	8.99E-05	8.91E-05	8.83E-05	8.76E-05	8.70E-05	8.63E-05
Chloroethane	1.12E-04	1.10E-04	1.07E-04	1.05E-04	1.03E-04	1.01E-04	9.91E-05
Chloroform	2.69E-03	2.69E-03	2.69E-03	2.69E-03	2.69E-03	2.69E-03	2.69E-03
Chloromethane	6.87E-04	6.85E-04	6.83E-04	6.82E-04	6.80E-04	6.79E-04	6.77E-04
Chromium	3.83E-01	3.83E-01	3.83E-01	3.83E-01	3.83E-01	1.73E+00	1.73E+00
Cobalt	1.76E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04	1.76E-04
Cresols (m, p & o)	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02	1.68E-02
Cyanide	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04	8.18E-04
Dibenzofuran	1.96E-04	1.96E-04	1.96E-04	1.96E-04	1.96E-04	1.96E-04	1.96E-04
Dimethyl phthalate	1.26E-04	1.26E-04	1.26E-04	1.26E-04	1.26E-04	1.26E-04	1.26E-04
Ethyl Benzene	3.53E-03	3.52E-03	3.51E-03	3.49E-03	3.48E-03	3.38E-03	3.31E-03
Ethylene Dibromide	3.39E-05	3.39E-05	3.39E-05	3.39E-05	3.39E-05	3.39E-05	3.39E-05
Formaldehyde	7.53E-01	7.53E-01	7.53E-01	7.53E-01	7.53E-01	6.82E-01	6.43E-01
Hexachlorobenzene	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04	1.79E-04
Hexachlorobutadiene	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04	1.25E-04
Hexachlorocyclopentadiene	1.16E-03	1.16E-03	1.16E-03	1.16E-03	1.16E-03	1.16E-03	1.16E-03

Hexachloroethane	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02	1.70E-02
Hexane	4.13E-04	3.97E-04	3.81E-04	3.66E-04	3.51E-04	3.38E-04	3.25E-04
Hydrochloric Acid	3.66E+00	2.67E+00	1.92E+00	1.73E+00	1.69E+00	4.28E+00	4.08E+00
Isophorone	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04	1.51E-04
Lead	3.82E-02	3.82E-02	3.82E-02	3.82E-02	3.82E-02	3.65E-02	3.55E-02
Manganese	3.25E-01	3.25E-01	3.25E-01	3.25E-01	3.25E-01	3.24E-01	3.23E-01
Mercury	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	6.10E+00	6.10E+00
Methanol	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02	2.19E-02
Methyl isobutyl ketone	1.14E-04	1.09E-04	1.03E-04	9.82E-05	9.34E-05	8.89E-05	8.45E-05
Methylene chloride	1.97E-02	1.97E-02	1.96E-02	1.96E-02	1.96E-02	1.95E-02	1.95E-02
Naphthalene	2.78E-02	2.78E-02	2.78E-02	2.78E-02	2.78E-02	2.62E-02	2.53E-02
Nickel	3.51E-01	3.51E-01	3.51E-01	3.51E-01	3.51E-01	1.03E+00	1.03E+00
Nitrobenzene	6.01E-04	6.01E-04	6.01E-04	6.01E-04	6.01E-04	6.01E-04	6.01E-04
N-Nitrosodimethylamine	8.35E-03	8.35E-03	8.35E-03	8.35E-03	8.35E-03	8.35E-03	8.35E-03
PCBs	2.61E-01	2.61E-01	2.61E-01	2.61E-01	2.61E-01	2.61E-01	2.61E-01
Pentachloronitrobenzene	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04	1.75E-04
Pentachlorophenol	1.71E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02	1.71E-02
Pentane	6.37E-05	6.37E-05	6.37E-05	6.37E-05	6.37E-05	6.37E-05	6.37E-05
Phenol	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03	1.45E-03
Phosphorus	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02	1.12E-02
POM	6.72E-02	6.72E-02	6.72E-02	6.72E-02	6.72E-02	6.23E-02	5.96E-02
Selenium	3.01E-02	3.01E-02	3.01E-02	3.01E-02	3.01E-02	2.73E-02	2.56E-02
Styrene	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05	4.04E-05
Tetrachloroethylene	3.82E-02	3.82E-02	3.82E-02	3.82E-02	3.81E-02	3.81E-02	3.81E-02
Toluene	1.33E-01	1.33E-01	1.32E-01	1.32E-01	1.31E-01	1.22E-01	1.16E-01
Trichloroethylene	8.33E-01	8.33E-01	8.33E-01	8.33E-01	8.33E-01	8.33E-01	8.33E-01
Vinyl Chloride	7.72E-03	7.70E-03	7.69E-03	7.68E-03	7.67E-03	7.65E-03	7.64E-03
Xylene	2.58E-02	2.57E-02	2.57E-02	2.57E-02	2.56E-02	2.54E-02	2.53E-02
Annual AggregateTotal (tons)	1.33E+01	1.20E+01	1.10E+01	1.06E+01	1.03E+01	2.14E+01	2.09E+01
Highest Individual HAP (tons)	5.96E+00	5.67E+00	5.41E+00	5.15E+00	4.91E+00	6.10E+00	6.10E+00
	CCl_4	CCl_4	CCl_4	CCl_4	CCl_4	Hg	Hg

2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)
4.19E-02	4.19E-02	4.19E-02	4.19E-02
3.40E-04	3.36E-04	3.32E-04	3.29E-04
7.06E-05	7.06E-05	7.06E-05	7.06E-05
4.45E-04	4.40E-04	4.35E-04	4.31E-04
3.78E-04	3.78E-04	3.78E-04	3.77E-04
1.14E-04	1.14E-04	1.14E-04	1.14E-04
8.31E-05	8.31E-05	8.31E-05	8.31E-05
3.03E-04	3.02E-04	3.01E-04	3.00E-04
3.43E-04	3.42E-04	3.42E-04	3.42E-04
1.32E-04	1.32E-04	1.32E-04	1.32E-04
2.26E-03	2.26E-03	2.26E-03	2.26E-03
2.01E-05	2.01E-05	2.01E-05	2.01E-05
1.70E-02	1.70E-02	1.70E-02	1.70E-02
2.84E-04	2.84E-04	2.84E-04	2.84E-04
2.27E-04	2.27E-04	2.27E-04	2.27E-04
1.99E-04	1.99E-04	1.99E-04	1.99E-04
1.64E-03	1.64E-03	1.64E-03	1.64E-03
1.76E-02	1.76E-02	1.76E-02	1.76E-02
8.66E-04	8.66E-04	8.66E-04	8.66E-04
3.18E-02	3.18E-02	3.18E-02	3.18E-02
3.65E-04	3.65E-04	3.65E-04	3.65E-04
7.60E-03	7.60E-03	7.60E-03	7.60E-03
8.13E-04	8.06E-04	8.00E-04	7.93E-04
1.45E-03	1.45E-03	1.45E-03	1.45E-03
6.47E-04	6.47E-04	6.47E-04	6.47E-04
1.69E-02	1.69E-02	1.69E-02	1.69E-02
9.04E-02	9.04E-02	9.04E-02	9.04E-02
6.47E-03	6.47E-03	6.47E-03	6.47E-03
2.27E-02	2.27E-02	2.27E-02	2.27E-02
6.25E-05	6.25E-05	6.25E-05	6.25E-05
8.34E-04	8.34E-04	8.34E-04	8.34E-04
4.48E-05	4.48E-05	4.48E-05	4.48E-05
1.08E-04	1.08E-04	1.08E-04	1.08E-04
7.25E-01	7.25E-01	7.25E-01	7.25E-01
2.17E-04	2.16E-04	2.15E-04	2.14E-04
4.25E+00	4.05E+00	3.86E+00	3.68E+00
1.24E-05	1.18E-05	1.13E-05	1.07E-05
8.57E-05	8.51E-05	8.46E-05	8.41E-05
9.73E-05	9.55E-05	9.39E-05	9.23E-05
2.69E-03	2.69E-03	2.69E-03	2.69E-03
6.76E-04	6.75E-04	6.73E-04	6.72E-04
1.73E+00	1.73E+00	1.73E+00	1.73E+00
1.76E-04	1.76E-04	1.76E-04	1.76E-04
1.68E-02	1.68E-02	1.68E-02	1.68E-02
8.18E-04	8.18E-04	8.18E-04	8.18E-04
1.96E-04	1.96E-04	1.96E-04	1.96E-04
1.26E-04	1.26E-04	1.26E-04	1.26E-04
3.31E-01	3.31E-01	3.31E-01	3.31E-01
3.39E-05	3.39E-05	3.38E-05	3.38E-05
6.43E-01	6.43E-01	6.43E-01	6.43E-01
1.79E-04	1.79E-04	1.79E-04	1.79E-04
1.25E-04	1.25E-04	1.25E-04	1.25E-04
1.16E-03	1.16E-03	1.16E-03	1.16E-03

1.70E-02	1.70E-02	1.70E-02	1.70E-02
3.13E-04	3.01E-04	2.90E-04	2.79E-04
4.27E+00	4.13E+00	4.06E+00	4.96E+00
1.51E-04	1.51E-04	1.51E-04	1.51E-04
3.55E-02	3.55E-02	3.55E-02	3.55E-02
3.23E-01	3.23E-01	3.23E-01	3.23E-01
6.10E+00	6.10E+00	6.10E+00	6.10E+00
2.19E-02	2.19E-02	2.19E-02	2.19E-02
8.04E-05	7.65E-05	7.28E-05	6.92E-05
1.95E-02	1.95E-02	1.94E-02	1.94E-02
2.53E-02	2.53E-02	2.53E-02	2.53E-02
1.03E+00	1.03E+00	1.03E+00	1.03E+00
6.01E-04	6.01E-04	6.01E-04	6.01E-04
8.35E-03	8.35E-03	8.35E-03	8.35E-03
2.61E-01	2.61E-01	2.61E-01	2.61E-01
1.75E-04	1.75E-04	1.75E-04	1.75E-04
1.71E-02	1.71E-02	1.71E-02	1.71E-02
6.37E-05	6.37E-05	6.37E-05	6.37E-05
1.45E-03	1.45E-03	1.45E-03	1.45E-03
1.12E-02	1.12E-02	1.12E-02	1.12E-02
5.96E-02	5.96E-02	5.96E-02	5.96E-02
2.56E-02	2.56E-02	2.56E-02	2.56E-02
4.04E-05	4.04E-05	4.04E-05	4.04E-05
3.81E-02	3.81E-02	3.81E-02	3.81E-02
1.16E-01	1.15E-01	1.15E-01	1.15E-01
8.33E-01	8.33E-01	8.33E-01	8.33E-01
7.63E-03	7.63E-03	7.62E-03	7.61E-03
1.59E+00	1.59E+00	1.59E+00	1.59E+00
2.28E+01	2.24E+01	2.22E+01	2.29E+01
6.10E+00	6.10E+00	6.10E+00	6.10E+00
Hg	Hg	Hg	Hg

APPENDIX G- HCL EMISSIONS FROM ORGANIC CARBON IN THE VADOSE ZONE PROJECT

Response to Questions From IDEQ concerning OCVZ and HCl Release

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January 2017

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ABSTRACT

This paper addresses questions by the IDEQ concerning the methodology for operations and calculation of the OCVZ contaminant mass removal and subsequent HCl releases. Many of the documents cited in this paper are available through the INL Electronic Data Management System (EDMS). Because of their size and volume they will not be attached.

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ACRONYMS

ARP	Accelerated Retrieval Project
B&K	Bruel and Kajar photoacoustic gas analyzer
CCN	Correspondence Control Number
Cl2	chlorine
CWI	CH2M-Hill LLC
DOE	Department of Energy
EDMS	Electronic Document Management System
EPA	Environmental Protection Agency
HCl	hydrogen chloride
ICP	Idaho Cleanup Project
INL	Idaho National Laboratory
IDEQ	Idaho Department of Environmental Quality
OCVZ	Organic Contamination in the Vadose Zone
SCFM	standard cubic feet per minute
TVOC	total volatile organic compounds
VOC	volatile organic compound
VVET	vapor vacuum extraction and treatment

1. QUESTIONS PRESENTED BY IDEQ

On December 13, 2016, during a conference call, the Idaho Department of Environmental Quality (IDEQ) presented a number of questions regarding the clarification of emissions from Operable Unit 7-13/14 OCVZ (Organic Contamination in the Vadose Zone) operations for calendar years 2012 and 2013. The following are the questions that were developed as a result of that conference call and the following sections are the OCVZ Project response to those questions.

1. What is the methodology for determining the mass destruction of chlorinated organic contaminants for 2012 & 2013?
2. What are the calculations used to determine the emission volumes of hydrogen chloride (HCl) for 2012 & 2013?
3. For Fiscal Years 2012 & 2013 which wells were operational during those time frames?
4. What is the maximum operational flowrate for the OCVZ system and the flowrate used to estimate the maximum potential emissions?
5. Provide the reference to the agreement between ICP, IDEQ and EPA discussing the use of the deep well for the first time in December of 2015?
6. Discuss the discontinuation of the Thermatrix thermal units and startup of the Catalytic Oxidation Units.
7. Please provide an approximation of the percentage of VOCs removed, by the Accelerated Retrieval Project, within the volume of influence of the vapor vacuum extraction and treatment system during 2005.

2. MASS DESTRUCTION AND HCl CALCULATION

This section answers questions 1 & 2 above.

The three OCVZ units run continuously and process samples are taken daily during staffed operations. The system cannot continuously sample and analyze the entire vapor that passes through the catalyst, thus the daily samples and weekly analysis is performed. This gives us a snapshot of the total VOC passing through the system at for a point in time for each day.

The samples are analyzed weekly and the results feed directly into a database on a secure server. The analytical data provide the contaminant concentrations that feed into the mass removal calculations along with flowrates and operating time intervals. These are done by Riemann sum integration of concentrations and process flow over the intervals of operation. This method allows numerical integration with the non-uniformly spaced data points available. These are performed by a web application written for this purpose, and used to provide mass removal reporting to the agencies.

The Riemann sum integration takes into account:

1. The flow rates for each unit, which are entered into the database as part of the operational record.
2. Operations or "run time" for each unit, which is entered into the database as part of the operational record.
3. The concentration analyzed for each sample taken for that week, which is automatically entered into the database.

The mass removal and other aspects of operation are documented in the annual letter report[a] which is issued on a fiscal year basis. For the years in question of 2012 and 2013, these reports are referenceable by CCN 314439 and CCN 315816 respectively.

There is a difference between the mass numbers in the annual reports and the values used for HCl emissions because the former are reported by fiscal year and the latter by calendar year.

HCl release calculations begin with the contaminant mass removal calculations described above. For a given time interval, the HCl releases are determined from the mass removal by the decomposition stoichiometry of each contaminant; effectively the removal of carbon from these molecules. This is performed in an Excel spreadsheet. With fixed chemistry and nearly constant proportions of contaminants this results in effectively a constant ratio between mass removed and HCl released, as shown in Figure 1.

The HCl calculations for 2013 are shown in tables 1 and 2, performed in Excel. In this example the annual removal of carbon tetrachloride is 393 pounds. This is converted by molecular weight of 154 to 2.55 moles. There are 4 moles of Cl per molecule, and this is split between the generation of HCl and Cl2 in fixed proportions of 0.914, and 0.086 respectively. This results in 9.34 moles of chlorine generated as HCl, and 0.879 moles of Chlorine generated at Cl2. Multiplying these by their respective molecular weights of 36.5 for HCl and 35.5 for Cl2 gives the effluent attributable to carbon tetrachloride for this interval, and a similar process is followed for the other contaminants and combined for the total.

The uncontrolled variable in the process is the concentration of contaminants. We operate the process in a way to favor maximum mass extraction, and measure the resulting concentrations by running process samples on a gas analyzer. The effectiveness of the remedy and the effect of source term removal are demonstrated by the decline in contaminant concentrations over time, which follows a classic first order decay curve.

An illustrated example of the calculation process from start to finish is given in tables 3 through 8. All units ran continuously at constant flowrates during the weeks of September 4 through 10, September 11 through 17, September 18 through 24, and September 25 through October 1, 2013. The concentrations of each contaminant are provided for each unit, as analyzed on a B&K photoacoustic analyzer and entered automatically into a database. The web application gives the resulting mass removal by compound. The mass removal for all units for these intervals is summarized in Table 4. These values are entered as inputs to Tables 5 through 8 for the individual weeks. This is the same method used to report HCl and chlorine releases on an annual basis.

3. WELLS IN USE AND FLOW RATES DURING 2012 & 2013

This section answers questions 3 & 4 above.

The wells which are used during a given fiscal year are documented in the annual letter report to DOE and the agencies. For the years in question of 2012 and 2013, these reports are referenceable by CCN 314439 and CCN 315816 respectively. In addition; log sheets which are printed from the SCADA system are day and time stamped and identify the wells which were in use, flow rates, temperatures and pressures for that given day. These log sheets are archived and available in the INL Electronic Document Management System (EDMS).

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a. RPT-1528, Fiscal Year 2016 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance (November 2016)

Process flow rates are setpoint controlled and do not change frequently. The flowrate history is given for each unit in Tables 9 through 14. This history is the data output of OCVZ Data System which is part of the Operations Record. The reliability issues mentioned for units A, B, and C are indicated by the gaps in the intervals of flowrate data. For instance, the first operational interval for Unit A in Table 9 ends on 3-18-1996, and operations do not resume until the beginning of the next interval on 4-1-1996. This represents an inoperable period of 14 days.

The maximum nominal design flow for all units is 500 scfm. The units have never been run at this rate. Units E and F are currently run at 425 scfm, and unit D at 325 scfm. These values are effective operational upper limits to prevent fatal process alarms from excess back pressure in the catalyst bed, and to prevent component failures from excess wear and fatigue. Within these limits the units are operated at the maximum feasible flows. The OCVZ Operations and Maintenance Plan (DOE/ID-11393[b]) also identifies the operational limits.

4. USE OF THE DEEP WELLS

This section answers question 5 above.

Deep wells have been available at all OCVZ units but they had not been used for production based on the concern that pulling vapor from deep locations might draw contaminants down from shallow areas with higher concentrations.

In December of 2015, a proposal M-1349 (See Appendix A) was sent to DOE and the agencies proposing to revisit the policy prohibiting the use of OCVZ deep wells for production. The case was made that the deep vapor well represented the last chance to capture and destroy VOC's before they descend toward the aquifer and that these deep wells should be employed for OCVZ soil vapor recovery and treatment.

On December 9, 2015 IDEQ sent a letter (DEQ Letter, see Appendix A) concurring with the proposal to use OCVZ deep wells for mass removal.

Also on December 9, 2015 the EPA sent a letter (EPA Letter, See Appendix A) concurring with the proposal to use the OCVZ deep wells for mass removal.

5. SWITCH FROM THERMAL TO CATOX UNITS

This section answers question 6 above.

The original OCVZ units (A, B, and C) (DOE ROD, 1994[c]) were propane-fired thermal oxidizers installed in 1996. Due to the high initial contaminant concentrations they were quite effective at mass removal when they were operating, but they were plagued with problems and unreliable. For this reason they were replaced with units D in 2001, and E and F in 2004. The new electrically-fired catalytic oxidizers are quite reliable and this led to an initial increase in mass removal rate, followed by a gradual decline as contaminant concentrations declined. This decline has been due to source term removal by the

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b. DOE/ID-11393, Operable Unit 7-13/14 Operations and Maintenance Plan (April 2014)

c. DOE-ID, *Record of Decision: Declaration for Organic Contamination in the Vadose Zone OU 7-08, Idaho National Engineering Laboratory, Radioactive Waste Management Complex, Subsurface Disposal Area,* Administrative Record No. 5671, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10, and Idaho Department of Health and Welfare, 1994.

ARP project starting in 2004, and by the effectiveness of the OCVZ process in carrying out its intended purpose of remediation.

In December of 2000, Unit C suffered a catastrophic failure and was decommissioned. The existing units A & B were approaching their lifespan and based on material fatigue and processing conditions (lack of run-time) the decision was made to conduct a feasibility study and cost benefit analysis to replace the two units. Catalytic Oxidation systems were identified as the best option. The feasibility study conducted in 2002 (INEEL/EXT-02-00655[d]) discusses the issues of lifespan and material fatigue and the need to switch to a more reliable technology.

6. VOCS REMOVED BY THE ACCELERATED RETRIEVAL PROJECT

This section answers question 7 above.

The Accelerated Retrieval Project was designed to retrieve targeted waste and high-concentration organic solvent waste from a minimum of 5.69 acres of pit areas in the RWMC Subsurface Disposal Area. (DOE/ID-11359[e]) The volume or percentage of VOCs removed were never calculated nor were they ever required to be calculated.

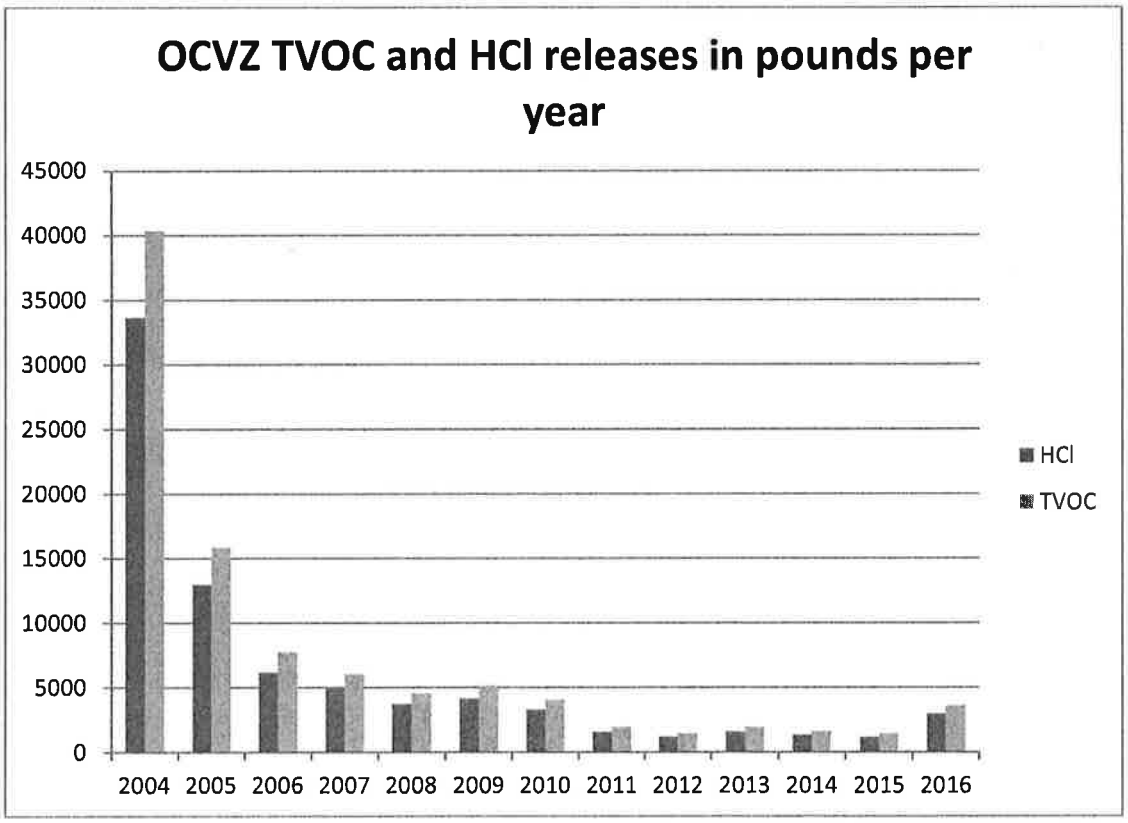

Figure 1. OCVZ TVOC and HCl Releases in Pounds Per Year.

d. INEEL/EXT-02-00665, Vapor Vacuum Extraction with Carbon Adsorption Feasibility Study and Cost Benefit Analysis for Operable Unit 7-08 (October 2002)

e. DOE/ID-11359, Record of Decision for Radioactive Waste Management Complex Operable Unit 7-13/14 (October 2008)

Table 1. OCVZ VOC Totals (Requested Date Range 01/01/2013 to 12/31/2013).

VOCs Removed (lbs)						
Ex. Unit and Sample Date Range	CCL4	CHCl3	PCE	TCA	TCE	Total
Unit D (1/2/2013 9:33:00 AM to 12/24/2013 7:53:00 AM)	84.42	341.38	147.43	146.56	132.50	852.29
Unit E (1/2/2013 9:37:00 AM to 12/24/2013 7:57:00 AM)	127.01	190.65	40.00	54.75	84.05	496.46
Unit F (1/2/2013 9:26:00 AM to 12/24/2013 7:46:00 AM)	181.89	162.76	46.68	71.79	114.39	577.51
Total:	393.32	694.79	234.11	273.10	330.94	1,926.27

Runtimes			
Ext. Unit	Run Time (Days)	Stopped Time (Days)	%Run
Unit D	364.73	0.27	99.9%
Unit E	364.88	0.12	100.0%
Unit F	364.52	0.48	99.9%

Table 2. HCl Release Calculations for all vapor vacuum extraction (VVET) Units for 2013.

Mass Extracted in CY 2013 by all Unis, Pounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
Totals	695	273	234	331	393
Molecular Weights	119.5	133.5	166	131.5	154
Moles of Converted Compounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	5.81	2.05	1.41	2.52	2.55
Moles Cl per Mole Conversion					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
	3	3	4	3	4
Total Chlorine Fraction to HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
	0.914	0.914	0.914	0.914	0.914
Total chlorine fraction to Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
	0.086	0.086	0.086	0.086	0.086
Moles of Cl generated as HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	15.94	5.61	5.16	6.90	9.34
Total over all Units					42.95
convert moles Cl to pounds HCl - multiply by					36.5
Pounds of HCl released for 2013					1,568
Moles of Cl generated as Cl2					
All Units	1.500049	0.527789	0.485144	0.649297	0.87854
Total Over All Units					4.04
convert moles Cl to pounds - multiply by					35.5
Pounds of Cl2 released for 2013					143

Table 3. Illustration of Calculations for OCVZ Mass Removal and HCl Generation (2013).

