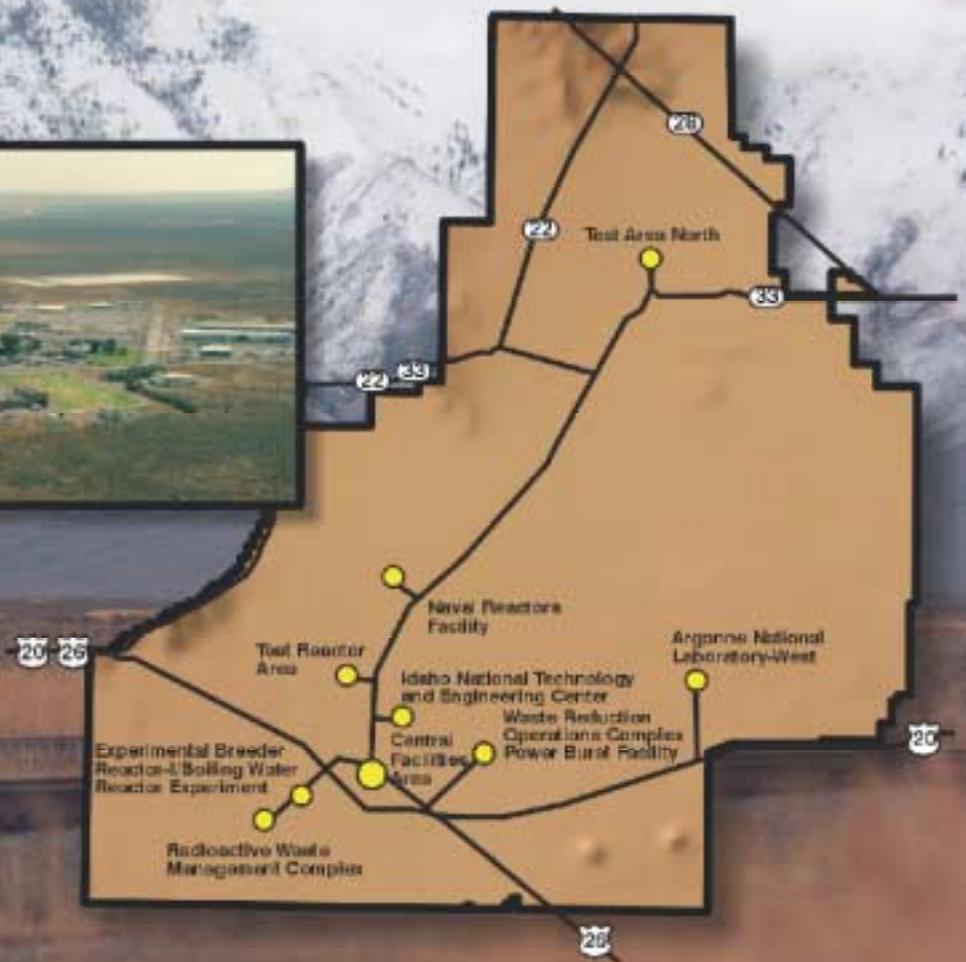


Application for a Title V Operating Permit for the Idaho National Engineering and Environmental Laboratory



Volume III Central Facilities Area



**Application for a Title V Operating Permit for the Idaho
National Engineering and Environmental Laboratory**

**Volume III
Central Facilities Area**

Published March 2001

**Idaho National Engineering and Environmental Laboratory
Environmental Affairs
Bechtel BWXT Idaho, LLC
Idaho Falls, Idaho 83415**

**Prepared for the
U.S. Department of Energy
Under DOE Idaho Operations Office
Contract DE-AC07-99ID13727**

FOREWORD

Volume III is one of a total set of ten volumes prepared for the Application for a Title V Operating Permit for the Idaho National Engineering and Environmental Laboratory.

The volumes making up the INEEL operating permit application are numbered as follows.

Volume I	Sitewide Standards and Information, and Operating Permit Application Guide
Volume II	Argonne National Laboratory-West
Volume III	Central Facilities Area
Volume IV	Idaho Nuclear Technology and Engineering Center
Volume V	Waste Reduction Operations Complex
Volume VI	Naval Reactors Facility
Volume VII	Test Area North
Volume VIII	Test Reactor Area
Volume IX	Radioactive Waste Management Complex
Volume X ^a	Radioactive Waste Management Complex, Advanced Mixed Waste Treatment Project, is forthcoming.

This February 2001 application is an updated revision of the July 1995 application (INEL-95/0155, Rev. 1) written to include, but not limited to:

- Changes to the Idaho Administrative Procedures Act Air Regulation;
- Updating the name of the Idaho Chemical Processing Plant to Idaho Nuclear Technology and Engineering Center (Volume IV);
- Cessation of various programs; and
- Addition of Volume X (which is forthcoming) that reflects BNFL, Inc. as the operator for the Advanced Mixed Waste Treatment Project