	Week 1 9-4 to 9-10	Week 2 9-11 to 9-17	Week 3 9-18 to 9-24	Week 4 9-25 to 10-1
Unit D Process Flow, scfm	325	325	325	325
		Concentrations, ppm		
CHCl3	9.08	5.71	6.33	4.93
1,1,1-TCA	0.71	0.74	0.58	1.15
PCE	5.26	2.11	4	1.99
TCE	7.22	3.28	5	2.48
CCl4	8.96	5.23	7.88	3.11
		Mass Removal		
CHCl3	9.28	5.91	5.73	5.96
1,1,1-TCA	0.8	0.92	0.72	1.09
PCE	7.56	2.99	3.78	3.52
TCE	7.96	3.62	3.86	3.5
CCl4	11.56	6.67	9.24	8.55
Unit E Process Flow, scfm	425	425	425	425
		Concentrations, ppm		
CHCl3	4.96	3.24	2.93	2.27
1,1,1-TCA	0.04	0.21	0.19	0.14
PCE	2.65	1.33	1.11	1.02
TCE	4.06	2.53	1.82	1.8
CCl4	5.35	4.08	5.39	4.06
		Mass Removal		
CHCl3	5.69	3.91	4.7	2.49
1,1,1-TCA	0	0.29	0.14	0.12
PCE	4.88	2.21	3.14	1.44
TCE	5.79	3.2	3.73	2.04
CCl4	8.99	6.57	9.45	6.45
Unit F Process Flow, scfm	425	425	425	425
		Concentrations, ppm		
CHCl3	7.74	5.71	4.73	1.73
1,1,1-TCA	0.49	0.3	0.33	0.69
PCE	4.18	2.66	2.21	0.97
TCE	6.93	4.61	3.85	2.2
CCl4	9.78	7.71	7.87	3.23
		Mass Removal		
CHCl3	9.47	6.2	6.19	3.82
1,1,1-TCA	0.58	0.62	0.42	1.15
PCE	7.56	3.82	3.77	2.41
TCE	9.61	5.64	5.11	3.88
CCl4	15.58	11.47	13.88	9.82

Table 4. Mass Total for All Units for Intervals Shown in Table 3.

CHC13	24.44	16.02	16.62	12.27
1,1,1,-TCA	1.38	1.83	1.28	2.36
PCE	20	9.02	10.69	7.37
TCE	23.36	12.46	12.7	9.42
CCl4	36.13	24.71	32.57	24.82

Table 5. HCl Release Calculations for all VVET Units for Week 1.

Mass Extracted by All Units, Pounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
Total	24.44	1.38	20.00	23.56	36.13
Molecular weights					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.20	0.01	0.12	0.18	0.23
Moles of Converted Compounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.20	0.01	0.12	0.18	0.23
Moles Cl per Mole Conversion					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	3	3	4	3	4
Total Chlorine Fraction to HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.914	0.914	0.914	0.914	0.914
Total Chlorine Faction to Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.086	0.086	0.086	0.086	0.086
Moles of Cl Generated as HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.56	0.03	0.44	0.49	0.86
Total Over All Units					2.37
convert moles Cl to pounds HCl - multiply by					36.5
Pounds of Cl2 released for week 1					87
Moles of Cl Generated as Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.052766	0.002667	0.041446	0.045832	0.080706
Total Over All Units					0.22
convert moles Cl to pounds HCl - multiply by					35.5
Pounds of Cl2 released for week 1					8

Table 6. HCl Release Calculations for all VVET Units for Week 2.

Mass Extracted by All Units, Pounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
Total	16.02	1.83	9.02	12.46	24.71
Molecular weights					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	119.5	133.5	166	131.5	154
Moles of Converted Compounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.13	0.01	0.05	0.09	0.16
Moles Cl per Mole Conversion					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	3	3	4	3	4
Total Chlorine Fraction to HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.914	0.914	0.914	0.914	0.914
Total Chlorine Faction to Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.086	0.086	0.086	0.086	0.086
Moles of Cl Generated as HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.37	0.04	0.20	0.26	0.59
Total Over All Units					1.45
convert moles Cl to pounds HCl - multiply by					36.5
Pounds of Cl2 released for week 2					53
Moles of Cl Generated as Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.034587	0.003537	0.018692	0.024446	0.055196
Total Over All Units					0.14
convert moles Cl to pounds HCl - multiply by					35.5
Pounds of Cl2 released for week 2					5

Table 7. HCl Release Calculations for all VVET Units for Week 3.

Mass Extracted by All Units, Pounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
Total	16.62	1.28	10.69	12.70	32.57
Molecular weights					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	119.5	133.5	166	131.5	154
Moles of Converted Compounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.14	0.01	0.06	0.10	0.21
Moles Cl per Mole Conversion					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	3	3	4	3	4
Total Chlorine Fraction to HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.914	0.914	0.914	0.914	0.914
Total Chlorine Faction to Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.086	0.086	0.086	0.086	0.086
Moles of Cl Generated as HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.38	0.03	0.24	0.26	0.77
Total Over All Units					1.68
convert moles Cl to pounds HCl - multiply by					36.5
Pounds of Cl2 released for week 3					61
Moles of Cl Generated as Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.035883	0.002474	0.022153	0.024917	0.072754
Total Over All Units					0.16
convert moles Cl to pounds HCl - multiply by					35.5
Pounds of Cl2 released for week 3					6

Table 8. HCl Release Calculations for all VVET Units for Week 4.

Mass Extracted by All Units, Pounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
Total	12.27	2.36	7.37	9.42	24.82
Molecular weights					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	119.5	133.5	166	131.5	154
Moles of Converted Compounds					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.10	0.02	0.04	0.07	0.16
Moles Cl per Mole Conversion					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	3	3	4	3	4
Total Chlorine Fraction to HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.914	0.914	0.914	0.914	0.914
Total Chlorine Faction to Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.086	0.086	0.086	0.086	0.086
Moles of Cl Generated as HCl					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.28	0.05	0.16	0.20	0.59
Total Over All Units					1.28
convert moles Cl to pounds HCl - multiply by					36.5
Pounds of Cl2 released for week 4					47
Moles of Cl Generated as Cl2					
	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
All Units	0.026491	0.004561	0.015273	0.018482	0.055442
Total Over All Units					0.12
convert moles Cl to pounds HCl - multiply by					35.5
Pounds of Cl2 released for week 4					4

Table 9. Unit A Flow Rates.

Start Date	End Date	Flow Rate (ft^3/s)
1/4/1996 12:00:00 AM	3/18/1996 11:59:59 PM	400
4/1/1996 12:00:00 AM	5/13/1996 11:59:59 PM	400
5/28/1996 12:00:00 AM	7/11/1996 11:59:59 PM	400
7/22/1996 12:00:00 AM	11/7/1996 11:59:59 PM	400
1/6/1997 12:00:00 AM	4/3/1997 11:59:59 PM	400
5/6/1997 12:00:00 AM	7/24/1997 11:59:59 PM	416
9/4/1997 12:00:00 AM	12/31/1997 11:59:59 PM	422
1/1/1998 12:00:00 AM	6/30/1998 11:59:59 PM	422
7/1/1998 12:00:00 AM	12/31/1998 11:59:59 PM	422
1/1/1999 12:00:00 AM	12/31/1999 11:59:59 PM	422
1/1/2000 12:00:00 AM	12/31/2000 11:59:59 PM	422
1/1/2001 12:00:00 AM	7/17/2001 5:30:00 PM	422
7/17/2001 5:31:00 PM	9/30/2001 11:59:59 PM	400
10/1/2001 12:00:00 AM	9/30/2002 11:59:59 PM	400
10/1/2002 12:00:00 AM	9/30/2003 11:59:59 PM	400

Table 10. Unit B Flow Rates.

Start Date	End Date	Flow Rate (ft^3/s)
1/4/1996 12:00:00 AM	3/18/1996 11:59:59 PM	394
4/1/1996 12:00:00 AM	5/13/1996 11:59:59 PM	391
5/28/1996 12:00:00 AM	7/11/1996 11:59:59 PM	391
7/22/1996 12:00:00 AM	11/7/1996 11:59:59 PM	390
1/6/1997 12:00:00 AM	4/3/1997 11:59:59 PM	421
5/6/1997 12:00:00 AM	7/24/1997 11:59:59 PM	389
9/4/1997 12:00:00 AM	12/31/1997 11:59:59 PM	394
1/1/1998 12:00:00 AM	6/30/1998 11:59:59 PM	394
7/1/1998 12:00:00 AM	12/31/1998 11:59:59 PM	422
1/1/1999 12:00:00 AM	12/31/1999 11:59:59 PM	422
1/1/2000 12:00:00 AM	12/31/2000 11:59:59 PM	422
1/1/2001 12:00:00 AM	7/17/2001 5:30:00 PM	422
7/17/2001 5:31:00 PM	9/30/2001 11:59:59 PM	400
10/1/2001 12:00:00 AM	9/30/2002 11:59:59 PM	400
10/1/2002 12:00:00 AM	9/30/2003 11:59:59 PM	400

Table 11. Unit C Flow rates.

Start Date	End Date	Flow Rate (ft^3/s)
1/4/1996 12:00:00 AM	3/18/1996 11:59:59 PM	256
4/1/1996 12:00:00 AM	5/13/1996 11:59:59 PM	250
5/28/1996 12:00:00 AM	7/11/1996 11:59:59 PM	250
7/22/1996 12:00:00 AM	11/7/1996 11:59:59 PM	250
1/6/1997 12:00:00 AM	4/3/1997 11:59:59 PM	256
5/6/1997 12:00:00 AM	7/24/1997 11:59:59 PM	249
9/4/1997 12:00:00 AM	12/31/1997 11:59:59 PM	249
1/1/1998 12:00:00 AM	6/30/1998 11:59:59 PM	249
7/1/1998 12:00:00 AM	12/31/1998 11:59:59 PM	249
1/1/1999 12:00:00 AM	12/31/1999 11:59:59 PM	320
1/1/2000 12:00:00 AM	12/31/2000 11:59:59 PM	320

Table 12. Unit D Flow Rates.

Start Date	End Date	Flow Rate (ft^3/s)
7/17/2001 5:31:00 PM	9/30/2001 11:59:59 PM	400
10/1/2001 12:00:00 AM	9/30/2002 11:59:59 PM	400
10/1/2002 12:00:00 AM	9/30/2003 11:59:59 PM	400
10/1/2003 12:00:00 AM	9/30/2004 11:59:59 PM	400
10/1/2004 12:00:00 AM	9/30/2005 11:59:59 PM	400
10/1/2005 12:00:00 AM	10/17/2005 1:59:00 PM	400
10/17/2005 2:00:00 PM	12/1/2005 8:00:00 AM	375
12/5/2005 8:00:00 AM	2/16/2006 8:29:00 AM	320
2/20/2006 8:20:00 AM	12/14/2006 9:47:00 AM	300
12/14/2006 9:48:00 AM	9/27/2007 8:00:00 AM	292
10/1/2007 10:52:00 AM	3/27/2008 8:38:00 AM	305
3/31/2008 9:30:00 AM	6/9/2008 1:01:00 PM	300
6/10/2008 10:48:00 AM	2/12/2009 8:26:00 PM	310
2/16/2009 10:22:00 AM	10/22/2009 9:30:00 AM	350
10/22/2009 9:31:00 AM	11/30/2009 10:15:00 AM	250
11/30/2009 10:16:00 AM	12/7/2009 9:30:00 AM	360
12/7/2009 9:31:00 AM	5/26/2010 8:00:00 AM	330
5/26/2010 8:01:00 AM	6/3/2010 9:00:00 AM	255
6/3/2010 9:01:00 AM	3/23/2016 8:29:00 AM	300
3/23/2016 8:30:00 AM	3/23/2056 12:00:00 AM	325

Table 13. Unit E Flow Rates.

Start Date	End Date	Flow Rate (ft^3/s)
10/1/2003 12:00:00 AM	9/30/2004 11:59:59 PM	400
10/1/2004 12:00:00 AM	9/30/2005 11:59:59 PM	400
10/1/2005 12:00:00 AM	10/17/2005 1:59:00 PM	400
10/17/2005 2:00:00 PM	11/17/2005 8:27:00 AM	365
11/21/2005 8:00:00 AM	1/30/2006 11:35:00 AM	280
2/14/2006 11:30:00 AM	2/16/2006 8:18:00 AM	265
2/20/2006 8:29:00 AM	12/15/2008 2:16:00 PM	400
12/16/2008 5:29:00 PM	12/18/2008 4:01:00 PM	365
12/22/2008 12:06:00 PM	2/16/2009 11:47:00 AM	360
2/18/2009 4:40:00 PM	10/29/2009 9:10:00 AM	400
10/29/2009 9:11:00 AM	11/5/2009 8:34:00 AM	280
11/5/2009 8:35:00 AM	11/12/2009 8:00:00 AM	375
11/12/2009 2:25:00 PM	6/29/2016 7:59:00 AM	400
6/29/2016 8:00:00 AM	1/1/2020 12:00:00 AM	425

Table 14. Unit F Flow Rates.

Start Date	End Date	Flow Rate (ft^3/s)
10/1/2003 12:00:00 AM	9/30/2004 11:59:59 PM	400
10/1/2004 12:00:00 AM	1/25/2005 11:59:00 PM	300
1/26/2005 12:00:00 AM	10/17/2005 1:59:00 PM	400
10/17/2005 2:00:00 PM	11/17/2005 8:39:00 AM	295
11/21/2005 8:00:00 AM	12/5/2005 8:31:00 AM	400
12/6/2005 8:31:00 AM	3/9/2006 9:30:00 AM	265
3/13/2006 10:23:00 AM	4/25/2006 2:40:00 PM	400
4/26/2006 4:30:00 PM	8/14/2006 3:11:00 PM	300
8/14/2006 3:12:00 PM	10/8/2007 9:47:00 AM	400
10/8/2007 10:34:00 AM	10/12/2007 5:23:00 AM	255
10/15/2007 10:11:00 AM	10/29/2007 8:52:00 AM	400
10/29/2007 9:05:00 AM	11/5/2007 7:54:00 AM	350
11/5/2007 8:03:00 AM	11/12/2007 9:24:00 AM	400
11/12/2007 9:45:00 AM	11/26/2007 9:36:00 AM	290
11/27/2007 2:19:00 PM	11/27/2007 2:21:00 PM	300
11/28/2007 11:29:00 AM	4/10/2008 8:15:00 AM	360
4/14/2008 7:55:00 AM	10/16/2008 8:07:00 AM	400
10/16/2008 8:44:00 AM	11/5/2008 7:56:00 AM	385
11/6/2008 8:10:00 AM	10/22/2009 8:59:00 AM	400
10/22/2009 9:00:00 AM	10/29/2009 8:45:00 AM	375
10/29/2009 8:46:00 AM	11/12/2009 8:24:00 AM	255
11/12/2009 8:25:00 AM	6/29/2016 7:59:00 AM	400
6/29/2016 8:00:00 AM	1/1/2020 12:00:00 AM	425

Appendix A

Reference Material

Appendix A

Proposal M-1349

Proposal To Use the Organic Contamination in the Vadose Zone Deep Wells for Mass Removal

1. PURPOSE

The purpose of this proposal is to revisit the policy prohibiting the use of organic contamination in the vadose zone (OCVZ) deep wells for production such that the policy will be revised and deep wells can be used for OCVZ vapor vacuum extraction with treatment (VVET) soil vapor recovery and treatment.

2. METHOD BACKGROUND

VVET is part of the selected remedy method for Waste Area Group 7 (Radioactive Waste Management Complex) as described in the Operable Unit 7-13/14 Record of Decision (DOE-ID 2008). The VVET process has been operating since 1996 and has removed over 243,000 lb of chlorinated organic contaminants to date. There are three VVET processing units, designated D, E, and F, shown in Figure 1. Each unit draws vapor from several wells, with extraction intervals indicated in Figure 2.

Deep wells are available at all OCVZ units but they have not been used for production based on the concern that pulling vapor from deep locations might draw contaminants down from shallow areas with higher concentrations.

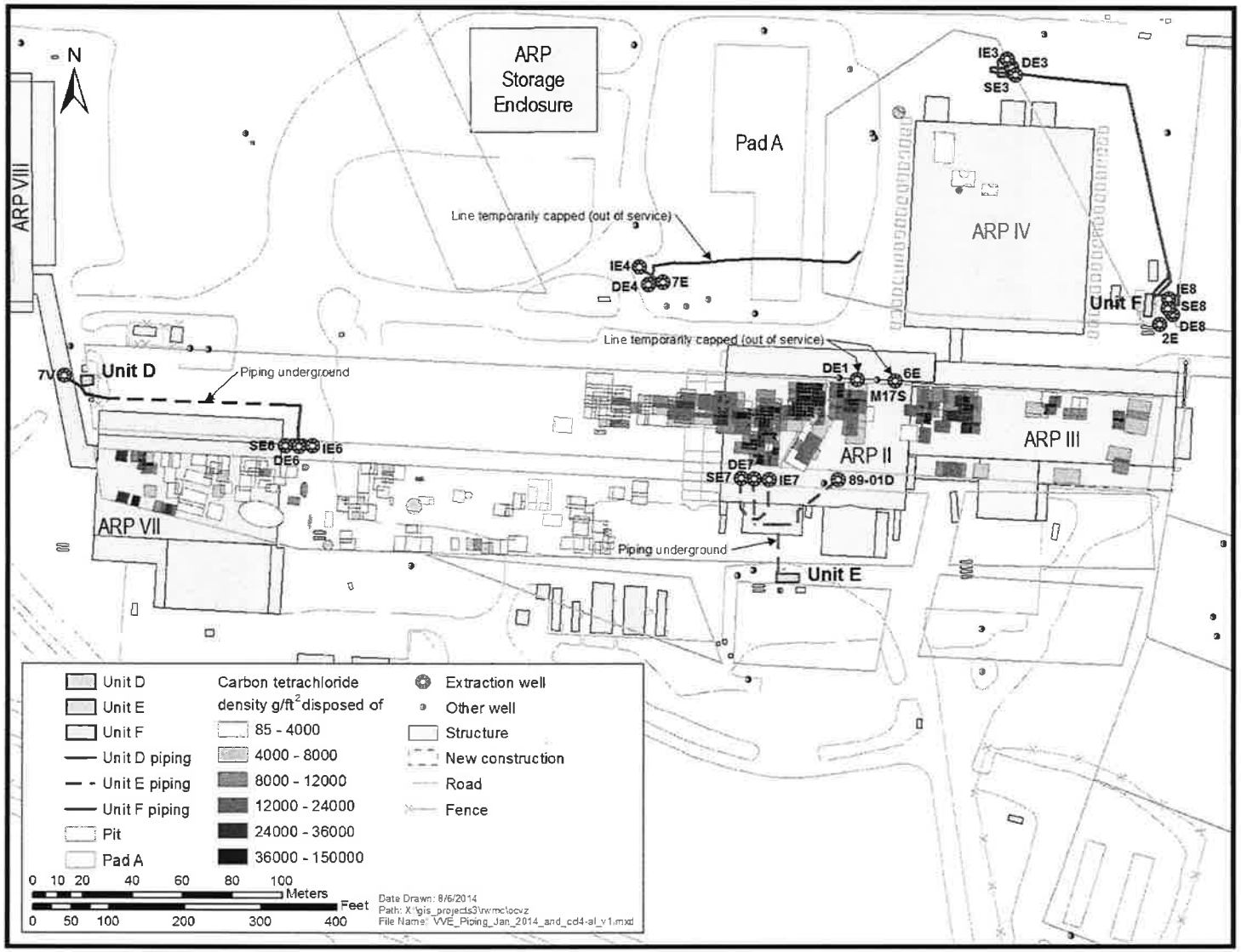

Figure 1. Vapor vacuum extraction with treatment unit locations at the Radioactive Waste Management Complex.

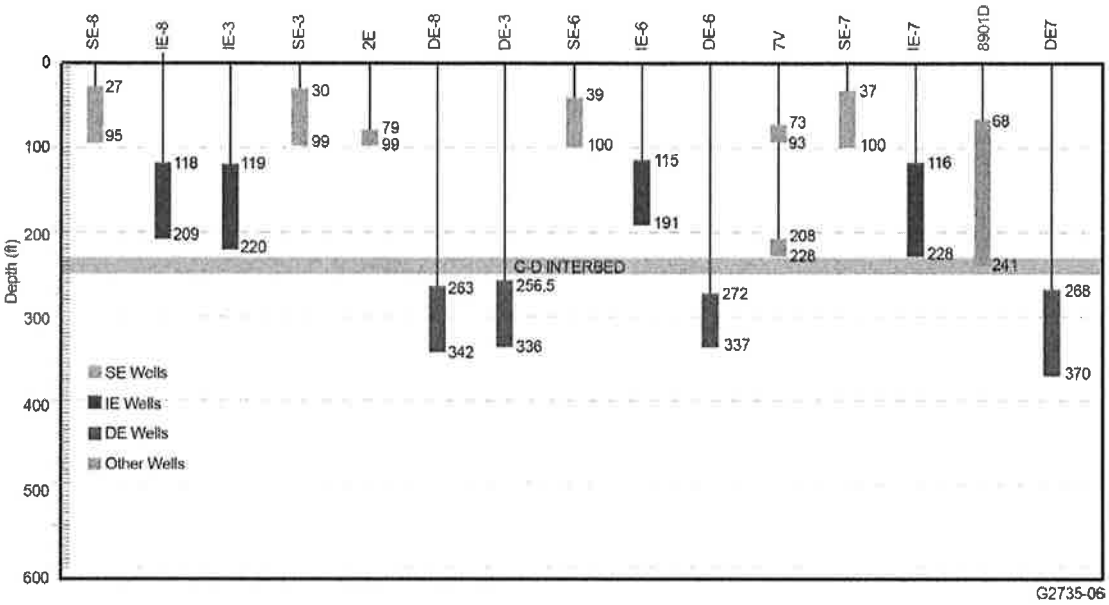

Figure 2. Organic contamination in the vadose zone production well extraction intervals.

3. METHOD RESULTS FOR ALL WELLS

In general, the OCVZ VVET process has been successful in reducing the concentrations in production wells, as shown in Table 1. The volatile organic compound (VOC) concentrations shown in Table 1 result from samples taken at the treatment units during the annual well cycling test. Per Section 3.3.7 of the Operations and Maintenance Plan (Lopez, Cresap, and Holdren 2014), each OCVZ unit is configured to draw from a single well for a week and a process sample is drawn for each well. The deep wells and wells that do not produce adequate flow are only drawn from long enough to obtain one representative sample (a few minutes).

Table 1. Organic contamination in the vadose zone carbon tetrachloride concentrations (in ppmv) by well and year.

Unit	Well	Extraction Interval (ft)	Year				
			2011	2012	2013	2014	2015
F	SE-8	27 to 95	2.9	2.46	2.55	1.61	1.24
F	IE-8	118 to 209	1.71	1.64	1.51	1.24	1.02
F	IE3	119 to 220	4.22	3.58	2.9	2.33	2.13
F	SE3	30 to 99	2.49	1.53	2.16	1.43	1.02
F	2E	79 to 99	—[a]	1.67	2.25	0.961	2.25
F	DE8	263 to 342	—	6.33	6.42	0.832	4.31
F	DE3	256.5 to 336	—	6.35	5.65	4.71	1.64
D	SE6	39 to 100	1	2.37	0.226	0.332	0.63
D	IE6	115 to 191	1.82	1.66	1.51	1.27	1.27
D	DE6	272 to 337	—	1.88	0.383	0.1	2.61
D	7V	73 to 93; 208 to 228	0.93	—	3.24	1.52	1.31
E	SE7	37 to 100	0.8	1.41	0.835	0.921	0.59
E	IE7	116 to 228	1.08	1.58	1.31	0.959	1.18
E	8901D	68 to 241	—	1.31	—	0.958	1.13
E	DE7	268 to 370	—	1.86	4.52	1.31	3.7

a. — indicates unable to sample.

4. METHOD RESULTS FOR DEEP WELLS

Table 2 gives the most recent vapor concentrations from all the static sampling ports in the deep extraction wells. These ports are isolated from the extraction interval of the wells. It appears that the VOC concentrations above the C-D interbed are no greater than the concentrations below the interbed.

Table 2. Vapor concentration depth profiles.

Well and Port No.	Date[a]	Depth (ft)	Chloroform (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	Carbon Tetrachloride (ppmv)	TVOC (ppmv)
DE-3								
5	11/2/2015	127	1.84	0.53	0.28	0.81	1.13	4.59
4	10/5/2015	219	2.69	0.75	0.34	1.60	2.97	8.35
(C-D interbed)								
3	1/5/2015	390	1.84	0.81	0.36	0.54	0.44	3.99
2	1/5/2015	445	1.93	0.80	0.26	0.69	0.54	4.22
1	11/2/2015	483	3.36	1.55	0.29	0.55	1.32	7.08
DE-6								
5	11/2/2015	135	1.46	0.36	0.19	0.76	1.08	3.85
4	11/2/2015	220	1.67	0.37	0.37	0.85	1.64	4.90
(C-D interbed)								
3	11/2/2015	366	4.44	1.44	0.91	1.11	2.03	9.93
2	11/2/2015	407	1.48	0.27	0.3	0.52	0.58	3.15
1	11/2/2015	443	1.25	0.21	0.28	0.51	0.65	2.90
DE-7								
5	11/3/2015	170	1.9	0.52	0.29	0.72	1.08	4.51
4	11/3/2015	225	2.86	1.13	0.29	1.53	3.19	9.00
(C-D interbed)								
3	11/3/2015	408	2.86	0.95	0.23	0.57	0.49	5.10
2	11/3/2015	434	1.97	0.79	0.43	1.57	4.79	9.55
1	11/3/2015	453	1.41	0.51	0.24	0.43	0.83	3.42
DE-8								
5	11/2/2015	186	3.17	0.4	0.29	1.06	1.34	6.26
4	11/2/2015	219	4.21	0.87	0.49	1.98	7.57	15.12
(C-D interbed)								
3	11/2/2015	353	1.89	0.88	0.45	1.44	4.69	9.35
2	11/2/2015	378	1.96	0.88	0.45	1.3	4.51	9.10
1	11/2/2015	445	1.91	1.01	0.43	1.11	3.95	8.41
DE-1	Currently sampled but not available for extraction[b]							
(C-D interbed)								
4	11/2/2015	292	2.5	1.14	0.37	1.11	1.61	6.73
3	11/2/2015	343	1.91	0.57	0.44	1.09	2.29	6.30
2	11/2/2015	375	2.74	1.35	0.62	1.67	4.33	10.71
1	11/2/2015	396	2.76	1.1	1.14	3.6	7.88	16.48

Table 2. (continued)

Well and Port No.	Date[a]	Depth (ft)	Chloroform (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	Carbon Tetrachloride (ppmv)	TVOC (ppmv)
DE-4	Currently sampled but not available for extraction[b]							
5	11/2/2015	183	6.81	1.01	0.54	2.3	4.51	15.17
4	11/2/2015	218	2.82	1.03	0.45	1.36	2.66	8.32
(C-D interbed)								
3	11/2/2015	392	3.58	1.8	0.42	1.18	3.75	10.73
2	11/2/2015	414	1.66	0.42	0.35	0.7	2.3	5.43
1	1/6/2015	441	2.83	0.8	0.22	0.37	0	4.22

a. Some of the dates for the DE-3 and DE-4 ports are earlier because they did not yield during the last round of sampling.

b. All of the deep wells except DE-1 and DE-4 are currently available for processing.

PCE tetrachloroethylene
TCA trichloroethane
TCE trichloroethylene
TVOC total volatile organic compounds

5. METHOD TO MITIGATE CONCERN OVER VOC DRAWDOWN

As the data presented in Section 4 shows, the concern regarding drawing contamination downward by using the deep intervals may no longer be valid. However, if concern remains over the potential to draw down VOCs, this could be mitigated by using the wells in combination. All the wells have flow control valves, and the valve opening of the deep wells can be limited relative to the shallow wells. This would permit use of the deep wells and still maintain an upward pressure gradient within the vadose zone. By maintaining an upward pressure gradient, the possibility of downward vapor movement would be minimized.

6. CONCLUSION

The deep vapor wells represent the last chance to capture VOCs before they descend toward the aquifer. Use of the deep production wells may increase the overall mass removal rate.

7. RECOMMENDATION

These deep wells should be employed for OCVZ VVET soil vapor recovery and treatment. The rate of mass removal will be monitored to determine whether an increase occurs.

8. REFERENCES

DOE-ID, 2008, *Record of Decision for Radioactive Waste Management Complex Operable Unit 7-13/14*, DOE/ID-11359, Rev. 0, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Environmental Quality, October 2008.

Lopez, Steve L., Dale A. Cresap, and K. Jean Holdren, 2014, *Operable Unit 7-13/14 Operations and Maintenance Plan*, DOE/ID-11393, Rev. 1, U.S. Department of Energy Idaho Operations Office, April 2014.

DEQ Letter

STATE OF IDAHO
DEPARTMENT OF
ENVIRONMENTAL QUALITY

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C.L. "Butch" Otter, Governor
John H. Tippets, Director

December 9, 2015

Elamin Almahie
Idaho Cleanup Project
U.S. Department of Energy
Idaho Operations Office MS 1222
1955 Fremont Avenue
Idaho Falls, Idaho 83415

Re: DEQ review of *Proposal to Use the Organic Contamination in the Vadose Zone Deep Wells* for Mass Removal

Dear Mr. Almahie:

On December 3, 2015, the Idaho Department of Environmental Quality (DEQ) electronically received a white paper for the *Proposal to Use the Organic Contamination in the Vadose Zone Deep Wells for Mass Removal* for review. The DEQ has completed its review of the above referenced paper and concurs with the proposal. If you have any questions, please contact me at (208) 373- 0217.

Sincerely,

Ted Livieratos for
Daryl Koch
FFA/CO Manager

cc: Nolan Jensen, DOE-ID, MS 1222
Ted Livieratos, DEQ-WMRD
Dennis Faulk, USEPA, Region X
Christopher Guzzetti, USEPA, Region X

EPA Letter

U.S. ENVIRONMENTAL PROTECTION AGENCY
HANFORD PROJECT OFFICE
825 Jadwin Ave., Suite #210
Richland, WA 99352

December 9, 2015

Elamin Almahie
Idaho Cleanup Project
U.S. Department of Energy
Idaho Operations Office MS 1222
1955 Fremont Avenue
Idaho Falls, ID 83415

RE: *Proposal to Use the Organic Contamination in the Vadose Zone Deep Wells for Mass Removal*

Dear Mr. Almahie,

The U.S Environmental Protection Agency, Hanford/INL Project Office, has reviewed the above-referenced document and concurs with the proposal. If you have any questions, please contact me at (509) 376-9529.

Sincerely,

Christopher Guzzetti
Remedial Project Manager

cc: Nolan Jensen, DOE-ID, MS 1222
Daryl Koch, IDEQ
Ted Livieratos, IDEQ

CH2M•WG Idaho, LLC
P.O. Box 2010
Idaho Falls, Idaho 83403-2010
208-533-0411

December 6, 2012

CCN 314439

Ms. Laura Buelow, Remedial Project Manager
USEPA Region 10 – Hanford Project Office
309 Bradley Blvd., Suite 115
Richland, WA 99352

Mr. Daryl F. Koch, FFA/CO Manager
Waste Management and Remediation Division
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

SUBJECT: Transmittal of the Fiscal Year 2012 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance

REFERENCE: DOE-ID, 2010, *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14*, DOE/ID-11389, Rev. 1, U.S. Department of Energy Idaho Operations Office

Dear Ms. Buelow and Mr. Koch:

Enclosed is the Fiscal Year 2012 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance, provided in accordance with Section 5.2 of the *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14* (DOE-ID 2010). This report summarizes operations and maintenance of the vapor vacuum extraction and treatment system and Pad A at the Subsurface Disposal Area. In the future, this letter report will support the 5-year operations and maintenance report planned for 2015 (DOE-ID 2010) and the next 5-year review of CERCLA response actions at the Idaho National Laboratory Site.

CH2M-WG Idaho, LLC (CWI) submits this document, as authorized by the U.S. Department of Energy. If you have any questions concerning this document or suggestions for the format and content of future reports, please contact Doug Pruitt, DOE-ID (208) 526-2311 or Brandt Meagher, CWI (208) 520-6554.

Sincerely,

Frank Walker for

M. E. Brown, Vice President
ARP/Ops Tech Support/D&D

BGM:mp

Enclosure

cc: (w/Enc.)
P. K. Bowers, DOE-ID, MS 1226
T. J. Dieter, CWI, MS 9101
D. Faulk, EPA
N. R. Jensen, DOE-ID, MS 1222
M. R. Lewis, CWI, MS 9103
K. C. O'Neill, DOE-ID, MS 1222
D. M. Pruitt, DOE-ID, MS 1222

bcc: (w/Enc.)
B. N. Burton, MS 9301
D. A. Cresap, MS 9301
K. J. Holdren, MS 9120 KJH
J. J. Jessmore, MS 9301
B. G. Meagher, MS 9120 BGM
S. L. Lopez, MS 9301
F. L. Webber, MS 9120 FLW
OU 7-13/14 Project File #23378
Correspondence Control, MS 9150
M. E. Brown Letter File (MEB-103-12)

Uniform File Code: 6102
Disposition Authority: ENV1-h-1
Retention Schedule: Cutoff at submission of the final financial report for the site, or after resolution of all issues, whichever is later. Destroy 10 years after cutoff with written approval from the EPA award official.

NOTE: Original disposition authority, retention schedule, and Uniform Filing Code applied by the sender may not be appropriate for all recipients. Make adjustments as needed.

Fiscal Year 2012 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance

Dale Cresap

INTRODUCTION

This annual operations and maintenance (O&M) letter report for Fiscal Year (FY) 2012 summarizes O&M performed for organic contamination in the vadose zone (OCVZ) vapor vacuum extraction and treatment (VVET) and Pad A at the Radioactive Waste Management Complex (RWMC) under Operable Unit (OU) 7-13/14. Remediation is being implemented under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq., 1980) and the Idaho National Laboratory (INL) Site's Federal Facility Agreement and Consent Order (DOE-ID 1991) in accordance with the OU 7-13/14 Record of Decision (DOE-ID 2008) and related controlling documents (e.g., work plans). This letter report fulfills the annual O&M reporting requirement specified in the Phase 1 Work Plan (DOE-ID 2010) and the OU 7-13/14 O&M Plan (Lopez et al. 2009). Further information about remedy selection, remedial design, and other topics related to OCVZ and Pad A is available in the Administrative Record (see http://ar.inel.gov/home.html). O&M of OCVZ and Pad A meet requirements and these components of the overall selected remedy for OU 7-13/14 are protective. This letter report will support the 5-year O&M report planned for 2014 (DOE-ID 2010) and future 5-year reviews of CERCLA response actions at the INL Site.

OCVZ MASS REMOVAL

Removal of volatile organic compounds (VOCs) from the vadose zone at RWMC progressed steadily in all three VVET units, as shown in Table 1 and Figures 1 through 5. The units ran nearly continuously at a setpoint-controlled flow rate. Fluctuations in the rate of mass removal are caused primarily by variation in VOC concentrations. The mass removal rates have declined over the years of the project for several reasons, including source removal, depletion of the vadose zone concentrations, and the temporary loss of productive wells for all three units to facilitate Accelerated Retrieval Project (ARP) construction.

Table 1. Summary of mass removed.

Vapor Vacuum Extraction and Treatment Unit	Fiscal Year 2012		Cumulative[a]	
	CCl_4 (lb)	Total VOCs (lb)	CCl_4 (lb)	Total VOCs (lb)
Unit D	90	560	21,285	47,201
Unit E	155	385	41,163	68,621
Unit F	227	531	75,030	122,085
Total	**472**	**1,476**	**137,478**	**237,907**

a. Cumulative total since beginning of operations in January 1996. Total includes mass removed by the original units (i.e., Units A, B, and C). Unit D replaced Unit C in 2001. In 2004, Unit E replaced Unit B and Unit F replaced Unit A.

CCl_4 carbon tetrachloride
VOC volatile organic compound

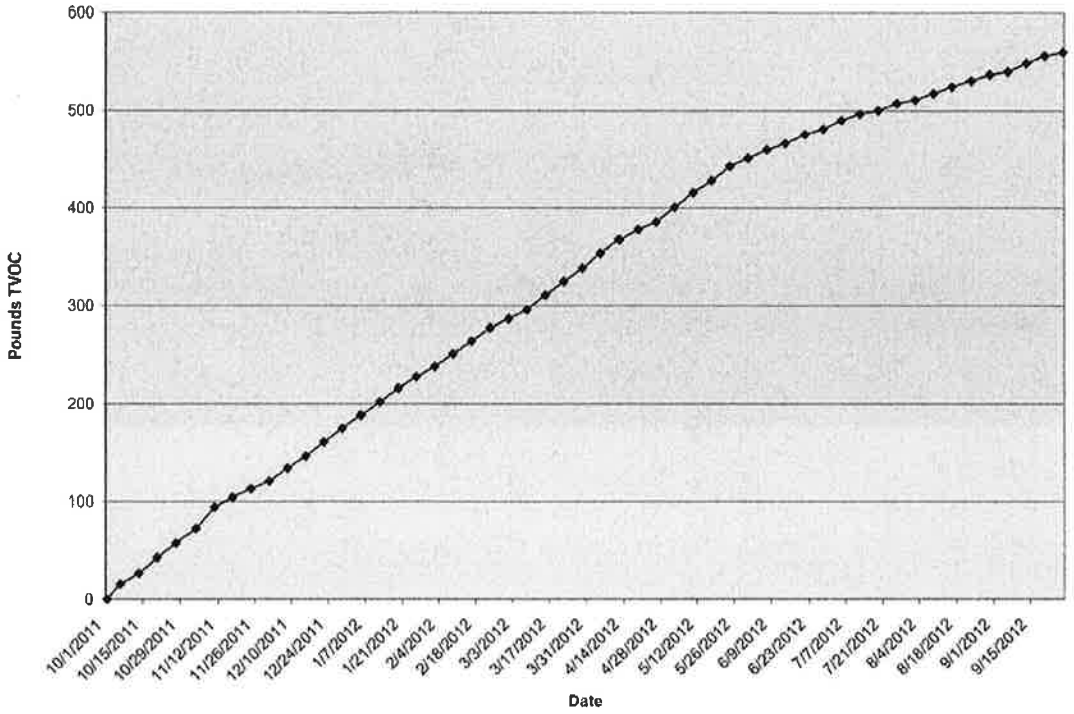

Figure 1. Total volatile organic compounds removed in Fiscal Year 2012 by Unit D.

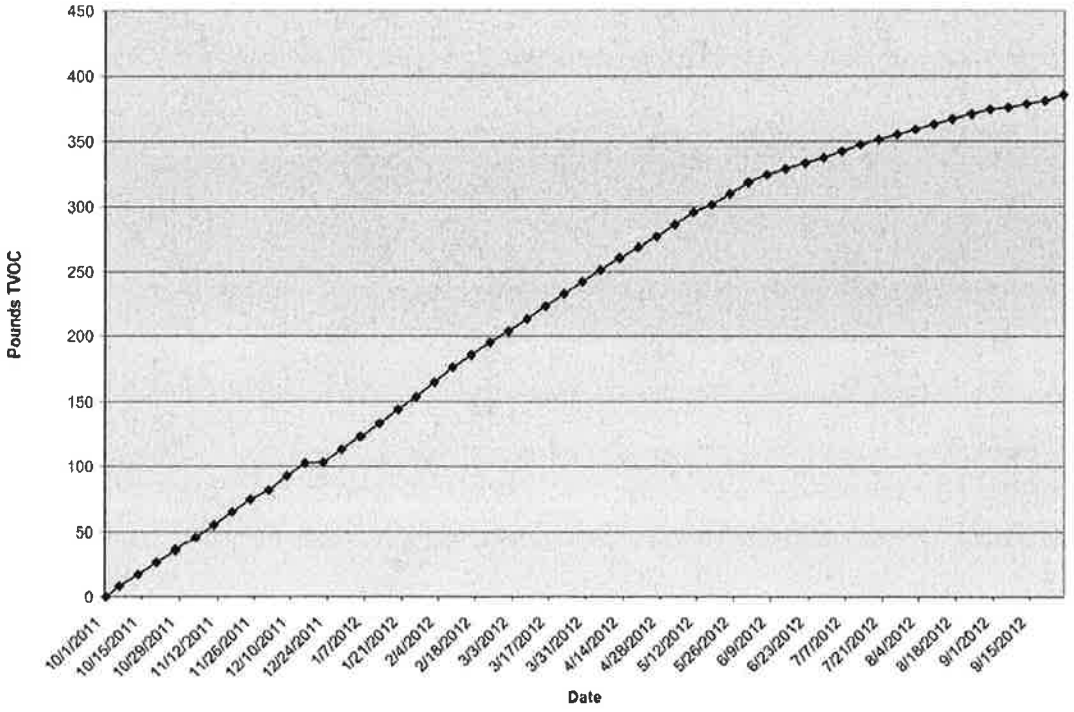

Figure 2. Total volatile organic compounds removed in Fiscal Year 2012 by Unit E.

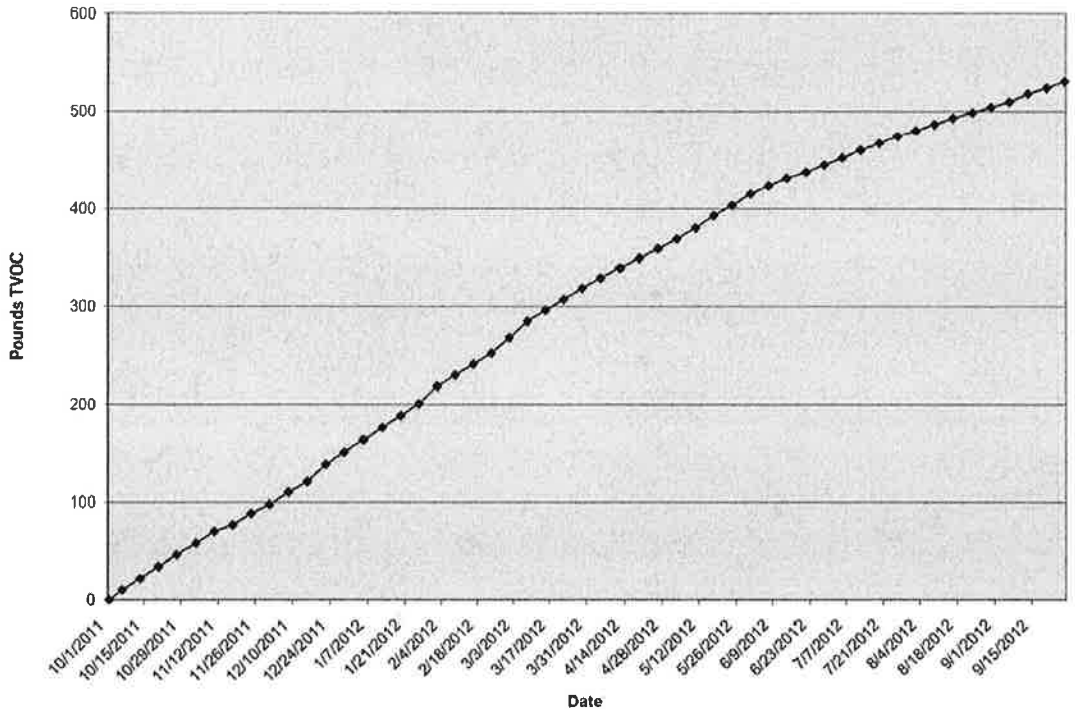

Figure 3. Total volatile organic compounds removed in Fiscal Year 2012 by Unit F.

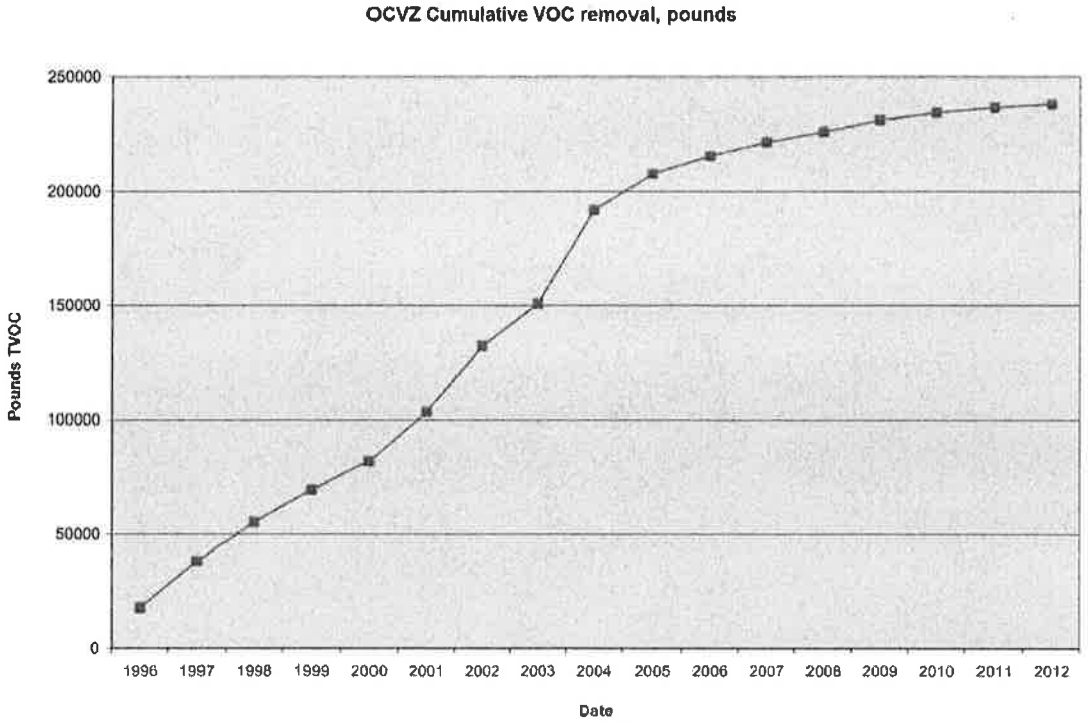

Figure 4. Cumulative total volatile organic compounds removed since operations began in 1996.

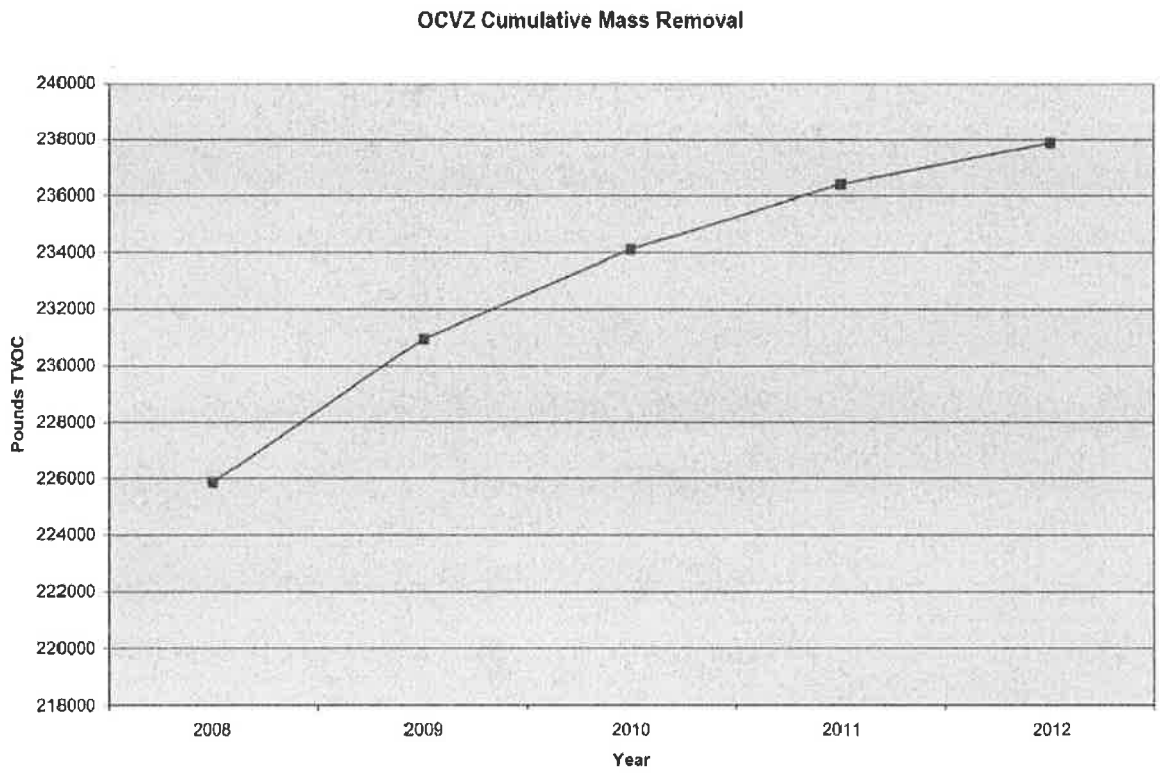

Figure 5. Cumulative OCVZ mass removal for the last 5 years.

A web-based application calculates mass removal based on process flow rate, time, and process inlet concentrations. Concentrations are from process samples taken daily and analyzed weekly, with results stored in the OCVZ data collection and reporting system database. Results are reported monthly on the last Thursday of the accounting calendar month.

Five VOCs are monitored: carbon tetrachloride (CCl_4), trichloroethylene (TCA), tetrachloroethylene (PCE), 1,1,1-trichloroethane (TCE), and chloroform ($CHCl_3$). Of these, carbon tetrachloride is the predominant VOC in the source and in the extracted mass. Figure 6 illustrates the relative amounts of these five contaminants extracted to date. Relative amounts of the five VOCs did not change compared to those reported in the previous annual letter report.

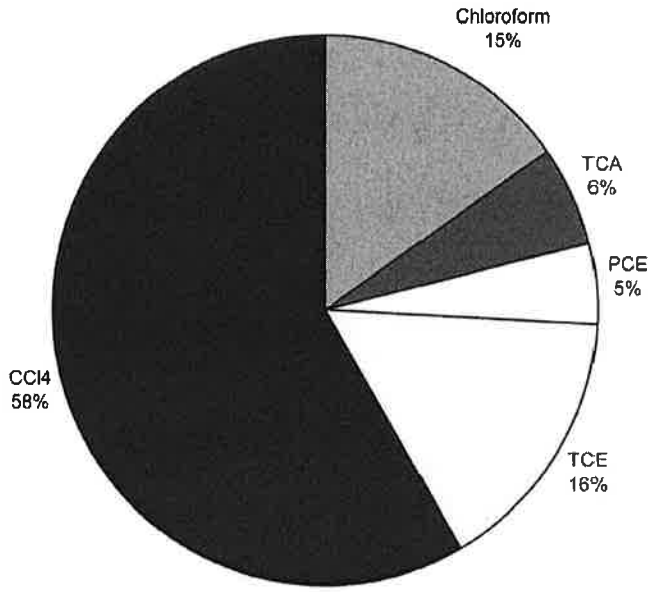

Figure 6. Relative amounts of five volatile organic compounds extracted through Fiscal Year 2012 (i.e., as of September 30, 2012).

OCVZ OPERATIONS AND MAINTENANCE

This section summarizes FY 2012 O&M, including run-time and down time for each unit, monitoring, and modifications to the units and well infrastructure.

Operations

Qualified personnel (e.g., operators, technicians, and system engineers) maintain and monitor VVET system operations every workday (i.e., Monday through Thursday) by checking the system, sampling, and maintaining status logs. Daily system checks on all three OCVZ units consist of:

1. Verifying that process parameters are within range via the remote supervisory control and data acquisition (SCADA) system
2. Physically verifying that units are in good running condition by:
    a. Checking for fluid leaks
    b. Listening for unusual noise
    c. Inspecting oil levels
    d. Examining the vapor liquid separator
3. Acquiring daily samples.

Each week personnel survey process equipment and analyze the daily samples.

Procedures and operator logbooks direct operation of the three units. VVET operations logbooks are used to record system operating data for flow, temperature, and pressure, and to guide the technician in completing routine surveillance of equipment conditions. The technician ensures that all systems are functioning properly while completing the logbooks.

Operations and Performance Monitoring

To ensure the highest destruction and contaminant removal efficiency, personnel strive to keep the three VVET units in continuous operation. Table 2 identifies operational run-times for FY 2012 by VVET unit. The system experienced very little down time, and most of that was for construction or power outages.

Table 2. Operational run-times by unit in Fiscal Year 2012.

Vapor Vacuum Extraction and Treatment Unit	Run-Time (%)	Down-Time (Days)
Unit D	98	5.7
Unit E	96	15.3
Unit F	99	5
	98% average	26 total

In addition to continuous operation, maximizing the contaminant mass that is processed through the system is key to destroying more VOCs. Influent and effluent vapor are sampled and analyzed to measure performance of the catalyst at the three units. Operators use performance monitoring combined with vadose zone vapor monitoring to select wells for extraction and rebound cycles to optimize operations. Influent and effluent vapor samples also reveal changes in the catalyst activity over time.

Annual well cycling tests show which wells were most productive, enabling the operations team to select wells individually or in combination to maximize the rate of mass removal. The results of the available data from well cycling and the flow characteristics and concentrations over the past 3 years indicate the best well combinations to use for production.

Process Effectiveness

Stack samples are drawn and analyzed routinely to monitor the effectiveness of the catalyst bed in destroying the organic contaminants. The results of these tests confirm the continued effectiveness of the process.

The process inlet stream concentrations have diminished over time and the catalyst beds continue to be highly efficient in destroying the VOC contaminants. As a result, contaminant concentrations in the exhaust are quite low, with some sample concentrations below the detection limit.

Maintenance

A maintenance schedule, including thorough checks of operating conditions and equipment, was developed and implemented to minimize operational problems (e.g., equipment failure). Maintenance was completed at various intervals, as recommended by manufacturer specifications and documented in

the O&M Plan (Lopez et al. 2009) and subsidiary documents. All required preventative maintenance (e.g., instrument calibration) was performed as scheduled in FY 2012.

Occasionally, the VVET system is shut down because of uncontrollable circumstances such as severe weather or power outages. Table 3 lists non-routine maintenance for each unit and the SCADA system in FY 2012.

Table 3. Non-routine maintenance in Fiscal Year 2012.

Component	Non-Routine Maintenance
VVET Unit D	Recovered from two processor faults October 2011
	Replaced input card causing the processor faults November 2011
	Took east well cluster out of service for ARP demolition June 2012
	Restored east well cluster to service August 2012
VVET Unit E	Restored lost communications to unit May 2012
	Service to HVAC system July – September 2012
VVET Unit F	None
SCADA	Transferred SCADA function to server.
	Resolved licensing issues.

OCVZ Unit Modifications

Modifications to the OCVZ system have been required over the past several years to accommodate construction of Accelerated Retrieval Project (ARP) retrieval enclosures and ancillary structures (see Figure 7). In FY 2012, the system piping from well 7V to OCVZ Unit D was redirected to provide the necessary clearance for ARP VIII passageway construction. Unit D was operational most of the time while work on well 7V was taking place, drawing from wells SE6 and IE6 that were still in service.

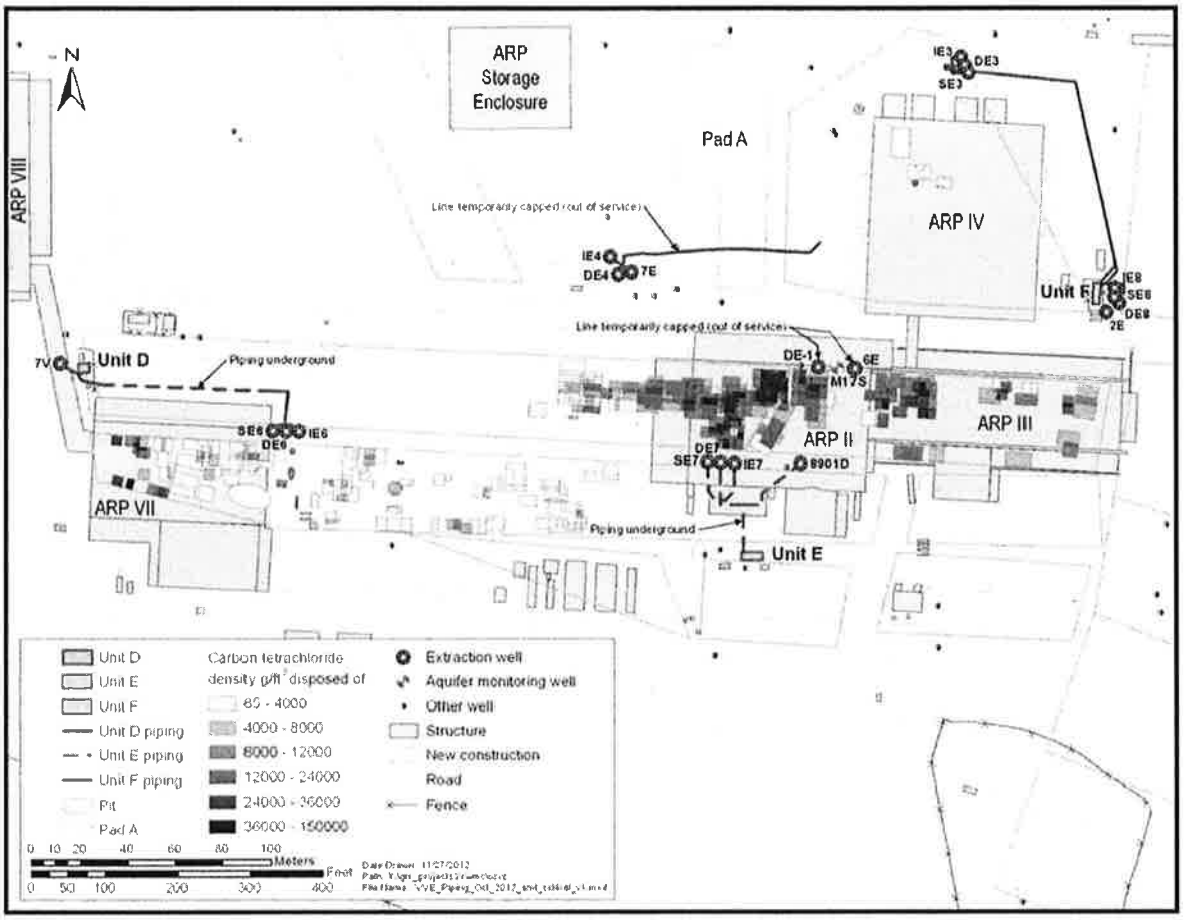

Figure 7. Vapor vacuum extraction and treatment system as modified to accommodate Accelerated Retrieval Project construction in the Subsurface Disposal Area.

OCVZ MONITORING

Vadose zone vapor ports are sampled and analyzed monthly or quarterly in accordance with the field sampling plan appended to the O&M Plan (Lopez et al. 2009). All results are stored in the OCVZ data collection and reporting system database. Sample ports are divided into regions and zones as shown in Figure 8. Region A is roughly equivalent to the SDA boundary. Concentrations shown are remediation goals for carbon tetrachloride (DOE-ID 2008).

Data from monitoring well vapor samples are used to assess effectiveness of the OCVZ remedial action. OCVZ uses 56 vapor monitoring wells. Each well has from one to nine vapor ports (not all of which are sampled), ranging in depth from 9.9 to 174.7 m (32.5 to 573 ft) below ground surface. Of the total of 166 vapor ports, 95 vapor ports are within the SDA, all of which are sampled monthly. Of the 71 vapor ports outside the SDA, 38 are sampled every month and 33 are sampled once a quarter. These numbers reflect current sampling, which has changed since the O&M Plan (Lopez et al. 2009) was issued. The sampling schedule will be updated the next time the O&M Plan is revised.

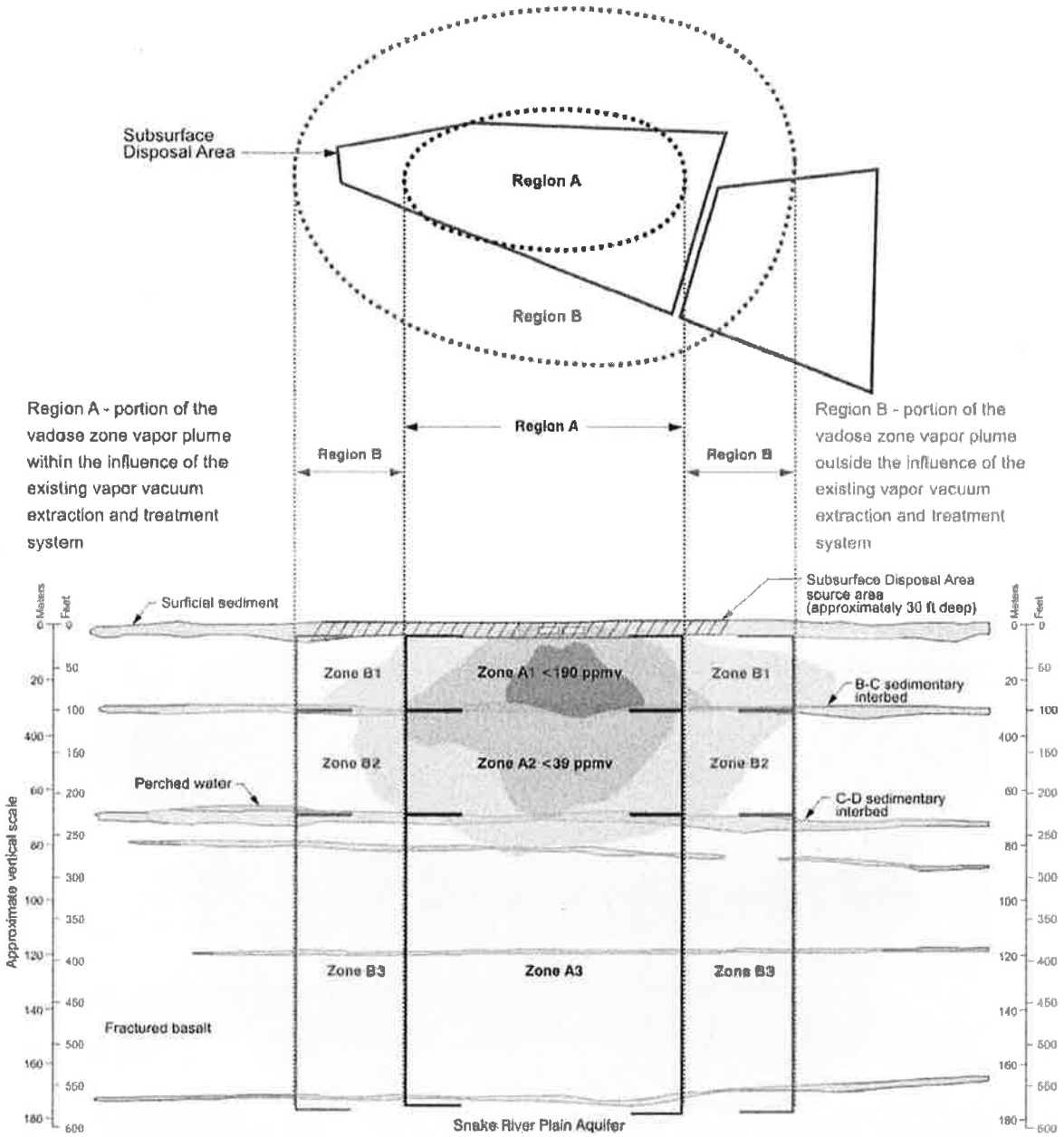

Figure 8. Sampling zones and cleanup levels for carbon tetrachloride vapors in the vadose zone to reduce concentrations in the aquifer to less than the maximum contaminant level of 5 μg/L.

Table 4 summarizes the highest detected concentrations in each zone. The OU 7-13/4 ROD (DOE-ID 2008) established remediation goals for Zones A1 and A2. Tables 5 and 6 list the 40 highest results in Zones A1 and A2, respectively. Samples did not exceed the remediation goal in Zone A1 in this reporting period. Only two locations, Well D02 Ports 5 & 8, exceeded the Zone A2 remediation goal. However, dynamic conditions from continuous VVET operations bias sample results below what they would be during static or rebound conditions. Therefore, these results do not indicate that remediation is nearly complete in either Zone A1 or A2. A terminal strategy for OCVZ operations will be developed in accordance with OU 7-13/14 requirements (DOE-ID 2010).

Table 4. Maximum detected carbon tetrachloride concentrations and remediation goals by sampling zone.

Sampling Zone	Number of Samples	Maximum Detected Concentration (ppmv CCl_4)	Mean of all samples in zone (ppmv CCl4)	Remediation Goal (ppmv CCl_4)
A1	358	44.7	3.80	190
A2	292	116	10.32	39
A3	206	11	3.25	Not applicable
B1	186	6.85	1.333	Not applicable
B2	181	14.3	3.18	Not applicable
B3	164	8.36	2.76	Not applicable

Table 5. Highest 40 vapor port concentrations in Zone A1.

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
D02	3	08-May-12	44.7	4.19	2.33	26.2	51.4
D02	3	05-Dec-11	43.8	3.95	2.4	23.8	49.9
D02	3	06-Feb-12	42.5	3.79	2.29	23.5	48
D02	3	31-Oct-11	40.2	3.38	2.4	22.3	45.8
D02	3	06-Aug-12	40.2	3.44	1.82	23.5	43
D02	3	02-Apr-12	40.1	3.61	2.16	22.5	45.3
D02	3	03-Jan-12	39.8	3.52	1.81	19.2	44.6
D02	3	05-Mar-12	37.7	3.53	1.48	17.5	41.6
D02	3	02-Jul-12	34.6	3.11	1.05	18.2	36.3
D02	3	05-Sep-12	31.6	2.74	0.549	14.7	31.8
D02	3	04-Oct-11	27.4	2.28	1.05	14.5	33.8
D02	3	04-Jun-12	21.7	2.37	1.1	11.3	24.9
IE6	2	31-Oct-11	20.5	9.06	6.82	11.8	16.8
IE4	1	31-Oct-11	18.4	7.48	5.5	10.4	28.4
IE4	2	05-Oct-11	17.5	7.65	5.1	9.15	30

Table 5. (continued).

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
IE4	1	05-Dec-11	16.6	6.37	4.6	9.41	24.5
IE4	1	03-Jan-12	14.7	6.97	4.92	9.07	26.3
IE4	1	06-Feb-12	14.6	6.91	4.94	9.23	26
IE4	1	02-Apr-12	14.2	5.89	4.33	8.45	23
IE4	1	06-Aug-12	14.2	4.08	3.34	7.09	15.6
IE4	1	08-May-12	13.8	5.65	4.02	8.36	22.8
IE4	1	04-Jun-12	13.5	5.49	3.78	7.93	21.2
IE4	1	05-Oct-11	13.4	6.68	4.37	7.18	25.6
IE4	1	05-Sep-12	13.1	3.64	2.77	6.02	14.1
IE4	1	05-Mar-12	12.8	6.28	4.28	7.59	23.6
IE4	1	02-Jul-12	12.4	4.19	3.07	6.21	15.4
IE6	2	05-Dec-11	12.1	7.68	4.58	8.47	15.7
IE6	2	03-Jan-12	8.21	6.68	3.7	6.74	14.8
8V	3	04-Jun-12	5.63	0.833	0.678	2.65	3.87
3E	2	31-Oct-11	5.48	0.376	0.687	3.04	2.74
3E	2	02-Jul-12	5.41	0.0143	0.499	2.62	1.62
8V	3	06-Mar-12	5.4	0.43	0.502	2.26	1.81
3E	2	05-Mar-12	5.37	0.0238	0.485	2.86	1.85
3E	3	02-Jul-12	5.16	1.16	0.671	2.89	2.4
8V	3	06-Aug-12	5.15	0.261	0.672	2.03	2.05
7V	3	01-Nov-11	5.13	0.627	0.481	1.98	1.5
3E	2	04-Jun-12	5.06	0.414	0.521	2.91	2.69
IE4	2	31-Oct-11	4.63	3.21	2.38	4.25	9.89
3E	3	05-Sep-12	4.57	0.794	0.422	2.75	1.29
3E	3	04-Jun-12	4.52	1.49	0.681	3.16	3.42

CCl_4 carbon tetrachloride
$CHCl_3$ chloroform
PCE tetrachloroethylene (perchloroethylene)
TCA 1,1,1-trichloroethane
TCE trichloroethylene

Table 6. Highest 40 vapor port concentrations in Zone A2.

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
D02	**8**	**06-Feb-12**	**116**	**5.4**	**2.64**	**28.9**	**21**
D02	**8**	**05-Dec-11**	**115**	**5.44**	**2.76**	**26.4**	**19.2**
D02	**8**	**02-Apr-12**	**111**	**4.5**	**2.6**	**23.9**	**18.8**
D02	**8**	**06-Aug-12**	**111**	**5.22**	**2.55**	**24.8**	**18.6**
D02	**8**	**05-Sep-12**	**106**	**4.54**	**2.47**	**25.9**	**17**
D02	**8**	**03-Jan-12**	**106**	**4.77**	**2.08**	**23.9**	**17.1**
D02	**8**	**02-Jul-12**	**105**	**5.23**	**2.49**	**22.8**	**18.9**
D02	**8**	**31-Oct-11**	**102**	**4.83**	**2.12**	**22.2**	**17**
D02	**8**	**05-Mar-12**	**100**	**4.87**	**2.61**	**21.7**	**16.5**
D02	**8**	**04-Jun-12**	**95.2**	**4.76**	**2.21**	**19.5**	**16.7**
D02	**8**	**04-Jun-12**	**95**	**4.82**	**2.36**	**21.8**	**18**
D02	**5**	**31-Oct-12**	**41.1**	**4.17**	**2.19**	**22.3**	**47.8**
6V	1	02-Jul-12	38.1	3.07	1.74	7.62	6.05
8V	1	05-Sep-12	36.5	2.42	1.43	5.33	3.7
8V	1	05-Sep-12	33.6	2.22	1.39	4.67	2.77
8V	1	08-May-12	33.5	2.94	1.47	5.22	6.13
8V	1	02-Apr-12	33.3	2.77	1.63	4.97	4.66
8V	1	06-Aug-12	33.1	3.3	3.73	5.95	4.47
8V	1	04-Jun-12	33	2.88	1.41	5.05	5.39
6V	1	04-Oct-11	31.7	2.62	1.43	5.96	5.57
8V	1	03-Jan-12	31.4	2.84	1.42	4.67	4.87
8V	1	07-Feb-12	29.6	2.62	1.28	4.23	4.73
8V	1	06-Mar-12	29.1	2.58	1.17	4.3	4.72
6V	1	06-Aug-12	29	1.87	1.26	5.86	3.5
8V	1	06-Dec-11	27.8	2.54	1.22	4.07	4.61
8V	2	02-Jul-12	27.3	1.54	1.21	5.99	2.45
8V	2	04-Jun-12	27.1	2.12	1.19	5.97	4.32
8V	2	05-Sep-12	27	1.45	1.11	5.59	2.01
8V	2	08-May-12	26.8	1.97	1.18	6.1	4.27
6V	1	02-Apr-12	26.7	2.3	1.47	5.98	4.8
6V	1	02-Jul-12	25.8	1.95	1.13	5.14	4.02
8V	2	02-Apr-12	25.7	1.88	1.22	5.86	3.53

Table 6. (continued).

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
8V	2	03-Jan-12	25.4	1.87	1.11	5.57	3.43
6V	1	05-Mar-12	23.9	2.3	1.34	4.82	5.07
8V	2	07-Feb-12	23.7	1.78	0.886	4.77	3.27
8V	2	06-Aug-12	23.6	1.51	1.41	4.64	2.23
8V	2	06-Mar-12	22.9	1.61	0.804	4.63	2.99
6V	1	06-Feb-12	22.6	2.11	1.32	5.35	4.82
8V	2	06-Dec-11	22.6	1.79	0.884	4.75	3.53
DE8	4	06-Aug-12	19.9	1.07	0.741	3.2	5.71

Bold concentrations exceed the Zone A2 remediation goal of 39 ppmv CCl_4.

CCl_4 carbon tetrachloride
$CHCl_3$ chloroform
PCE tetrachloroethylene (perchloroethylene)
TCA 1,1,1-trichloroethane
TCE trichloroethylene

PAD A OPERATIONS AND MAINTENANCE

The current plan for Pad A is to maintain its current state until a cap is constructed over the SDA (i.e., during the future Phase 3 of the OU 7-13/14 selected remedy). Pad A is inspected quarterly when not covered in snow, in accordance with requirements in the OU 7-13/14 O&M Plan (Lopez et al. 2009). Pad A was inspected four times in FY 2012: October 24, 2011, January 16, 2012, May 17, 2012, and August 23, 2012. Appendix B contains FY 2012 inspection forms and photographs. Inspectors noted encroaching weeds, areas of sparse vegetation, minor small animal intrusions, and subsidences typical of Pad A. Conditions generally were acceptable.

A minor subsidence was identified and filled in October and an animal intrusion was identified and filled in May. The subsidences and burrow hole were filled to their original height and slope, within 30 days of discovery, as suggested by the O&M Plan (Lopez et al. 2009). Weeding was performed in August. Several depressions persist in the soil cover that could allow localized ponding to occur; however, these areas have not developed into open subsidences.

REFERENCES

42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*, December 11, 1980, as amended.

DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory*, Administrative Docket No. 1088-06-29-120, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare.

DOE-ID, 2008, *Record of Decision for Radioactive Waste Management Complex Operable Unit 7-13/14*, DOE/ID-11359, Rev. 0, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Environmental Quality.

DOE-ID, 2010, *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14*, DOE/ID-11389, Rev. 1, U.S. Department of Energy Idaho Operations Office.

Lopez, Steve L., Michael D. Jorgensen, Dale A. Cresap, and K. Jean Holdren, 2009, *Operable Unit 7-13/14 Operations and Maintenance Plan*, DOE/ID-11393, Rev. 0, U.S. Department of Energy Idaho Operations Office.

CH2M•WG Idaho, LLC
1580 Sawtelle Street
Idaho Falls, Idaho 83402
208-533-0411

November 20, 2013

CCN 315816

Ms. Laura Buelow, Remedial Project Manager
USEPA Region 10 – Hanford Project Office
309 Bradley Blvd., Suite 115
Richland, WA 99352

Mr. Daryl F. Koch, FFA/CO Manager
Waste Management and Remediation Division
Idaho Department of Environmental Quality
1410 North Hilton
Boise, ID 83706-1255

SUBJECT: Transmittal of the Fiscal Year 2013 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance

REFERENCE: DOE-ID, 2013, *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14*, DOE/ID-11389, Rev. 2, U.S. Department of Energy Idaho Operations Office

Dear Ms. Buelow and Mr. Koch:

Enclosed is the Fiscal Year 2013 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance, provided in accordance with Section 5.2 of the *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14* (DOE-ID 2013). This report summarizes operations and maintenance of the vapor vacuum extraction and treatment system and Pad A at the Subsurface Disposal Area. In the future, this letter report will support the five-year operations and maintenance report planned for 2015 (DOE-ID 2013) and the next five-year review of CERCLA response actions at the Idaho National Laboratory Site.

CH2M-WG Idaho, LLC (CWI) submits this document, as authorized by the U.S. Department of Energy. If you have any questions concerning this document or suggestions for the format and content of future reports, please contact Elamin Almahie Yousif, DOE-ID (208) 526-8045 or Brandt Meagher, CWI (208) 520-6554.

Sincerely,

Paul Wichner for

M. E. Brown, Vice President
ARP/Ops Tech Support/D&D

BGM:mp

Enclosure

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S. L. Lopez, MS 9301
F. L. Webber, MS 9120
OU 7-13/14 Project File #23378
Correspondence Control, MS 9150
M. E. Brown Letter File (MEB-83-13)

Uniform File Code: 6102
Disposition Authority: ENV1-h-1
Retention Schedule: Cutoff at submission of the final financial report for the site, or after resolution of all issues, whichever is later. Destroy 10 years after cutoff with written approval from the EPA award official.

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Fiscal Year 2013 Annual Letter Report for Operable Unit 7-13/14 Operations and Maintenance

Dale Cresap

INTRODUCTION

This annual operations and maintenance (O&M) letter report for Fiscal Year (FY) 2013 summarizes O&M performed for organic contamination in the vadose zone (OCVZ) vapor vacuum extraction and treatment (VVET) and Pad A at the Radioactive Waste Management Complex (RWMC) under Operable Unit (OU) 7-13/14. Remediation is being implemented under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 USC § 9601 et seq., 1980) and the Idaho National Laboratory (INL) Site's Federal Facility Agreement and Consent Order (DOE-ID 1991) in accordance with the OU 7-13/14 Record of Decision (DOE-ID 2008) and related controlling documents (e.g., work plans). This letter report fulfills the annual O&M reporting requirement specified in the Phase 1 work plan (DOE-ID 2013) and the OU 7-13/14 O&M Plan (Lopez et al. 2009). Further information about remedy selection, remedial design, and other topics related to OCVZ and Pad A is available in the Administrative Record (see http://ar.inel.gov/home.html). The summary that follows is a synopsis of the preceding fiscal year, showing that O&M of OCVZ and Pad A meet requirements and that these components of the overall selected remedy for OU 7-13/14 are protective. This letter report will support the 5-year O&M report planned for 2015 (DOE-ID 2013) and future 5-year reviews of CERCLA response actions at the INL Site.

OCVZ MASS REMOVAL

Removal of volatile organic compounds (VOCs) from the vadose zone at RWMC progressed steadily in all three VVET units, as shown in Table 1 and Figures 1 through 5. The units ran nearly continuously at a setpoint-controlled flow rate. Fluctuations in the rate of mass removal are caused primarily by variation in VOC concentrations. The mass removal rates have declined over the years of the project for several reasons, including source removal, depletion of the vadose zone concentrations, and the temporary loss of productive wells for all three units to facilitate ARP construction.

Table 1. Summary of mass removed.

Vapor Vacuum Extraction and Treatment Unit	Fiscal Year 2013		Cumulative[a]	
	CCl_4 (lb)	Total VOCs (lb)	CCl_4 (lb)	Total VOCs (lb)
Unit D	91	846	21,375	48,043
Unit E	134	466	41,296	69,083
Unit F	189	551	75,219	122,632
Total	**414**	**1,863**	**137,890**	**239,758**

a. Cumulative total since beginning of operations in January 1996. Total includes mass removed by the original units (i.e., Units A, B, and C). Unit D replaced Unit C in 2001. In 2004 Unit E replaced Unit B and Unit F replaced Unit A.

CCl_4 carbon tetrachloride
VOC volatile organic compound

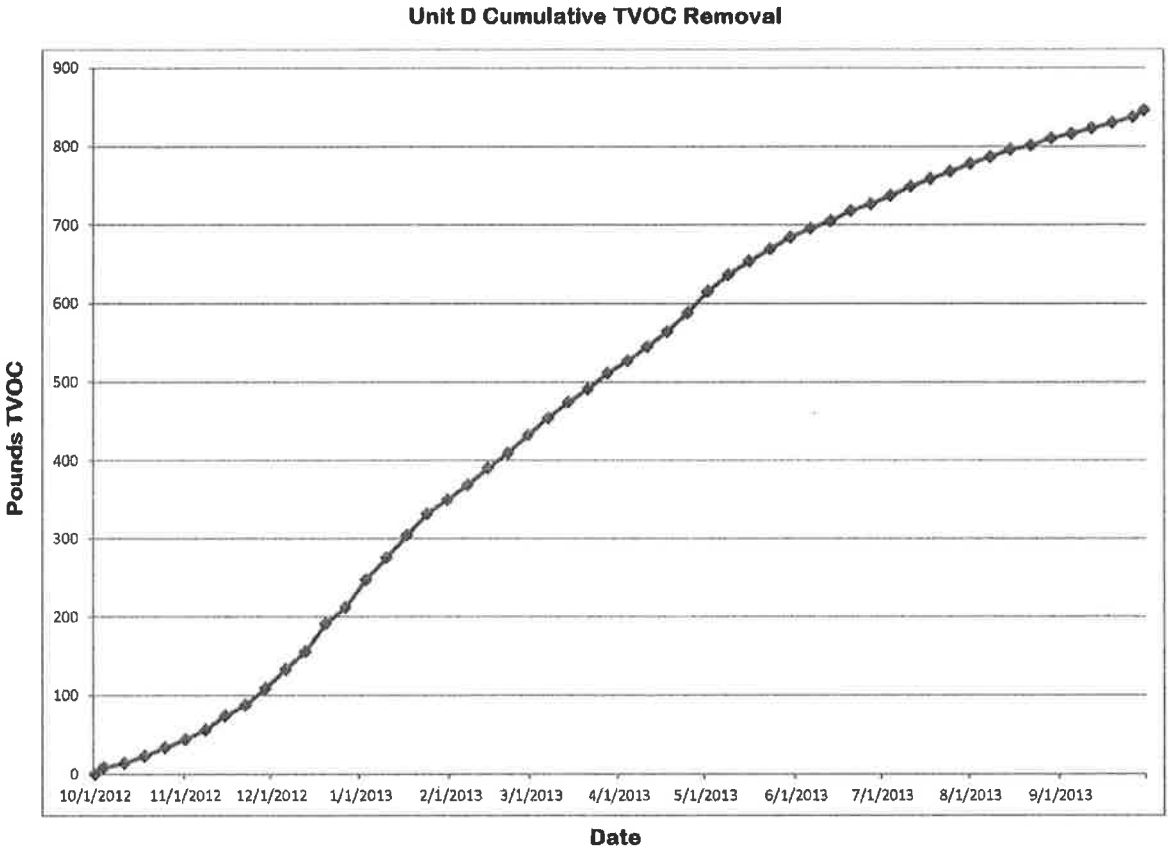

Figure 1. Total volatile organic compounds removed in Fiscal Year 2013 by Unit D.

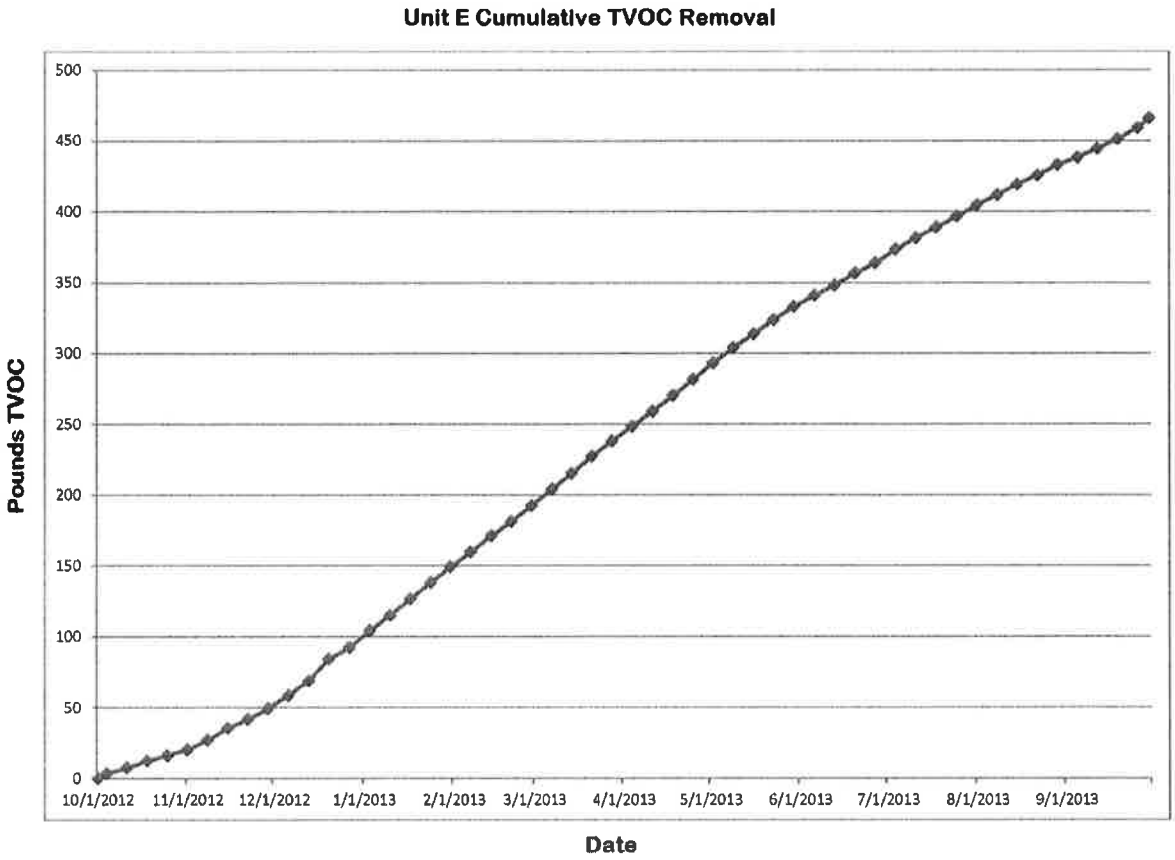

Figure 2. Total volatile organic compounds removed in Fiscal Year 2013 by Unit E.

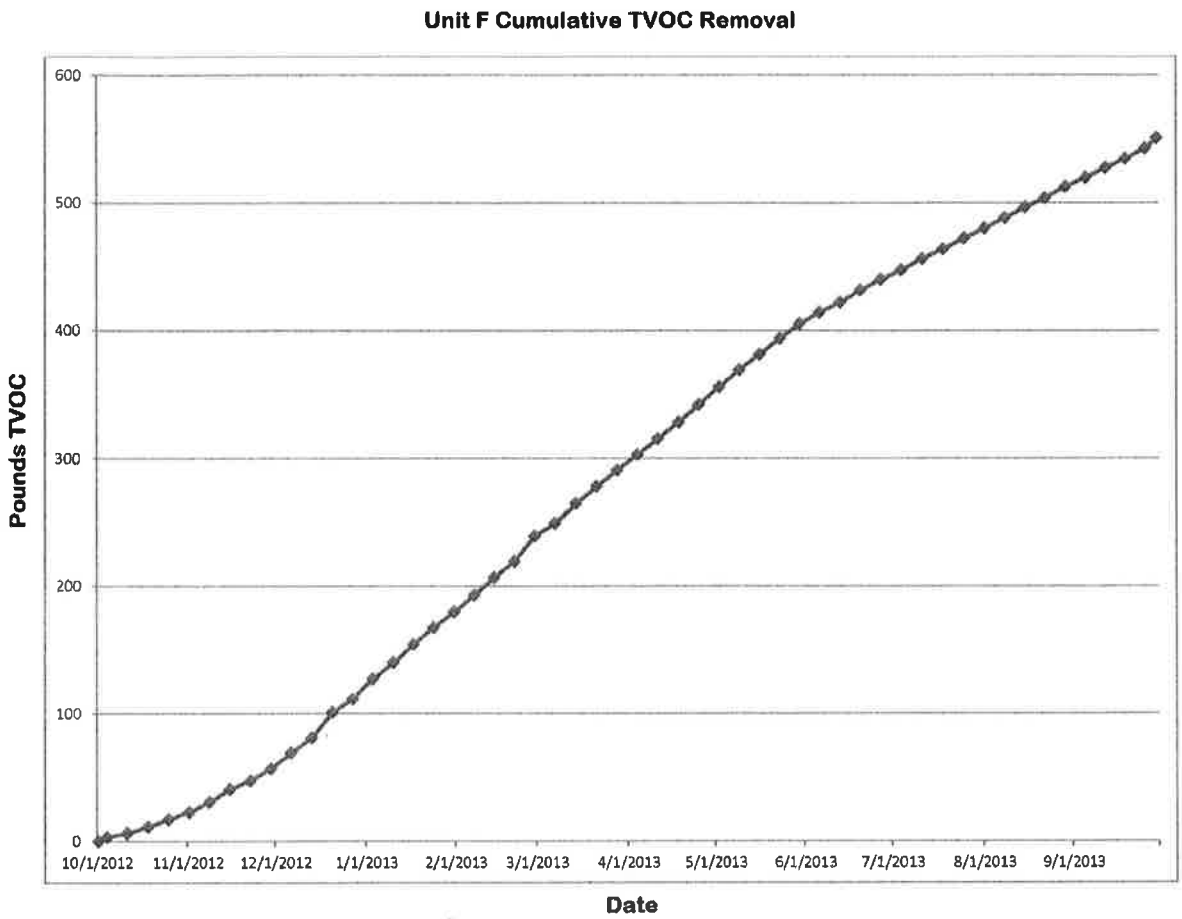

Figure 3. Total volatile organic compounds removed in Fiscal Year 2013 by Unit F.

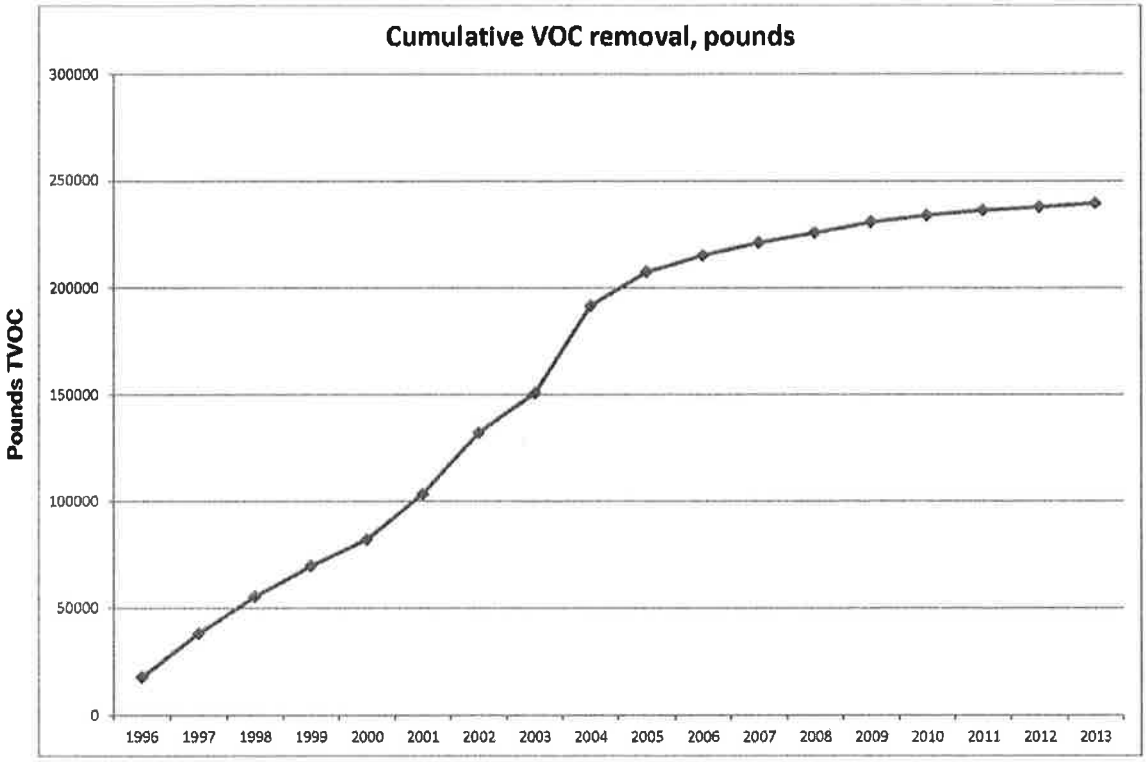

Figure 4. Cumulative total volatile organic compounds removed since operations began in 1996.

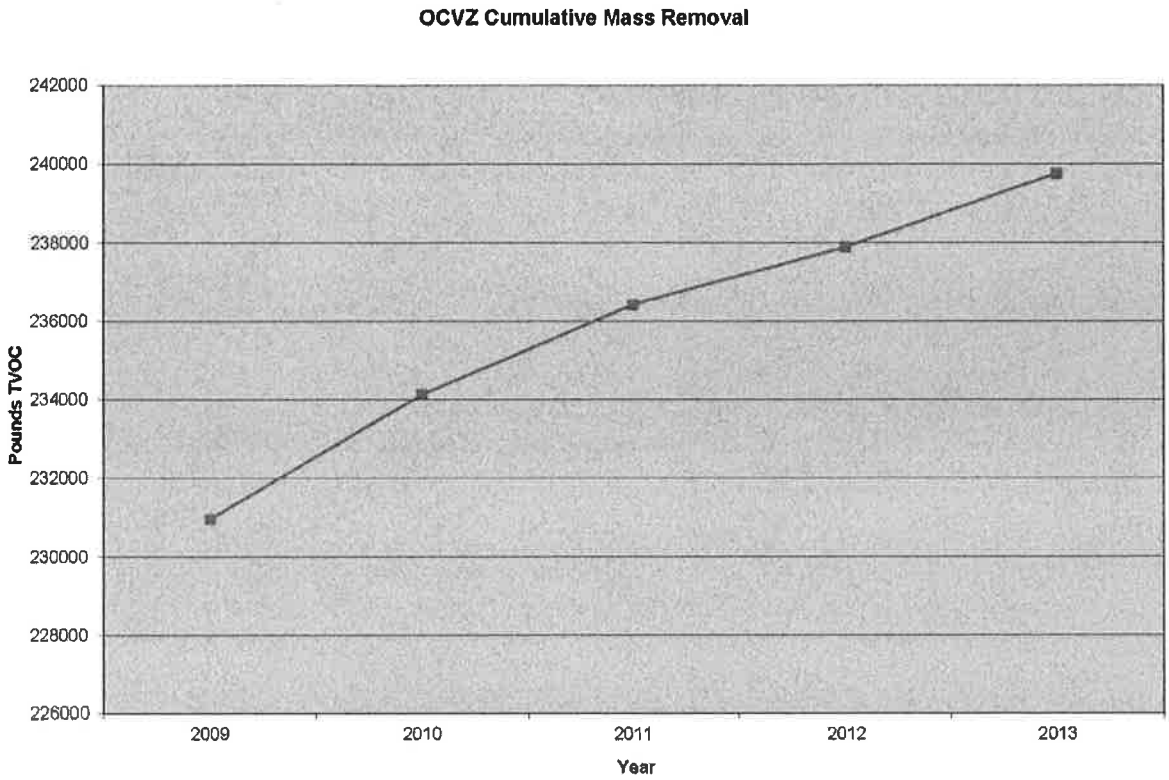

Figure 5. Cumulative OCVZ mass removal for the last 5 years.

A web-based application calculates mass removal based on process flow rate, time, and process inlet concentrations. Concentrations are from process samples taken daily and analyzed weekly, with results stored in the OCVZ data collection and reporting system database. Results are reported monthly following the accounting calendar month.

Five VOCs are monitored: carbon tetrachloride (CCl_4), trichloroethylene (TCA), tetrachloroethylene (PCE), 1,1,1-trichloroethane (TCE), and chloroform ($CHCl_3$). Of these, carbon tetrachloride is the predominant VOC in the source and in the extracted mass. Figure 6 illustrates the relative amounts of these five contaminants extracted to date.

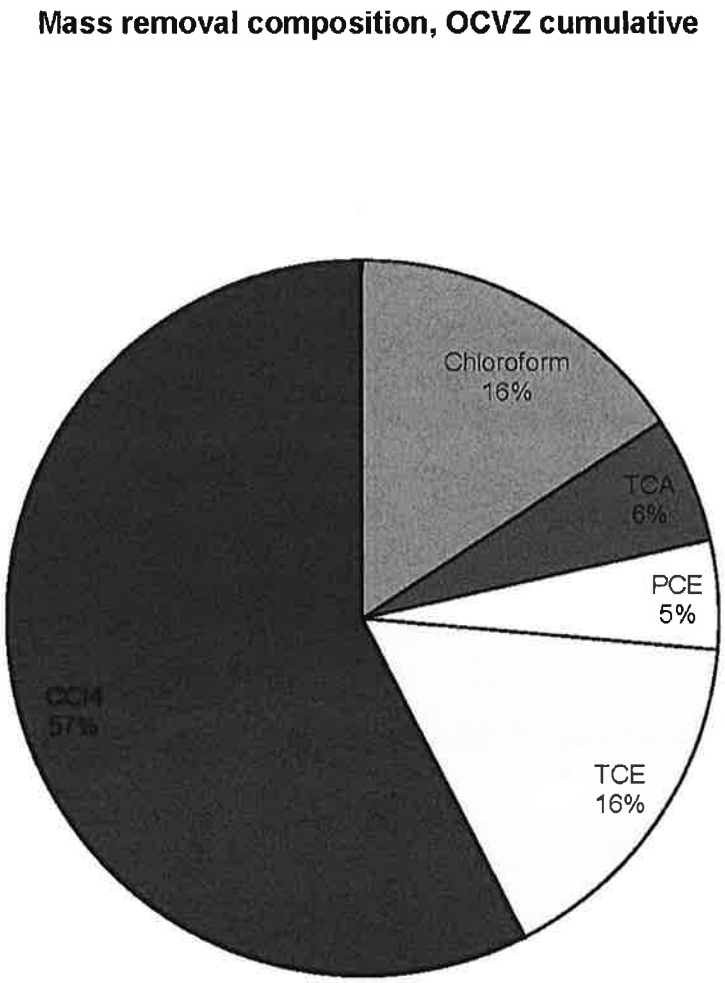

Figure 6. Relative amounts of five volatile organic compounds extracted through Fiscal Year 2013 (i.e., as of September 30, 2013).

OCVZ OPERATIONS AND MAINTENANCE

This section summarizes FY 2013 O&M, including run-time and down time for each unit, monitoring, and modifications to the units and well infrastructure.

Operations

Qualified personnel (e.g., operators, technicians, and system engineers) maintain and monitor VVET system operations every workday (i.e., Monday through Thursday) by checking the system, sampling, and maintaining status logs. Daily system checks on all three OCVZ units consist of:

1. Verifying that process parameters are within range via the remote supervisory control and data acquisition (SCADA) system
2. Physically verifying that units are in good running condition by:
   a. Checking for fluid leaks
   b. Listening for unusual noise
   c. Inspecting oil levels
   d. Examining the vapor liquid separator
3. Acquiring daily samples.

Each week personnel survey process equipment and analyze the daily samples.

Procedures and operator logbooks direct operation of the three units. VVET operations logbooks are used to record system operating data for flow, temperature, and pressure, and to guide the technician in completing routine surveillance of equipment conditions. The technician ensures that all systems are functioning properly while completing the logbooks.

Operations and Performance Monitoring

To ensure the highest destruction and contaminant removal efficiency, personnel strive to keep the three VVET units in continuous operation. Table 2 identifies operational run-times for FY 2013 by VVET unit. The system experienced very little down time, and most of that was for construction or power outages.

Table 2. Operational run-times by unit in Fiscal Year 2013.

Vapor Vacuum Extraction and Treatment Unit	Run-Time (%)	Down-Time (Days)
Unit D	99	4
Unit E	99	4
Unit F	99	4
	99% average	12 total

In addition to continuous operation, maximizing the contaminant mass that is processed through the system is key to destroying more VOCs. Influent and effluent vapor are sampled and analyzed to measure performance of the catalyst at the three units. Operators use performance monitoring combined with vadose zone vapor monitoring to select wells for extraction and rebound cycles to optimize operations. Influent and effluent vapor samples also reveal changes in the catalyst activity over time.

Annual well cycling tests show which wells were most productive, enabling the operations team to select wells individually or in combination to maximize the rate of mass removal. The results of the available data from well cycling and the flow characteristics and concentrations over the past 3 years indicate the best well combinations to use for production.

Process Effectiveness

Stack samples are drawn and analyzed routinely to monitor the effectiveness of the catalyst bed in destroying the organic contaminants. The results of these tests confirm the continued effectiveness of the process.

The process inlet stream concentrations have diminished over time and the catalyst beds continue to be highly efficient in destroying the VOC contaminants. As a result, contaminant concentrations in the exhaust are quite low and some sample concentrations were below the detection limit.

Maintenance

A maintenance schedule, including thorough checks of operating conditions and equipment, was developed and implemented to minimize operational problems (e.g., equipment failure). Maintenance was completed at various intervals, as recommended by manufacturer specifications and documented in the O&M Plan (Lopez et al. 2009) and subsidiary documents. All required preventative maintenance (e.g., instrument calibration) was performed as scheduled in FY 2013.

Occasionally, the VVET system is shut down because of uncontrollable circumstances such as severe weather or power outages. There was no non-routine maintenance for the OCVZ units in FY 2013, but the company migration to Windows 7 made it necessary to find an alternate platform for the automation programming. The existing field hardware would have required an expensive upgrade to a version that would work with Windows 7. Transferring that function to the SCADA host running Microsoft Server avoided the need for the expense, effort, and outages that would have been required.

OCVZ Unit Modifications

Modifications to the OCVZ system have been required in the past to accommodate construction of Accelerated Retrieval Project (ARP) retrieval enclosures and ancillary structures. Additional modifications were not required in FY 2013.

OCVZ MONITORING

Vadose zone vapor ports are sampled and analyzed monthly or quarterly in accordance with the field sampling plan appended to the O&M Plan (Lopez et al. 2009). All results are stored in the OCVZ data collection and reporting system database. Sample ports are divided into regions and zones as shown in Figure 7. Region A is roughly equivalent to the SDA boundary. Concentrations shown are remediation goals for carbon tetrachloride (DOE-ID 2008).

Data from representative monitoring well vapor samples are used to assess effectiveness of the OCVZ remedial action. OCVZ uses 56 vapor monitoring wells. Each well has from one to nine vapor ports (not all of which are sampled), ranging in depth from 9.9 to 174.7 m (32.5 to 573 ft) below ground surface. Of the total of 166 vapor ports, 95 vapor ports are within the SDA, all of which are sampled monthly. Of the 71 vapor ports outside the SDA, 38 are sampled every month and 33 are sampled once a quarter. These numbers reflect current sampling which has changed since the O&M plan (Lopez et al. 2009) was issued. The sampling schedule in this plan will be updated the next time this document is revised.

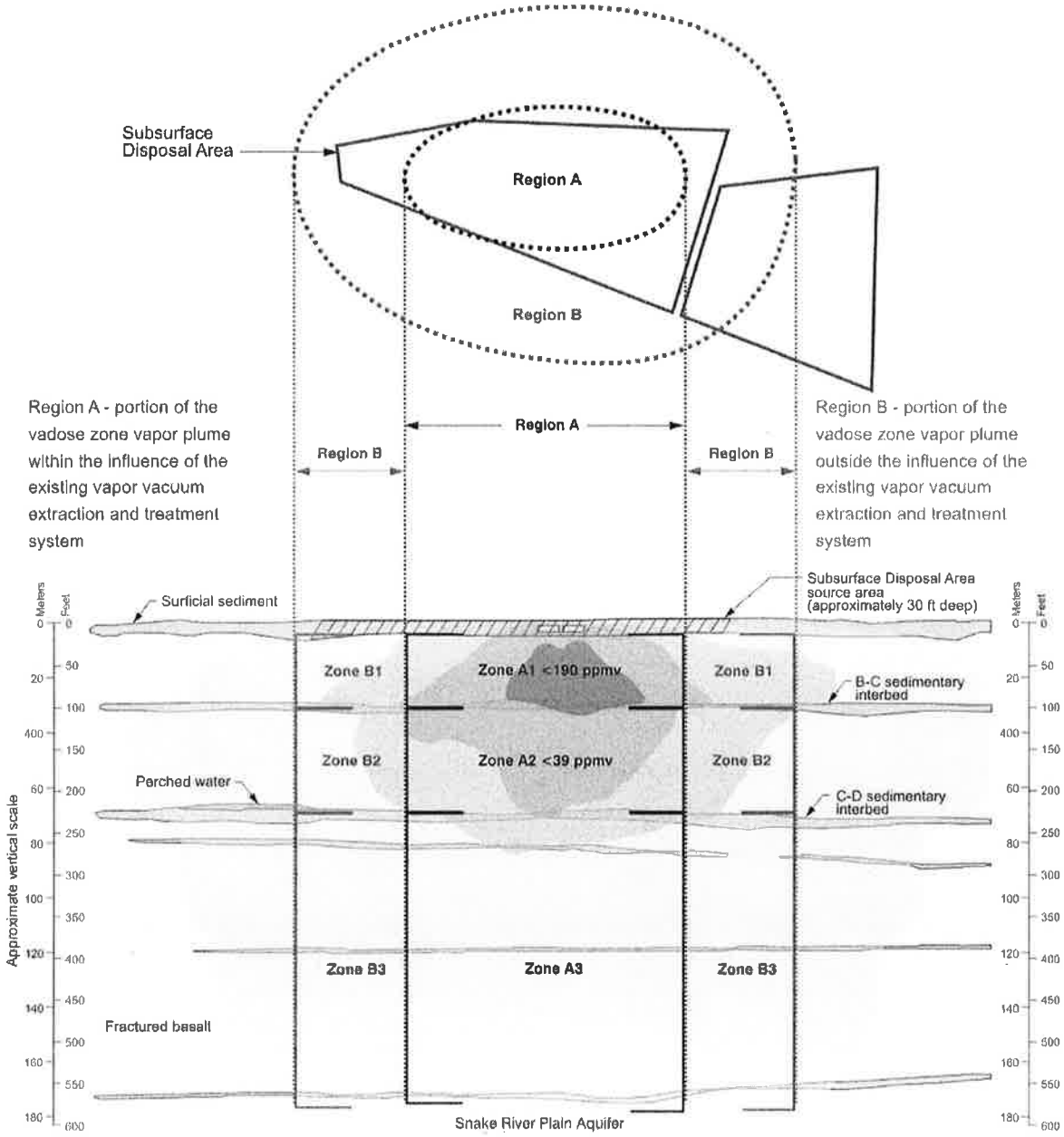

Figure 7. Sampling zones and cleanup levels for carbon tetrachloride vapors in the vadose zone to reduce concentrations in the aquifer to less than the maximum contaminant level of 5 µg/L.

Table 3 summarizes the highest detected concentrations in each zone. The OU 7-13/4 Record of Decision (DOE-ID 2008) established remediation goals for Zones A1 and A2. Tables 4 and 5 list the 40 highest results in Zones A1 and A2, respectively. Samples did not exceed the remediation goal in

Zone A1 in this reporting period. Only one location, Well D02 Port 8, exceeded the Zone A2 remediation goal. However, dynamic conditions from continuous VVET operations bias sample results below what they would be during static or rebound conditions. Therefore, these results do not indicate that remediation is nearly complete in either Zone A1 or A2. A terminal strategy for OCVZ operations will be developed following a vadose zone vapor rebound study outlined for future work (Meagher and Holdren, 2013). Figures 8-10, following the tables below, are plots of the recent concentration values for well ports DO2-8, 8V-1, and 8V-2.

Table 3. Maximum detected carbon tetrachloride concentrations and remediation goals by sampling zone.

Sampling Zone	Number of Samples	Maximum Detected Concentration (ppmv CCl_4)	Mean of All Samples in Zone (ppmv CCl_4)	Remediation Goal (ppmv CCl_4)
A1	412	38.9	2.72	190
A2	349	115.0	8.49	39
A3	225	9.94	2.95	Not applicable
B1	174	2.69	0.97	Not applicable
B2	188	15.5	2.69	Not applicable
B3	250	2.34	2.08	Not applicable

Table 4. Highest 40 vapor port concentrations in Zone A1.

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
D02	3	01-Oct-12	38.9	3.44	2.03	21.2	40.2
D02	3	04-Feb-13	38.3	4.04	3.06	24.5	47.1
D02	3	07-Jan-13	37	3.95	2.49	21.8	45.9
D02	3	04-Mar-13	34.4	4.08	2.42	20.8	43.6
D02	3	01-Apr-13	34.1	3.97	2.77	22.8	44.5
D02	3	05-Aug-13	32.9	4.35	2.84	22.5	43.3
D02	3	03-Jun-13	31.1	4.08	2.27	19.2	40.5
D02	3	08-Jul-13	30	3.97	2.32	19.3	38.1
D02	3	03-Sep-13	28.1	4.22	2.07	17.4	37.3
D02	3	05-Nov-12	28	3.01	1.14	12.4	31.2
D02	3	03-Dec-12	27.9	3.26	0.98	11	31.9
D02	3	06-May-13	18.7	2.43	1.14	11.5	24.6
IE4	1	01-Oct-12	14.2	3.88	3.23	6.71	14.5
IE4	1	04-Feb-13	13	5.45	4.17	8.41	20.6
6V	3	04-Sep-13	12.9	1.56	0.64	3.59	4.33

Table 4. (continued).

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
IE4	1	08-Jul-13	12.7	4.94	3.49	7.9	18.2
IE4	1	07-Jan-13	12.4	4.71	3.51	7.38	18.1
IE4	1	01-Apr-13	12.3	5.44	3.96	8.22	20.2
IE4	1	03-Jun-13	12.1	4.82	3.31	7.47	17.4
IE4	1	06-May-13	12	4.98	3.23	7.44	18.7
IE4	1	05-Aug-13	11.7	4.61	3.29	7.31	17.2
IE4	1	04-Mar-13	11.5	5.47	3.83	7.56	19.8
IE4	1	03-Sep-13	11.4	4.73	2.92	6.55	17
IE4	1	04-Dec-12	10.7	4.15	2.83	5.47	16.4
IE4	1	05-Nov-12	9.53	3.26	2.24	4.69	12.7
8V	3	07-May-13	4.52	0.78	0.73	2.1	2.55
8V	3	01-Oct-12	4.44	0.04	0.45	2	0.35
9V	3	06-May-13	4.33	1.14	0.52	1.36	3.87
8V	3	04-Dec-12	4.31	0.49	0.49	2	1.92
8V	3	06-Nov-12	4.21	0.25	0.38	1.98	2
IE6	2	05-Nov-12	4.18	9.67	7.54	7.13	24.8
8V	3	04-Jun-13	4.05	0.68	0.48	2.04	3.02
IE8	1	03-Jun-13	3.81	6.57	1.2	5.3	6.35
IE8	1	08-Jul-13	3.75	5.26	0.96	4.01	5.73
IE4	2	06-May-13	3.68	2.94	1.43	3.38	6.9
8V	3	05-Mar-13	3.67	0.64	0.50	2.06	2.07
IE4	2	03-Jun-13	3.59	2.68	1.51	3.39	5.68
9V	3	01-Apr-13	3.57	0.87	0.61	1.33	2.27
IE8	1	05-Aug-13	3.54	4.48	0.87	3.44	5.24
IE8	1	06-May-13	3.53	8.79	1.43	6.88	7.83

CCl_4 carbon tetrachloride
$CHCl_3$ chloroform
PCE tetrachloroethylene (perchloroethylene)
TCA 1,1,1-trichloroethane
TCE trichloroethylene

Table 5. Highest 40 vapor port concentrations in Zone A2.

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
D-02	**8**	**04-Feb-13**	**115**	**5.38**	**3.23**	**28**	**19.8**
D-02	**8**	**04-Mar-13**	**110**	**5.61**	**2.82**	**24.9**	**19.3**
D-02	**8**	**07-Jan-13**	**109**	**5.34**	**2.8**	**26**	**20.4**
D-02	**8**	**05-Aug-13**	**109**	**5.51**	**2.99**	**27.5**	**19.9**
D-02	**8**	**08-Jul-13**	**108**	**5.36**	**2.87**	**26.6**	**19.7**
D-02	**8**	**01-Oct-12**	**103**	**4.51**	**2.69**	**24.1**	**15.8**
D-02	**8**	**06-May-13**	**103**	**5.13**	**2.42**	**24.8**	**19.1**
D-02	**8**	**03-Jun-13**	**102**	**5.25**	**2.66**	**23.5**	**18.7**
D-02	**8**	**03-Sep-13**	**101**	**5.54**	**2.67**	**24.2**	**19.8**
D-02	**8**	**05-Nov-12**	**94.6**	**5.82**	**4.41**	**21.4**	**19.8**
8V	1	08-Jul-13	37	3.98	3.57	7.79	5.77
8V	1	06-Aug-13	35.2	3.16	1.52	5.89	5.68
8V	1	05-Feb-13	34.7	2.77	1.44	5.41	4.81
8V	1	01-Oct-12	34.2	2.37	1.48	4.82	2.64
8V	1	02-Apr-13	33.7	2.88	1.17	5.23	5.25
8V	1	04-Sep-13	32.7	3.04	1.21	4.99	5.59
8V	1	04-Jun-13	31.8	2.89	1.24	4.87	5.29
6V	1	06-May-13	31.6	2.76	1.28	6.69	6.08
8V	1	08-Jan-13	31.5	2.69	1.51	4.79	4.35
8V	1	07-May-13	31.5	3.03	1.63	4.73	5.25
8V	1	06-Nov-12	31.1	2.52	1.11	4.26	4.72
D-02	8	03-Dec-12	30.9	3.06	3.61	7.55	9.63
8V	1	05-Mar-13	30.7	2.94	1.24	4.79	4.65
6V	1	07-Jan-13	30.4	3.43	3.97	7.97	5.91
8V	1	04-Dec-12	29.8	2.72	1.14	3.96	4.79
6V	1	04-Feb-13	29.5	2.62	1.63	6.85	5.26
8V	2	08-Jul-13	28.8	2.49	1.93	7.3	4.4
8V	2	06-Aug-13	28.4	2.25	1.37	6.82	4.68
6V	1	04-Jun-13	27.8	2.5	1.22	5.58	5.1
8V	2	01-Oct-12	27.7	1.56	1.27	5.8	1.81
8V	2	05-Feb-13	27.7	1.94	1.22	6.37	3.73

Table 5. (continued).

Well	Port	Sample Date	CCL_4 (ppmv)	TCA (ppmv)	PCE (ppmv)	TCE (ppmv)	$CHCl_3$ (ppmv)
8V	2	02-Apr-13	26.5	1.97	0.977	5.8	4
8V	2	04-Jun-13	26.3	2.11	1.05	5.89	4.11
8V	2	05-Mar-13	26.2	2.18	1.06	5.78	3.89
8V	2	07-May-13	25.9	2.23	1.28	5.4	4.13
8V	2	04-Sep-13	25.9	2.3	0.91	5.55	4.68
6V	1	04-Sep-13	25.4	2.53	0.95	4.84	5.41
8V	2	08-Jan-13	25.3	1.88	1.11	5.46	3.51
8V	2	06-Nov-12	25.2	1.72	0.74	5.08	3.43
6V	1	01-Apr-13	25	2.31	1.29	6.1	4.94

Bold concentrations exceed the Zone A2 remediation goal of 39 ppmv CCl_4.

CCl_4 carbon tetrachloride
$CHCl_3$ chloroform
PCE tetrachloroethylene (perchloroethylene)
TCA 1,1,1-trichloroethane
TCE trichloroethylene

PAD A OPERATIONS AND MAINTENANCE

Pad A will be maintained in a safe state until a cap is constructed over the SDA (i.e., during the future Phase 3 of the OU 7-13/14 selected remedy). Pad A is inspected quarterly, when not covered in snow, in accordance with requirements in the OU 7-13/14 O&M Plan (Lopez et al. 2009). Pad A was inspected four times in FY 2013: November 20, 2012; March 26, 2013; May 21, 2013; and August 29, 2013. Appendix B contains FY 2013 inspection forms and photographs. Inspectors noted encroaching weeds, areas of sparse vegetation, minor small animal intrusions, and subsidences typical of Pad A. Conditions generally were acceptable, and unacceptable conditions were repaired shortly after they were reported.

In general, the condition of Pad A appears to be deteriorating, with depressions and fissures worsening throughout the reporting period. The top of Pad A has become a non-uniform surface with multiple fissures and several shallow basins and swales with diameters greater than 10 ft. One depression and two fissures warranted repair. Several other subsidence features were noted for surveillance in subsequent inspections. Semi-quantitative means of measuring fissures and depressions were implemented in the last inspection (i.e., August) to allow more precise tracking in FY 2014.

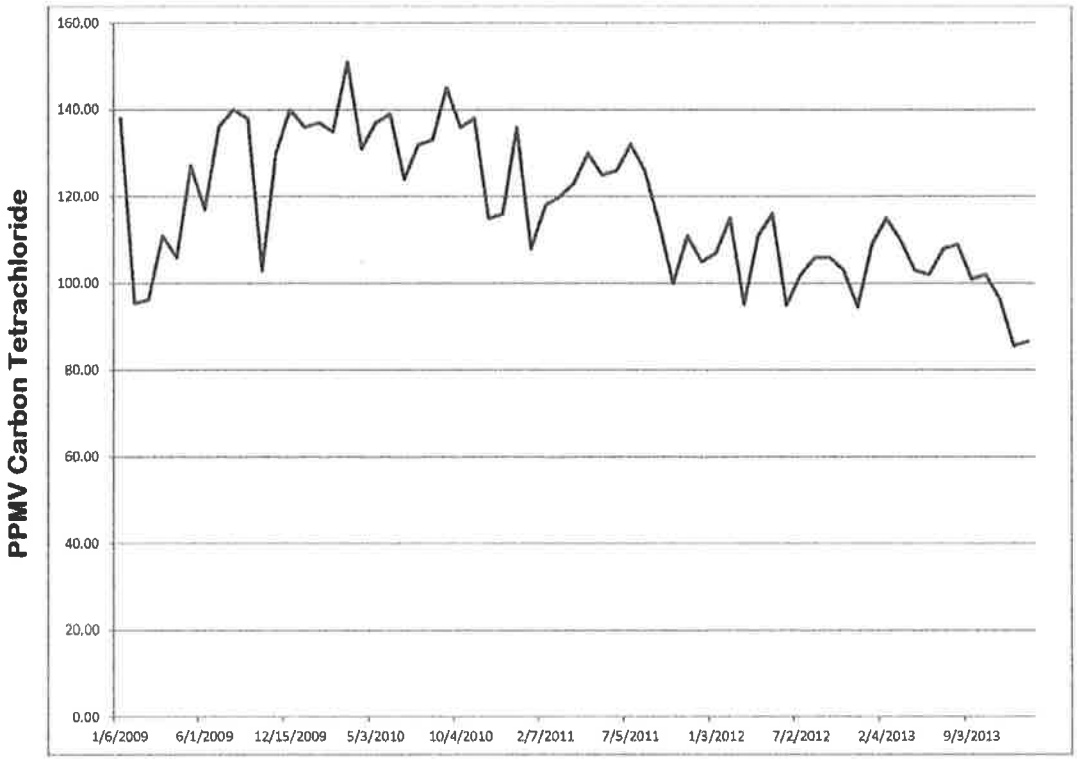

Figure 8. Plot of recent concentration values of carbon tetrachloride for well port DO2-8.

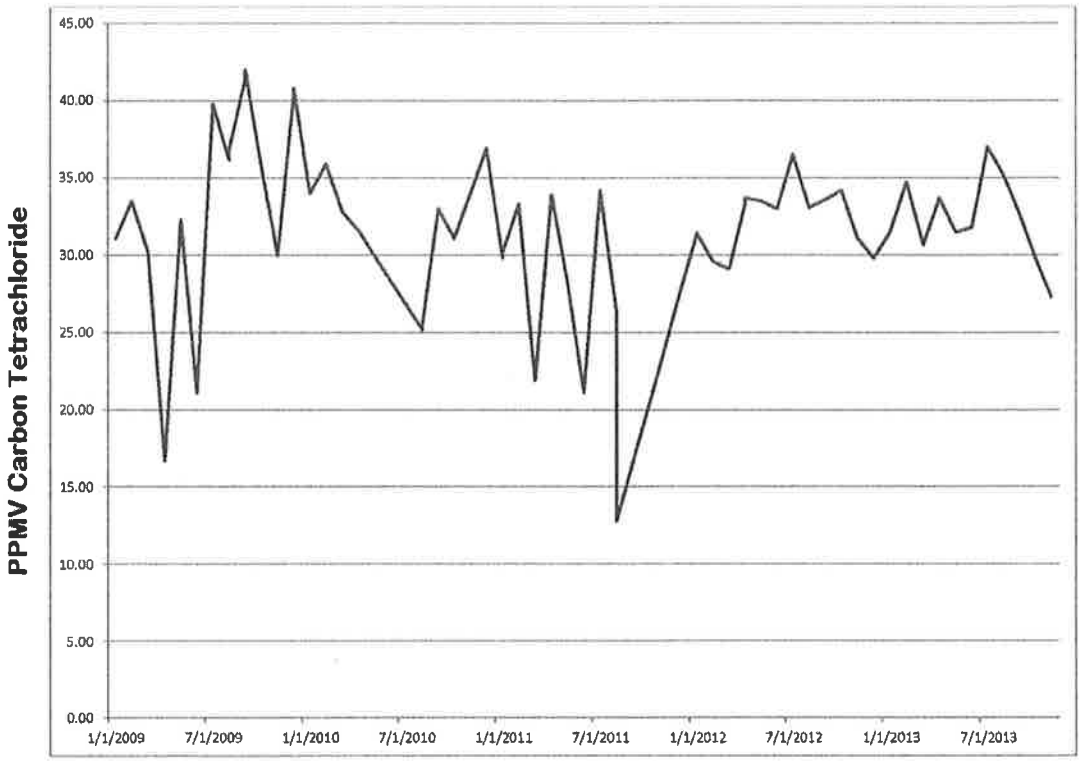

Figure 9. Plot of recent concentration values of carbon tetrachloride for well port 8V-1.

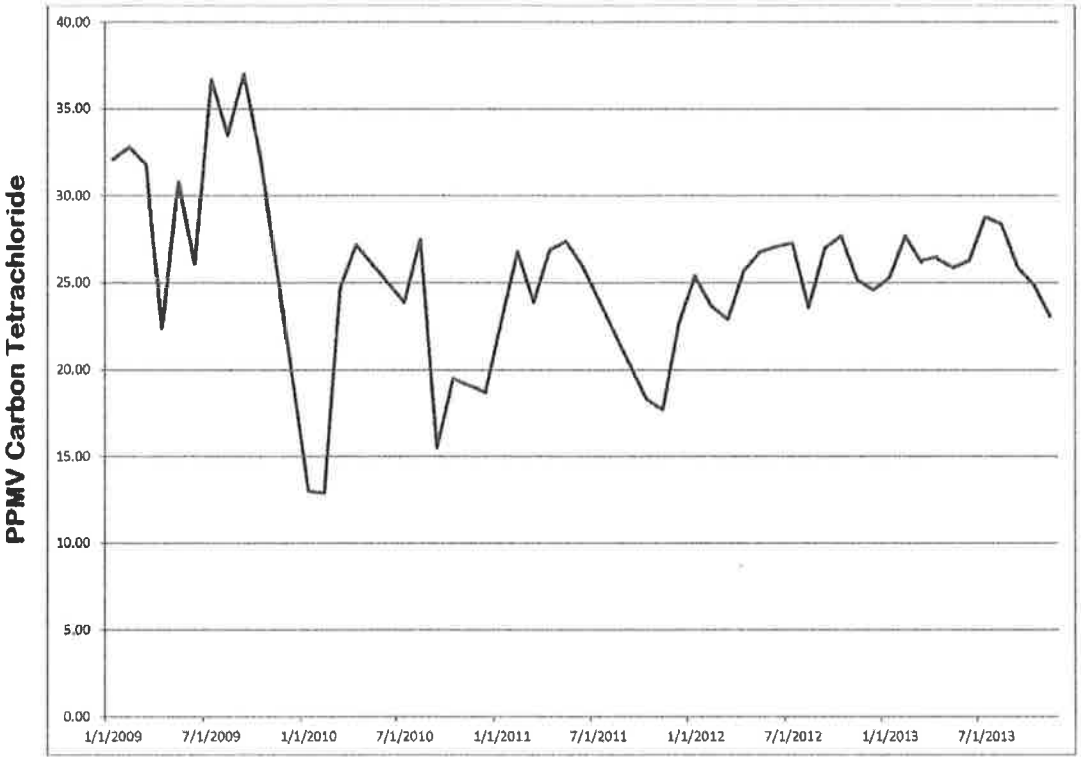

Figure 10. Plot of recent concentration values of carbon tetrachloride for well port 8V-2.

REFERENCES

42 USC § 9601 et seq., 1980, "Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA/Superfund)," *United States Code*, December 11, 1980, as amended.

DOE-ID, 1991, *Federal Facility Agreement and Consent Order for the Idaho National Engineering Laboratory*, Administrative Docket No. 1088-06-29-120, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Health and Welfare.

DOE-ID, 2008, *Record of Decision for Radioactive Waste Management Complex Operable Unit 7-13/14*, DOE/ID-11359, Rev. 0, U.S. Department of Energy Idaho Operations Office; U.S. Environmental Protection Agency, Region 10; Idaho Department of Environmental Quality.

DOE-ID, 2013, *Phase 1 Remedial Design/Remedial Action Work Plan for Operable Unit 7-13/14*, DOE/ID-11389, Rev. 2, U.S. Department of Energy Idaho Operations Office.

Lopez, Steve L., Michael D. Jorgensen, Dale A. Cresap, and K. Jean Holdren, 2009, *Operable Unit 7-13/14 Operations and Maintenance Plan*, DOE/ID-11393, Rev. 0, U.S. Department of Energy Idaho Operations Office.

Meagher, Brandt G., and K. Jean Holdren, 2013, *Operable Unit 7-13/14 Phase 3 Remedial Design Work Plan*, DOE/ID-11482, Rev. 0, U.S. Department of Energy Idaho Operations Office.

HCl release calculations for all VVET units for 2012
direct measurement is impossible since HCl is scrubbed out of the sample stream because it would damage the analyzer

mass extracted in CY 2012 by all units, pounds

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
totals	403	125	191	266	457

molecular weights

	119.5	133.5	166	131.5	154

moles of converted compounds

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
all units	3.37	0.94	1.15	2.02	2.97

moles Cl per mole conversion

	3	3	4	3	4

Total chlorine fraction to HCl

	0.914	0.914	0.914	0.914	0.914

Total chlorine fraction to Cl2

	0.086	0.086	0.086	0.086	0.086

moles of Cl generated as HCl

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
all units	9.25	2.57	4.21	5.55	10.85
total over all units		32.42			

convert moles Cl to pounds HCl - multiply by	36.5
Pounds of HCl released for 2012	**1183**

moles of Cl generated as Cl2

all units	0.870075	0.241573	0.395807	0.521886	1.020831
total over all units		3.05			

convert moles Cl to pounds - multiply by	35.5
Pounds of Cl2 released for 2012	**108**

HCl release calculations for all VVET units for 2013
direct measurement is impossible since HCl is scrubbed out of the sample stream because it would damage the analyzer

mass extracted in CY 2013 by all units, pounds

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
totals	695	273	234	331	393

molecular weights

	119.5	133.5	166	131.5	154

moles of converted compounds

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
all units	5.81	2.05	1.41	2.52	2.55

moles Cl per mole conversion

	3	3	4	3	4

Total chlorine fraction to HCl

	0.914	0.914	0.914	0.914	0.914

Total chlorine fraction to Cl2

	0.086	0.086	0.086	0.086	0.086

moles of Cl generated as HCl

	CHCl3	1,1,1-TCA	PCE	TCE	CCl4
all units	15.94	5.61	5.16	6.90	9.34
total over all units		42.95			

convert moles Cl to pounds HCl - multiply by 36.5
Pounds of HCl released for 2013 1568

moles of Cl generated as Cl2

all units	1.500049	0.527789	0.485144	0.649297	0.87854
total over all units		4.04			

convert moles Cl to pounds - multiply by 35.5
Pounds of Cl2 released for 2013 143

APPENDIX H-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: US Dept. of Energy - INL
Address: 1955 Fremont Ave.
City: Idaho Falls
State: Idaho
Zip Code: 83415
Facility Contact: Teresa Perkins
Title: Permitting Contact
AIRS No.: 023-00001

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	24.8	0	24.8
SO_2	4.4	0	4.4
CO	4.6	0	4.6
PM10	1.6	0	1.6
VOC	1.0	0	1.0
TAPS/HAPS	14.0	0	14.0
Total:	0.0	0	**50.4**
Fee Due	**$ 5,000.00**		

Comments: Emission increases are the combination of the FEC operational varibility and growth components. There is a reduciton due to the replacement of a fuel oil fired boiler at NRF with a smaller one - however, that reduciton will not result in a change of the processing fee and was not precisely calculated. The emissions changes will remain within the 10- 100 ton per year range for a $5,000 processing fee in accordance with IDAPA 58.01.01.225.

APPENDIX I-RESPONSE TO PUBLIC COMMENTS

Air Quality Permitting
Response to Public Comments

January 12, 2018

Permit to Construct No. P-2015.0023

Project No. 61525

U S Department of Energy - INL
Scoville, Idaho

Facility ID No. 023-00001

Prepared by:
Dan Pitman, P.E., Permit Writer
Thomas Swain, AQ Dispersion Modeling Analyst
AIR QUALITY DIVISION

Final

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BACKGROUND 3

PUBLIC COMMENTS AND RESPONSES 3

APPENDIX 8

BACKGROUND

The Idaho Department of Environmental Quality (DEQ) provided for public comment on the proposed permit to construct for the U S Department of Energy - INL from November 28, 2017 through December 28, 2017, in accordance with IDAPA 58.01.01.209.01.c. During this period, comments were submitted in response to DEQ's proposed action. Each comment and DEQ's response is provided in the following section. All comments submitted in response to DEQ's proposed action are included in the appendix of this document.

PUBLIC COMMENTS AND RESPONSES

Public comments regarding the technical and regulatory analyses and the air quality aspects of the proposed permit are summarized below. Questions, comments, and/or suggestions received during the comment period that did not relate to the air quality aspects of the permit application, the Department's technical analysis, or the proposed permit are not addressed. For reference purposes, a copy of the Rules for the Control of Air Pollution in Idaho can be found at: http://adminrules.idaho.gov/rules/current/58/0101.pdf.

Comment 1: Given that many of INL's existing permits to construct are being consolidated under a single facility emissions cap, both DEQ and the public now have a better sense of the total potential to emit from INL facilities (Table 6 in Statement of Basis). As a result, this would be a good opportunity for DEQ to assess the public health risks associated with the cumulative emissions from INL facilities. Although the permitted PTE under this FEC does not exceed major source thresholds for any single pollutant, the cumulative impact of all those pollutants together being release into the air is still worth considering. Ambient air pollution was responsible for 4.2 million deaths worldwide in 2015, and pollution control is technically feasible. Facilities with high total emissions should explore ways in which they can continue to reduce their emissions in the interest of protecting human health.

Response 1: In the modeling analyses done for this application, INL utilized a representation of the cumulative existing source inventory for criteria air pollutants at the entire facility. Following modeling guidelines, they provided results from air dispersion modeling that demonstrated that the facility was in compliance with all National Ambient Air Quality Standards (NAAQS), fulfilling the requirements in IDAPA 58.01.01.203.02. Assessing impacts from multiple criteria pollutants in a synergistic fashion to determine health risks is not a methodology required by the State of Idaho, or the EPA, in the regulatory process of acquiring permits to construct, nor is it an analyses prescribed in the modeling guidelines as required for protection of the defined health standards (nationally) as represented by the NAAQS.

The toxic air pollutant requirements for issuing permits to construct are specified at IDAPA 58.01.01.210 (Demonstration of Preconstruction Compliance with Toxic Standards). This Rule requires that it be shown that modifications at stationary sources do not exceed any toxic air pollutant increments listed in IDAPA 58.01.01.585 and 58.01.01.586. A cumulative impact assessment is not required by the permit to construct Rules (Section 210). The only specific change at the facility is to a 29.3 MMBtu per hour diesel fuel fired boiler at the Naval Reactors Facility. Preconstruction compliance has been demonstrated for this modification and DEQ is obligated to issue the permit to construct. Also, this FEC permit to construct does not allow changes to the source that affect toxic air pollutants unless that change is specifically exempt from the need to obtain a permit to construct in accordance with IDAPA 58.1.01.223 (See Permit Condition 2.1).

Comment 2: On page 17 of the Statement of Basis, it is stated, "For any residual TAPs, that are not HAPs, INL has claimed the source is exempt which requires analyzing those TAPs to exemption thresholds. DEQ has not been provided this analysis but believes the source would demonstrate emissions were below exemption thresholds for any residual TAPs." Why was DEQ not provided this analysis? Furthermore, how does DEQ justify prematurely issuing this permit without being provided a required analysis? Just "believing" the facility is not sufficient justification in our eyes.

Response 2: As the Statement of Basis describes, the 29.3 MMBtu per hour diesel fuel fired boiler at the Naval Reactors Facility was constructed on June 27, 2017 under an exemption from the need to obtain a permit to construct. The specific exemption requirements that INL utilized are specified at IDAPA 58.01.01.220, 221& 223. These exemptions are intended to be self-implemented by stationary sources of air pollution and are not required to be submitted to DEQ for approval. However, the facility is required to maintain records that prove that the source qualifies for the exemption. Based on this public comment, DEQ requested that INL provide the exemption documentation for toxic air pollutants.

Based on US EPA emissions factors (Publication AP-42) the only residual TAPs that require an analysis are copper and zinc. Uncontrolled emissions at maximum firing rate for both of these toxic air pollutants are well below the exemption thresholds specified at IDAPA 58.01.01.223. Copper emissions are 380 times less than the screening emission level (EL), and zinc emissions are 5,700 times below its screening EL. These emissions rates qualify the source for a Below Regulatory Concern toxic air pollutant exemption.

Following is the information INL provided DEQ which supports the exemption determination. Emission estimates are based on AP-42 emission factors.

NRF Boiler 4

	Emissions Factor ($lb/10^{12}$ Btu)	*Emissions (lb/hr)*	*EL (lb/hr)*	*Exceed EL*
Copper	*6.00E+00*	*1.76E-04*	*6.70E-2*	*No*
Zinc	*4.00E+00*	*1.17E-04*	*6.67E-01*	*No*

Conversion Factors:		
Heating Value of Fuel Oil	*140000*	*Btu/gal.*
NRF 4 Usage	*209.2*	*Gal/hr*

Comment 3: The new FEC permit will incorporate many – but not all – of the existing PTCs at INL. Why are certain PTCs excluded from incorporation into the new FEC permit? For example, PTC P-2011.0124 for the Florinel and Storage Facility is one that INL specifically requested not be incorporated into the FEC permit. If FEC permits are intended to provide a facility-wide emission limitation, as stated in IDAPA 58.01.01.176.01, then why are certain components of the overall INL facility not included?

Response 3: DEQ has included a facility-wide emission limitation in the permit as stated in IDAPA 58.01.01.176.01. Permit Condition 2.2 limits "Facility-wide emissions" to the values in Table 2.1. No emissions units were, or may be, excluded. As stated on page 10 of the statement of basis regarding those permits that will not be incorporated into the FEC permit - "... emissions from these permitted operations are still regulated as part of the facility emissions cap (FEC) permit."

As page 10 of the Statement of Basis describes, three existing permits to construct are not incorporated into the FEC permit. These permits are:

- **PTC P-2011.0124 issued December 30, 2011 for the INTEC Fluorinel and Storage Facility, LET&D, Ventilation Air System, and Process Off-Gas System**
- **PTC P-2008.0199 issued August 31, 2009 for the INTEC Integrated Waste Treatment Unit (IWTU)**
- **PTC P-010509 issued September 9, 2002 for the TRA Evaporation Pond**

The reasons these permits were not added to the FEC permit are:

1) INL requested that these permits not be incorporated into the FEC permit.

2) They are not required to be included to assure compliance with the facility-wide emissions caps or ambient standards. Section 2 of the permit includes the "Facility Emissions Cap (FEC) Requirements." These requirements include facility-wide emissions limits, and facility-wide monitoring and recordkeeping requirements necessary to assure compliance with the emissions caps. The requirements apply to all emissions units at the facility, including those listed in other permits to construct.

3) The Fluorinel and Storage Facility permit and the TRA Evaporation Pond permit only regulate radionuclide emissions. As stated in Section 2.1 of the FEC permit, "This permit does not authorize modifications to the facility that affect toxic air pollutants, or radionuclides. Modifications to the facility that affect toxic air pollutant emissions, or radionuclides, shall both qualify and comply with the exemption criteria of IDAPA 58.01.01.220-223 or a permit shall be obtained authorizing the modification."

4) As described on page 31 and 32 of the Statement of Basis, even though the August 31, 2009 IWTU permit is not incorporated into the FEC permit, "...new emission rate limits and operating requirements for the IWTU to assure compliance with the one hour NO_2 standards" were added to the FEC permit. Additionally, a requirement to use "...carbon canisters to control mercury emissions ..." was added to reflect actual source operation and so that the facility may take credit for the emissions reductions afforded by the carbon canisters. See FEC Permit Conditions 6.1-6.7.

INL must comply with both the FEC permit and the August 31, 2009 IWTU permit even though it is not incorporated into the FEC permit. Emissions allowed under the August 31, 2009 IWTU permit are included in the facility emissions caps and are also included in the ambient impact assessment. Since INL wishes to have an independent permit to construct for the IWTU, if modifications are made to this source those changes must comply with the general permit to construct requirements for modifications and must also comply with the FEC permit. In effect, for any modification to the IWTU, INL must demonstrate that the change will not cause or significantly contribute to a violation of a standard and the facility must stay below the emissions caps in the FEC permit.

Comment 4: The U.S. Department of Energy – Idaho Operations (DOE-ID) requests that permit conditions 3.22 and 3.23 (40 CFR 63 Subpart DD – National Emissions Standards for Hazardous Air Pollutants from Off-site Waste and Recovery Operations) and 3.24 (40 CFR 63 Subpart JJ – National Emissions Standards for Wood Furniture Manufacturing Operations) be removed from the Idaho National Laboratory (INL) Site Permit P-2015.0023. Upon issuance of the permit, the

INL Site will become an area source of hazardous air pollutants (HAPs). Since the permit conditions are taken from major source requirements in the National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations, the INL Site will no longer be subject to these requirements. Additionally, as an area source of HAPs no recordkeeping requirements apply.

The INL Site maintained records, as a major source, to document it was not subject to the Maximum Achievable Control Technology Standards for acceptance of off-site hazardous waste and incidental wood manufacturing, in compliance with §63.680(d) and §63.800(a). As these records, which document exemption from the substantive requirements of the two subject standards, are not considered substantive themselves under EPA's "once in, always in" policy, the continued generation of these records as an area source is not required by the INL Site.

Response 4: **DEQ agrees and the record keeping requirements of Permit Conditions 3.22 through 3.24 for major sources of HAPs have been removed from the permit. As detailed in the Statement of Basis pages 22, 25, 26, and 27 EPA's "once in, always in" policy does not affect the applicability 40 CFR 63 Subparts DD & JJ for major sources. In accordance with the policy, since a "compliance date" for these subparts has not been triggered, the facility may accept limits below major facility thresholds and become an area source thereby alleviating the facility from the major source record keeping requirements of 40 CFR 63 Subparts DD & JJ.**

Comment 5: If changes allowed under the FEC permit cause ambient impacts that are greater than significant impact over the design concentration then notice shall be provided to the Department and the Shoshone-Bannock Tribes in advance of the change in accordance with IDAPA 58.01.01.181.01.b.

Response 5: **IDAPA 58.01.01.181.01.b. specifies:**

> **b.** Notice procedures. The permittee may make a facility change under Section 181 if the permittee provides written notification to the Department so that the notification is received at least seven (7) days in advance of the proposed change or, in the event of an emergency, the permittee provides the notification so that it is received at least twenty-four (24) hours in advance of the proposed change. For each such change, the written notification shall: (4-11-06)
>
> i. Describe the proposed change; (4-11-06)
>
> ii. Describe and quantify expected emissions; and (4-11-06)
>
> iii. Provide the estimated ambient concentration analysis. (4-11-06)

The Rule does not specify that the permittee shall notify Shoshone-Bannock Tribes prior to the change and DEQ does not have the authority to require INL to provide such notification. However, any notification provided to DEQ will be a public record and will be available for review.

Comment 6: DOE detailed the specific pollutants and their estimated amounts that will be emitted. But among the 885 pages of DOE's Application and Statement of Basis, there is no mention or prediction as to the regions where the hazardous air pollutants are likely to spread. Thus, we request that the Application provide information as to what regions are impacted by current emissions and what regions would be impacted by increased emissions and permit conditions pursuant to DOE's proposed permit. Specifically, what downwind areas will have air quality reductions? Where will deposition occur most? What time of year and in what quantities? Such information may be important to keep our Tribal members safe and informed. While DOE does provide dispersion analyses in their Application, those analyses are vacant any information specific to our request.

Response 6: **Hazardous air pollutants (HAPs) are regulated under Section 112 of the Clean Air Act (CAA). DEQ has included all applicable requirements that originate from Section 112 of the CAA in the permit. See pages 25 through 28 of the Statement of Basis, and Permit Conditions:**

3.16-3.21 for the National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities – 40 CFR 61 Subpart H;

3.25-3.27 for the National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines – 40 CFR 63 Subpart ZZZZ; and

3.39-3.56 for the National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources – 40 CFR 63 Subpart JJJJJJ.

Regulations promulgated under this section of the CAA for HAPs do not generally require stationary sources to conduct air pollutant dispersion modeling or an associated air pollutant deposition analysis. However, one notable exception is that the National Emission Standards for Emissions of Radionuclides other than Radon from Department of Energy Facilities (40 CFR 61 Subpart H). This subpart requires that INL must monitor and track emissions, calculate the highest effective dose equivalent to any member of the public at any offsite point where there is a residence, school, business, or office, and report this information to EPA. These reports will be available through a public records request to either EPA or DEQ.

DEQ regulates new and modified sources of toxic air pollutants (TAPs) in accordance with IDAPA 58.01.01.210 & 223. INL has demonstrated compliance with these TAP requirements and DEQ is obligated to issue a permit to construct. See also response to Comment 1.

It should also be noted that the FEC permit does not authorize changes to the source that affect toxic air pollutants unless that change is specifically exempt from the need to obtain a permit to construct in accordance with IDAPA 58.1.01.223 (See Permit Condition 2.1).

Appendix

Public Comments Submitted for

Permit to Construct

P-2015.0023

The U.S. Department of Energy – Idaho Operations (DOE-ID) requests that permit conditions 3.22 and 3.23 (40 CFR 63 Subpart DD - National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations) and 3.24 (40 CFR 63 Subpart JJ - National Emission Standards for Wood Furniture Manufacturing Operations) be removed from Idaho National Laboratory (INL) Site Permit P-2015.0023. Upon issuance of the permit, the INL Site will become an area source of hazardous air pollutants (HAPs). Since the permit conditions are taken from major source requirements in the National Emission Standards for Hazardous Air Pollutants (NESHAPs) regulations, the INL Site will no longer be subject to these requirements. Additionally, as an area source of HAPs no recordkeeping requirements apply.

The INL Site maintained records, as a major source, to document it was not subject to the Maximum Achievable Control Technology Standards for acceptance of off-site hazardous waste and incidental wood manufacturing, in compliance with §63.680(d) and §63.800(a). As these records, which document exemption from the substantive requirements of the two subject standards, are not considered substantive themselves under EPA's "once in, always in" policy, the continued generation of these records as an area source is not required by the INL Site.

Subpart DD

In accordance with §63.680(d)(3), INL maintained documentation to demonstrate it was not subject to 40 CFR 63, Subpart DD as cited below (emphasis added):

> *§63.680(d) Facility-wide exemption.* ***The owner or operator of affected sources subject to this subpart is exempted from the requirements of §§63.682 through 63.699 of this subpart in situations when the total annual quantity of the HAP that is contained in the off-site material received at the plant site is less than 1 megagram per year.*** *For a plant site to be exempted under the provisions of this paragraph (d), the owner or operator must meet the requirements in paragraphs (d)(1) through (d)(3) of this section.*
>
> *(1) The owner or operator must prepare an initial determination of the total annual HAP quantity in the off-site material received at the plant site. This determination is based on the total quantity of the HAP listed in Table 1 of this subpart as determined at the point-of-delivery for each off-site material stream.*
>
> *(2) The owner or operator must prepare a new determination whenever the extent of changes to the quantity or composition of the off-site material received at the plant site could cause the total annual HAP quantity in the off-site material received at the plant site to exceed the limit of 1 megagram per year.*
>
> *(3) The owner or operator must maintain documentation to support the owner's or operator's determination of the total annual HAP quantity in the off-site material received at the plant site. This documentation must include the basis and data used for determining the HAP content of the off-site material.*

Subpart JJ

The INL Site also met the definition of "incidental wood furniture manufacturer" discussed in §63.800(a) and maintained usage logs to document it was not subject to other provisions of 40 CFR 63, Subpart JJ. The citation states (emphasis added):

> *§63.800 (a) The affected source to which this subpart applies is each facility that is engaged, either in part or in whole, in the manufacture of wood furniture or wood furniture components and that is located at a plant site that is a major source as defined in 40 CFR part 63, subpart A, §63.2.* ***The owner or operator of a source that meets the definition for an incidental wood furniture manufacturer shall maintain purchase or usage records demonstrating that the source meets the definition in §63.801 of this subpart, but the source shall not be subject to any other provisions of this subpart.***

The following references are included to support the position that these NESHAPs are not applicable to the INL Site upon issuance of the permit and the INL Site becoming an area source of HAPs.

1. Clean Air Act (CAA) Compliance Monitoring Applicability Determination Index (ADI) Control Number M150018 - Re: Shawmut Corporation Applicability of National Emission Standards for Hazardous Air Pollutants and the Title V Operating Permit Program, David B. Conroy, EPA Region 1 Manager, Air Programs Branch, August 20, 2014.
2. Clean Air Act (CAA) Compliance Monitoring Applicability Determination Index (ADI) Control Number M140003 - Re: Jacob~ Vehicle Systems, Inc.; Applicability of National Emission Standards for Hazardous Air Pollutants and the Title V Operating Permit Program, David B. Conroy, EPA Region 1 Manager, Air Programs Branch, August 21, 2012.
3. EPA Title V Policy and Guidance Database Memorandum - Title V Applicability of One-time "Reporting" Provisions for Nonmajor Sources, Steven J. Hitte, Group Leader Operating Permits Group (MD-12), April 19, 1999.

Idaho Conservation League Comment #2

Information to support response to comment.

NRF Boiler 4

	Emission Factor ($lb/10^{12}$ Btu)	Emissions (lbs/hr)	EL (lbs/hr)	Exceed EL
Copper (lbs/hr)	6.00E+00	1.76E-04	6.70E-02	No
Zinc (lbs/hr)	4.00E+00	1.17E-04	6.67E-01	No

Conversion Factors:		
Heating Value of Fuel Oil	140000	Btu/gal.
NRF Boiler 4 Usage	209.2	gal/hr

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

August 20, 2014

Mr. James Wyner, C.E.O.
Shawmut Corporation
208 Manley Street
West Bridgewater, MA 02379

Re: Shawmut Corporation Applicability of National Emission Standards for Hazardous Air Pollutants and the Title V Operating Permit Program

Dear Mr. Wyner:

The U.S. Environmental Protection Agency (EPA) has reviewed your letter dated May 30, 2013 regarding Shawmut Corporation located at 208 Manley Street in West Bridgewater, MA (Shawmut) and the applicability of various National Emission Standards for Hazardous Air Pollutants (NESHAP) standards and the Title V operating permit program to the facility. Specifically, you have asked whether Shawmut may become an area source of hazardous air pollutants for purposes of applicability to several NESHAPs. The letter specifically requests EPA to confirm your understanding of applicability for the NESHAP for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD; the NESHAP for Flexible Polyurethane Foam Fabrication Operations, 40 CFR Part 63, Subpart MMMMM; the NESHAP for Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ; and the NESHAP for Paper and Other Web Coating, 40 CFR Part 63, Subpart JJJJ. Lastly, you have requested confirmation from EPA that the facility would not be required to maintain its Title V operating permit because it is no longer a major source. This letter provides you with a written applicability determination.

The May 30, 2013 letter describes the operations at Shawmut. In addition, in emails dated June 10, June 18, June 19, and August 13, 2013 you provided EPA with additional information about Shawmut. As described below, as of May 30, 2013, Shawmut permanently decommissioned three adhesive laminators. Since decommissioning the laminators, Shawmut's potential to emit is less than the major source hazardous air pollutant (HAP) levels (10 tons per year of any individual HAP or 25 tons per year of any combination of HAP). In the June 18, 2013 email, Shawmut provided facility-wide potential to emit calculations to document Shawmut is now an area source of HAP, i.e., it is no longer a major source.

Applicability of 40 CFR Part 63, Subpart JJJJ, NESHAP for Paper and Other Web Coating (Subpart 4J)

Shawmut had previously operated three adhesive laminators 9, 10, and 11 (collectively designated Emission Unit 1(EU1) in the Operating Permit) subject to Subpart 4J. As of May 30, 2013, Shawmut has permanently decommissioned the adhesive laminators (EU1). Because the three adhesive laminators (EU1) are decommissioned, EPA has determined that Shawmut is no longer subject to Subpart 4J.

Applicability of 40 CFR Part 63, Subpart MMMMM, NESHAP for (Subpart 5M)

Shawmut operates three flame laminators constructed in 1984 (collectively designated as EU3). The flame laminators commenced construction prior to August 8, 2001 and have not been reconstructed since August 8, 2001. Thus, for purposes of Subpart 5M, the flame laminators are existing sources. Under Subpart 5M, existing flame lamination sources have only an initial notification requirement under Section 63.8816(b) and have no other requirements under Subpart 5M.

EPA's general policy is that sources that are major on the first substantive compliance date of a NESHAP (and, therefore, subject to the requirements of the NESHAP that apply to major sources) remain major sources for purposes of that NESHAP from that point forward, regardless of the level of their potential HAP emissions after that date[1]. The "first compliance date" is the first date a source must comply with an emission limitation or other substantive regulatory requirement (i.e., leak detection and repair programs, work practice measures, housekeeping measures, etc., but not a notice requirement) in the applicable NESHAP standard. Because Shawmut does not have to meet the requirements of Subpart 5M other than an initial notification, Subpart 5M does not set a substantive compliance date for Shawmut's flame laminators. Therefore, EPA has determined that because Shawmut is no longer a major HAP source, Shawmut is no longer subject to Subpart 5M.

Applicability of 40 CFR Part 63, Subpart ZZZZ, NESHAP for Reciprocating Internal Combustion Engines (Subpart 4Z)

Shawmut operates a spark ignition emergency engine with less than 500 horsepower (HP) manufactured in 1989 and previously installed and operated at another location. Shawmut purchased the engine in 2009. The engine commenced construction before June 12, 2006, and Shawmut has provided documentation that the engine was not reconstructed after June 12, 2006. Under Section 63.2, the definition of construction provides that construction does not include the removal of all equipment comprising an affected source from an existing location and reinstallation of such equipment at a new location. Under Section 63.6590(a)(1)(ii), a spark ignition engine with less than 500 HP located at a major source of HAP which commenced construction or reconstruction before June 12, 2006 is an existing engine. The compliance date for existing spark ignition engines with less than 500 HP located at a major HAP source is October 19, 2013. As discussed above, Shawmut could become an area source of HAP for purposes of Subpart 4Z applicability any time before the first compliance date of October 19, 2013. Because Shawmut became an area source of HAP prior to October 19, 2013, EPA has determined that Shawmut's existing spark ignition engine is subject to the Subpart 4Z requirements for engines located at an area source of HAP. Under Section 63.6585(d), an area source subject to Subpart 4Z is not required to obtain a Title V operating permit under 40 CFR Part 70 or 71 due to Subpart 4Z area source applicability, provided the source is not otherwise required to obtain a Title V operating permit.

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[1] *See* May 16, 1995 memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, entitled "Potential to Emit for MACT Standards – Guidance on Timing Issues." The policy set forth in the memorandum is commonly referred to as the "once in, always in" policy. The rationale set forth in the memorandum continues to reflect EPA's interpretation regarding the appropriate implementation of CAA §112.

Applicability of 40 CFR Part 63, Subpart DDDDD, NESHAP for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters (Subpart 5D)

Shawmut operates one boiler and two process heaters. Boiler 1 is a 1.0 MMBtu/hr process heater constructed in 1983 and burns diesel oil. Boiler 4, rated at 3.08 MMBtu/hr was constructed in 1985 and burns natural gas. A new process heater, Boiler HR, rated at 1 MMBtu/hr was constructed in January 2012 and burns natural gas. Boiler 1 and Boiler 4 were not reconstructed after June 4, 2010. Subpart 5D applies to industrial, commercial and institutional boilers located at a major HAP source. A boiler or process heater is an existing boiler if it commenced construction or reconstruction on or before June 4, 2010. Subpart 5D sets requirements for gas-fired and liquid fuel fired boilers and process heaters. EPA has determined that because Boiler 1 and Boiler 4 commenced construction prior to June 4, 2010, and were not reconstructed on or after June 4, 2010, Boiler 1 and Boiler 4 are existing affected sources. The compliance date for existing sources under Subpart 5D is January 31, 2016. Shawmut's new process heater, Boiler HR, is a new source because it commenced construction after June 4, 2010. Under Section 63.7575, the "unit designed to burn gas 1 subcategory" includes any boiler or process heater that burns only natural gas, refinery gas, and/or other gas 1 fuels; with the exception of liquid fuels burned for periodic testing, maintenance, or operator training not to exceed 48 hours per year, or during periods of gas curtailment and gas supply interruptions. Based on the information provided by Shawmut, Boiler HR is a new process heater in the "unit designed to burn gas 1 subcategory". Boiler HR is subject to the requirements of Subpart DDDDD as promulgated on March 21, 2011 (76 FR 15608) as that is the version of the rule that was in effect when it was constructed. Under Section 63.7495(a) of that rule, new process heaters were required to comply with applicable requirements by May 20, 2011 or upon startup, and under Section 63.7500(a)(1) new process heaters were required to meet each applicable emission limit and work practice in Table 3 of the rule. Table 3 of the rule required new process heaters with a heat input capacity of less than 10 million Btu per hour to conduct a tune-up biennially. As a general matter, new sources are required to comply with all applicable requirements upon startup unless a particular requirement expressly provides otherwise. Shawmut incorrectly relies on the current version of Subpart DDDDD; however, it contends that similar language in that rule should be interpreted as allowing the tune-up to be conducted any time between startup and the date 2 years after startup. Under the circumstances this is not an unreasonable alternate interpretation of the requirements. Without making a formal determination on the interpretation, and under the facts of this particular matter, EPA deems that Shawmut may proceed as though it was not required to complete the tune-up, the first substantive requirement applicable to Boiler HR, until sometime in January 2014. As discussed above, EPA's interpretation regarding the implementation of section 112 of the Clean Air Act allowed Shawmut to become an area source of HAP and no longer be subject to Subpart 5D before January 2014, the first compliance date for the new process heater. Therefore, EPA has determined that because Shawmut limited its HAP potential to emit to below the major source thresholds before January 2014, Shawmut is no longer subject to 5D.

Applicability of the Title V Operating Permit Program

In addition to addressing the applicability of the regulations discussed above, you have asked whether Shawmut needs to continue to maintain its Title V operating permit. As discussed above, Shawmut is no longer subject to Subparts 4J, 5M, and 5D, and is subject to Subpart 4Z as an area source of HAP, but Subpart 4Z does not require area sources of HAP to obtain a Title V operating permit. Therefore, EPA has determined that Shawmut is no longer subject to the requirements of Title V based on applicability of these Subparts. As the relevant permitting authority, the Massachusetts Department of Environmental Protection must determine whether Shawmut is otherwise subject to Title V.

This determination applies only to Shawmut and is based on the information provided in your May 30, 2013 letter, and your subsequent emails dated June10, 2013, June 18, 2013, June 19, 2013 and August 13, 2013. In the event that any of the facts you provided are incomplete or inaccurate in a material way, EPA reserves the right to rescind this applicability determination. This applicability determination is made in reliance on the accuracy of the information provided to EPA, and does not relieve Shawmut of the responsibility for complying fully with any and all applicable federal, state and local laws, regulations and permits. If you have any questions about this letter, please call Susan Lancey of my staff at (617) 918-1656.

Sincerely,

David B. Conroy
Manager, Air Programs Branch

Enclosure

cc: Marc Wolman, MassDEP
Tom Cushing, MassDEP

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 1
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MA 02109-3912

August 21, 2012

Ms. Diane C. Bellantoni
Murtha Cullina LLP
City Place
185 Asylum Street
Hartford, CT 06103

Re: Jacobs Vehicle Systems, Inc.; Applicability of National Emission Standards for Hazardous Air Pollutants and the Title V Operating Permit Program

Dear Ms. Bellantoni:

The U.S. Environmental Protection Agency (EPA) has reviewed your letter dated February 3, 2012 regarding Jacobs Vehicle Systems, Inc. located at 22 East Dudley Town Road, Bloomfield, Connecticut (Jacobs Vehicle) and the applicability of various National Emission Standards for Hazardous Air Pollutants (NESHAP) standards and the Title V operating permit program. Specifically, you have asked whether Jacobs Vehicle may restrict its potential to emit to below major hazardous air pollutant (HAP) source levels and thus no longer be subject to the NESHAP for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters, 40 CFR Part 63, Subpart DDDDD and the NESHAP for Engine Test Cells/Stands, 40 CFR Part 63, Subpart PPPPP. In addition, you have asked whether Jacobs Vehicle may restrict its potential to emit to below major HAP source levels and become an area source under the NESHAP for Reciprocating Internal Combustion Engines, 40 CFR Part 63, Subpart ZZZZ. You have also asked EPA to confirm the facility is no longer subject to the NESHAP for Halogenated Solvent Cleaning, 40 CFR Part 63, Subpart T. Lastly, you have requested confirmation from EPA that the facility would not be required to maintain its Title V operating permit if it is no longer a major source. This letter provides you with written applicability determinations on the various NESHAPS, but does not address the future applicability of Title V operating permit requirements.

The February 3, 2012 letter describes the operations at Jacobs Vehicle. In addition, in emails dated February 29, 2012 and April 5, 2012, you provided EPA with additional information about Jacobs Vehicle.

Applicability of 40 CFR Part 63, Subpart T, NESHAP for Halogenated Solvent Cleaning (Subpart T)

Jacobs Vehicle operates two degreasers which were subject to Subpart T because they used methylene chloride, a regulated HAP solvent. Jacobs Vehicle recently switched to Hubtron PB which is a degreasing solvent comprised of a minimum of 94% by weight n-propyl bromide and small quantities of t-butanol, 1,2 epoxybutane and n-propanol. Jacobs Vehicle provided a signed certification in its February 3, 2012 letter that it does not use and it has no present intention of using any of the listed HAP solvents in its degreasers in the future.

Subpart T applies to cleaning machines that use any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride or chloroform in a total concentration greater than five percent by weight. Because Jacobs Vehicle no longer uses any of the listed solvents, and based on its commitment that it will continue in that mode for the foreseeable future, EPA has determined that Jacobs Vehicle's degreasers and Jacobs Vehicle's facility are no longer subject to Subpart T.

Applicability of 40 CFR Part 63, Subpart PPPPP, NESHAP for Engine Test Cells/Stands (Subpart 5P)

Jacobs Vehicle operates a total of 13 test cells in its Research and Development Laboratory. The test cells utilize mobile Class 8 heavy-duty diesel engines to conduct testing of engine braking systems developed by Jacobs Vehicle. The braking systems are tested in mobile, uninstalled engines which Jacobs Vehicle receives directly from engine manufacturers. Jacobs Vehicle designs tests to understand and demonstrate how its braking systems function and interrelate with engine performance. Jacobs Vehicle's engine braking systems are tested at several different performance levels in the test engines (at varying RPM's, speeds and horsepower load). The test cells were constructed prior to May 14, 2002 and have not undergone reconstruction after May 14, 2002.

Subpart 5P applies to owners or operators of engine test cells/stands at a major source of HAPs. An engine test cell/stand is any apparatus used for testing uninstalled stationary or uninstalled mobile (motive) engines. An uninstalled engine is an engine that is not installed in, or an integrated part of, the final product. Under Subpart 5P, an affected source is existing if it commenced construction or reconstruction on or before May 14, 2002. Under Subpart 5P, existing affected sources do not have to meet the requirements of Subpart 5P and Subpart A, the General Provisions.

EPA has determined that, because Jacobs Vehicle operates test cells constructed before May 14, 2002, and not reconstructed after May 14, 2002, for testing braking systems in uninstalled mobile engines, Jacobs Vehicle operates existing test cells subject to Subpart 5P which do not have to meet the requirements of Subpart 5P. Jacobs Vehicle would now like to take potential to emit restrictions to below major HAP source levels and no longer be subject to Subpart 5P. EPA's general policy is that sources that are major on the first substantive compliance date of a NESHAP (and, therefore, subject to the requirements of the NESHAP that apply to major sources) remain major sources for purposes of that NESHAP from that point forward, regardless of the level of their potential HAP emissions after that date.[1] The "first compliance date" is the first date a source must comply with an emission limitation or other substantive regulatory requirement (i.e., leak detection and repair programs, work practice measures, housekeeping measures, etc., but not a notice requirement) in the applicable NESHAP standard. Because Jacobs Vehicle does not have to meet the requirements of Subpart 5P, Subpart 5P does not set a substantive compliance date for Jacobs Vehicle. Therefore, EPA has determined that Jacobs Vehicle may now limit its potential to emit to below major HAP source levels and no longer be subject to Subpart 5P.

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[1] *See* May 16, 1995 memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, entitled "Potential to Emit for MACT Standards – Guidance on Timing Issues." The policy set forth in the memorandum is commonly referred to as the "once in, always in" policy.

Applicability of 40 CFR Part 63, Subpart ZZZZ, NESHAP for Reciprocating Internal Combustion Engines (Subpart 4Z)

Jacobs Vehicle operates a compression ignition emergency engine with less than 500 horsepower (HP) which commenced construction or reconstruction before June 12, 2006, and which was not reconstructed after June 12, 2006. Under Section 63.6590(a)(1)(ii), a compression ignition engine with less than 500 HP located at a major source of HAP which commenced construction or reconstruction before June 12, 2006 is an existing engine. The compliance date for existing compression ignition engines with less than 500 HP located at a major HAP source is May 3, 2013. As discussed above, EPA's "once in, always in" policy would allow Jacobs Vehicle to take restrictions on its facility-wide potential to emit to below major HAP source levels and become an area source of HAP for purposes of Subpart 4Z applicability before the first compliance date of May 3, 2013. If Jacobs Vehicle were to do so before May 3, 2013, its compression ignition engine would then be subject to the requirements for engines located at an area source of HAP.

Applicability of 40 CFR Part 63, Subpart DDDDD, NESHAP for Major Sources: Industrial, Commercial and Institutional Boilers and Process Heaters (Subpart 5D) and 40 CFR Part 63, Subpart JJJJJJ, NESHAP for Area Sources: Industrial, Commercial and Institutional Boilers (Subpart 6J)[2]

Jacobs Vehicle operates two 10 million Btu/hour (MMBtu/hr) Cleaver Brooks boilers with the capability to burn natural gas and ultra-low sulfur diesel fuel. The Cleaver Brooks boilers burn only natural gas, except that they burn ultra-low sulfur diesel fuel for periodic testing (not to exceed 48 hours per year) or during periods of gas curtailment or gas supply emergencies. The Cleaver Brooks boilers were ordered July 5, 2006 and were fully operational by February 1, 2007. Jacobs Vehicle also has a 16.74 MMBtu/hr natural gas fired Johnston boiler that has been decommissioned. There are no plans to operate it in the future. The Johnston boiler was installed in January 1987. The Cleaver Brooks and Johnston boilers have not been reconstructed after June 4, 2010.

Subpart 5D applies to industrial, commercial and institutional boilers located at a major HAP source. A boiler is existing if it commenced construction or reconstruction before June 4, 2010. Subpart 5D sets requirements for gas-fired boilers. Under Section 63.7575, the "unit designed to burn gas 1 subcategory" includes any boiler that burns only natural gas, refinery gas, and/or other gas 1 fuels; with the exception of liquid fuels burned for periodic testing not to exceed 48 hours per year, or during periods of gas curtailment and gas supply emergencies. EPA has determined that because all of the boilers at the facility commenced construction prior to June 4, 2010, and were not reconstructed on or after June 4, 2010, the boilers are existing boilers in the "unit designed to burn gas 1 subcategory" (gas-fired boilers). The compliance date for existing gas-fired boilers under Subpart 5D is March 21, 2014. By March 21, 2014, an existing gas-fired boiler of 10 MMBtu/hr or greater must conduct a tune-up and have a one-time energy assessment performed, among other requirements. As discussed above, EPA's "once in, always in" policy would allow Jacobs

[2] Subpart 5D and Subpart 6J were promulgated as final rules in the Federal Register on March 21, 2011. On December 23, 2011, EPA proposed changes to Subpart 5D and Subpart 6J so certain requirements discussed in this letter may change (e.g. EPA proposed a revised compliance date for existing boilers subject to Subpart 5D).

Vehicle to take restrictions on its facility-wide potential to emit to below major HAP source levels to become an area source of HAP and no longer be subject to Subpart 5D before the first compliance date of March 21, 2014.

Subpart 6J applies to industrial, commercial and institutional boilers located at area sources of HAP. Subpart 6J does not apply to gas-fired boilers. Under Section 63.11237, a "gas-fired boiler" includes any boiler that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment, gas supply emergencies, or periodic testing on liquid fuels. Periodic testing of liquid fuel shall not exceed 48 hours per calendar year. Because Jacobs Vehicle's boilers meet the definition of gas-fired boilers, and provided they continue to do so, the boilers would not be subject to Subpart 6J if Jacobs Vehicle became an area source of HAP.

Applicability of the Title V Operating Permit Program

In addition to addressing the applicability of regulations discussed above, you have asked whether Jacobs Vehicle would need to continue to maintain its Title V operating permit if Jacobs Vehicle were no longer a major source of HAPs. EPA cannot confirm that Jacobs Vehicle would no longer be subject to Title V operating permit requirements under that scenario. As the relevant permitting authority, the Connecticut Department of Energy and Environmental Protection would need to determine whether the facility would continue to be subject to Title V.

This applicability determination is made in reliance on the accuracy of the information provided to EPA, and does not relieve Jacobs Vehicle of the responsibility for complying fully with any and all applicable federal, state and local laws, regulations and permits. If you have any questions about this letter, please Susan Lancey of my staff at (617) 918-1656.

Sincerely,

David B. Conroy
Manager, Air Programs Branch

Enclosure

cc: Gary Rose, CT DEEP

April 19, 1999

MEMORANDUM

SUBJECT: Title V Applicability of One-time "Reporting" Provisions for Nonmajor Sources

FROM: Steven J. Hitte, Group Leader /s/
Operating Permits Group (MD-12)

TO: Gerald C. Potamis, P.E., Manager
Air Permit Program Unit, Region I

This memorandum is in reply to your November 10, 1997 letter where you asked us to confirm your office's view that an individual non-major source subject to a part 60 or 61 standard or an individual area source subject to a part 63 standard is not required to obtain a title V permit, provided that the source meets the two conditions shown below. Please appreciate the delay in responding was to ensure that your questions got a thorough analysis.

Condition 1. The source's only applicable requirement is a one-time or ongoing notification, reporting, or record keeping requirement; and

Condition 2. The notification, reporting, or record keeping requirement exists to show that the source's actual emissions are below a certain threshold established by the standard.

Your letter proposes that Condition 2 is a requirement to demonstrate a source is not subject to a particular standard, as opposed to being a requirement of a standard developed under section 111 or 112 of the Clean Air Act (CAA). Your letter also suggests that area sources subject to requirements found in Condition 2 constitute a new category of sources, which you refer to as "nominal sources."

We share your view regarding the nonapplicability of title V sources subject only to a one-time or ongoing notification, reporting, or record keeping requirement which demonstrates the sources are below a certain threshold. Many recently-promulgated rules have such requirements, including subparts Cb, Cc, Ce, Ea, Eb, Ec, JJJ, SSS, VVV, and WWW of part 60 and subparts M, N, O, R, X, and JJ of part 63. By way of example, subpart Ec of part 60 requires owners or operators of combustors that burn only pathological waste, low-level radioactive

waste, and/or chemotherapeutic waste and co-fired combustors, as defined in section 60.51c, to comply only with certain record keeping and reporting requirements set forth in subpart Ec. Those owners and operators are not subject to the other substantive requirements of subpart Ec as long as they comply with the record keeping and reporting requirements set forth as conditions for their exemption. Nor are owners or operators of these sources required to obtain title V operating permits as a matter of federal law, if the only reason they would potentially be subject to title V is these record keeping and reporting requirements. We interpret the Clean Air Act and the regulations at parts 70 and 71 to mean that these sources are "not subject to standards or regulations under section 111" for purposes of title V permitting [see CAA section 502(a) and 40 CFR sections 70.3(a)(2) and 71.3(a)(2)]. Therefore, these sources are not required to apply for title V permits on the basis of their record keeping and reporting requirements as a matter of federal law. However, owners and operators of sources that burn only pathological waste, low-level radioactive waste, and/or chemotherapeutic waste and co-fired combustors that do not comply with the record keeping and reporting requirements necessary to qualify for exemption from the other requirements of the Federal plan would become subject to those other requirements and would have to obtain title V permits. Moreover, if in the future we promulgate regulations subjecting any of these sources to substantive requirements other than these record keeping and reporting requirements, these sources could become subject to title V at that time.

Regarding your nominal source category, we do not see a need for establishment of such a category. The present area source and nonmajor source terms should suffice.

Please keep in mind that the position set forth in this memorandum is intended solely as guidance, does not represent final Agency action, and cannot be relied upon to create any rights enforceable by any party. Should you have other questions concerning this position, please contact me at (919) 541-0886.

cc: John Walke, OGC
Air Program Manager, Regions I - X
Title V Contact, Regions I - X
Title III Contact, Regions I-X

From:	Josh Johnson
To:	Tessa Stevens; Daniel Pitman
Subject:	ICL comments re INL Scoville PTC
Date:	Thursday, December 14, 2017 10:45:41 AM
Attachments:	ICL cmnts re INL Scoville PTC.pdf

Dear Ms. Stevens and Mr. Pitman,

Attached are ICL's comments regarding the air quality PTC for INL (No. P-2015.0023). We appreciate the opportunity to provide input on this matter and thank you for consideration of our comments. After reviewing our concerns, we ask that DEQ please provide responses to all of our submitted comments.

Thank you,

--

Josh Johnson
Central Idaho Conservation Associate
Idaho Conservation League
[redacted]

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December 14, 2017

Tessa Stevens
DEQ State Office
Air Quality Division
1410 N. Hilton
Boise, ID 83706

Dan Pitman
DEQ State Office
Air Quality Division
1410 N. Hilton
Boise, ID 83706

Submitted via e-mail to: tessa.stevens@deq.idaho.gov and daniel.pitman@deq.idaho.gov

Re: Permit to Construct No. P-2015.0023

Dear Ms. Stevens and Mr. Pitman:

Thank you for considering our comments on the INL Scoville PTC (No. P-2015.0023).

Since 1973, the Idaho Conservation League has had a long history of involvement with air quality issues. As Idaho's largest state-based conservation organization we represent over 30,000 supporters who have a deep personal interest in ensuring that our air quality is protected throughout the state.

We thank you for the opportunity to submit comments and ask that you please send us subsequent documents for this project. We look forward to continuing to work with the Department of Environmental Quality on this project and others in the future. Please feel free to contact us if you have any questions or require additional information.

Sincerely,

Josh Johnson, Central Idaho Conservation Associate
Idaho Conservation League
[redacted]

Assessing Cumulative Health Risks

Given that many of INL's existing permits to construct are being consolidated under a single facility emissions cap, both DEQ and the public now have a better sense of the total potential to emit from INL facilities (Table 6 in Statement of Basis). As a result, this would be a good opportunity for DEQ to assess the public health risks associated with the cumulative emissions from INL facilities. Although the permitted PTE under this FEC does not exceed major source thresholds for any single pollutant, the cumulative impact of all of those pollutants together being released into the air is still worth considering. Ambient air pollution was responsible for 4.2 million deaths worldwide in 2015, and pollution control is technically and economically feasible[1]. Facilities with high total emissions should explore ways in which they can continue to reduce their emissions in the interest of protecting human health.

TAPs Analysis

On page 17 of the Statement of Basis, it is stated, "For any residual TAPs, that are not HAPs, INL has claimed the source is exempt which requires analyzing those TAPs to exemption thresholds. DEQ has not been provided this analysis but believes the source would demonstrate emissions were below exemption thresholds for any residual TAPs." Why was DEQ not provided this analysis? Furthermore, how does DEQ justify prematurely issuing this permit without being provided a required analysis? Just "believing" the facility is not sufficient justification in our eyes.

Incorporation of Existing PTCs into the FEC Permit

The new FEC permit proposed here will incorporate many – but not all – of the existing PTCs at INL. Why are certain PTCs excluded from incorporation into the new FEC permit? For example, PTC P-2011.0124 for the Florinel and Storage Facility is one that INL specifically requested not be incorporated into the FEC permit. If FEC permits are intended to provide a facility-wide emission limitation, as stated in IDAPA 58.01.01.176.01, then why are certain components of the overall INL facility not included?

[1] Landragin, Philip, 2016 . "Air pollution and health." *Lancet Public Health* Vol. 2(1). http://dx.doi.org/10.1016/S2468-2667(16)30023-8.

The SHOSHONE-BANNOCK TRIBES

FORT HALL INDIAN RESERVATION
AIR QUALITY PROGRAM
[redacted]

LAND USE DEPARTMENT
P. O. BOX 306
FORT HALL, IDAHO 83203

December 28, 2017

Tessa Stevens
Department of Environmental Quality
1410 N. Hilton
Boise, Idaho 83706-1255
tessa.stevens@deq.idaho.gov

Sent via email and parcel post

RE: Shoshone-Bannock Tribes Comments on the U.S. DOE Application to Idaho DEQ for a Permit to Construct and Operate an Air Pollution-Emitting Source (No. P-2015.0023; Project ID 61525; Facility ID 023-00001), Idaho National Laboratory, Scoville, Idaho

Dear Tessa Stevens:

The Shoshone-Bannock Tribes ("Tribes") appreciate the opportunity to provide comments on the United States Department of Energy's ("DOE") application to construct and operate an air pollution-emitting source ("Application"). One part of the Application, as described by DOE under its Purpose and Scope at page 1 (DOE/ID-11530, Revision 3, May 2017), is to change the air quality permit so that emissions will be regulated under Sections 109 and 112 of the Clean Air Act, replacing the current DOE air quality permit which is regulated under Title V, Tier I Operating Permit. Furthermore, as DOE stated in its Application, the "following sections of this document provide ... emission increases, applicable requirements, and proposed permit conditions." Application at 2.

DOE's Application is also for a facility emission cap (FEC), which would allow for "an operational flexibility component, and an optional growth component." Application at 9. DOE is requesting DEQ to set its FEC for Hazardous Air Pollutants (HAPs) regulated under CAA Section 112(b) "to less than 10 tons per year (T/yr) of any single HAP and less than 25 T/yr of any combination of such hazardous air pollutants." Application at 10. The FEC must be set below major facility thresholds in accordance with IDAPA 58.01.01.175. 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 and the Tribes in advance ofthe change in accordance with IDAPA 58.01.01.181.01.b.

Naturally, the Tribes are concerned about any increased emissions at the Idaho National Laboratory (INL)-a major source ofharmful air pollutants-that may impact the environment upon which our Tribes depend to carryon our customs and traditions. Our Fort Hall Indian Reservation is located only about 35 miles southeast ofINL. The Tribes also have treaty rights, reserved under the Fort Bridger Treaty of 1868, extending to all unoccupied lands ofthe United States and including any areas that may be affected by INL air pollutant emissions.

DOE detailed the specific pollutants and their estimated amounts that will be emitted. But among the 885 pages ofDOE's Application-and Statement ofBasis, there is no mention or prediction as to the regions where the hazardous air pollutants are likely to spread. Thus, we request that the Application provide information as to what regions are impacted by current emissions and what regions would be impacted by increased emissions and permit conditions pursuant to DOE's proposed permit. Specifically, what downwind areas will have air quality reductions? Where will deposition occur most? What times ofyear and in what quantities? Such information may be important to keep our Tribal members safe and informed. While DOE does provide dispersion analyses in their Application, those analyses are vacant any information specific to our request.

DOE operations will emit a large host ofcancer-causing agents and noncarcinogens alike, both ofwhich can adversely affect human health, plant and animal life, and water quality. IfDOE air emission pollutants have the potential to cross into our Reservation, then the Tribes must have sufficient information to gauge under what environmental circumstances it is likely to occur, so we may take measures to safeguard our community. Without that information, our ability for Tribal self-governance may be compromised.

The Tribes' Air Quality Program has "legal authority for air pollution control on the Fort Hall Indian Reservation on all lands under the jurisdiction ofthe Shoshone-Bannock Tribes which includes all lands within the exterior boundaries ofthe Fort Hall Indian Reservation and trust properties except where specifically retained by the U.S. Environmental Protection Agency...." (see SBT Air Quality Rules and Regulations, Section 1.01(2).)

1.01 Legal Authority

(1) These Rules and Regulations are promulgated pursuant to Shoshone-Bannock Tribes Air Quality Protection Act and the Shoshone-Bannock Tribes Administrative Procedures Act by the Fort Hall Business Council for the purpose of the control of air pollution on he Fort Hall Indian Reservation and to comply with the requirements of the federa Clean Air Act as amended.

(2) The Shoshone-Bannock Tribes Air Quality Program is the agency with legal authority for air pollution control on the Fort Hal; Indian Reservation on all lands under the jurisdiction of the Shoshone-Bannock Tribes which includes a lands within the exterior boundaries of the Fort Hall Indi n Reservat on and trust properties except where specifically retained by the U.S. Environmental Protection Agency. The Air Quality Program is authorized to adopt and enforce these rules, regulations and stand rds.

As set forth under Section 4.01(1) ofthe Tribes' Air Quality Protection Act (AQPA), the Tribes have established air quality standards for lands on which we have jurisdiction to protect the health and environment ofthe Fort Hall Indian Reservation. AQPA at 9, see below. Further, the AQPA gives the Air Quality Program authority to take reasonable measures to ensure that these air quality standards are achieved and maintained.

4.01 ?ol'c

(1) These ambient air quality standards are established to protect the health and environment of the Fort Hall Indian Reservation. It is the policy of the Air Quality Program to take whatever egally available reasonable measures that may be required to attain and maintain these standards. No source sha_l emit any of the air contaminants in amounts t t will caus or significantly contr-b.te to an exceedance of Tribal ambient air quality standards and no operating or construction permit wil be issued unless the applicant demonstrates that the source will comply with al applicab e rules, regulations and standards.

This being said, the Tribes do appreciate the fact that part of the reason for the DOE's Application is to allow flexibility in INL clean-up and remediation efforts. (Radionuclide sources must continue to comply with 40 CFR 61 Subpart H of the National Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities.) It is not the Tribes' intent to hinder any such clean-up and remediation efforts, but we do need sufficient and proper information to ensure the safety of our community and environment.

We thank the DEQ for considering our comments and for taking them into account in the issuance of any permits and permit conditions to the DOE. If you have any questions, please feel free to contact Lori Howell at the Tribes' Air Quality Program [redacted]

Sincerely,

Lori Howell

Lori Howell
Air Quality Manager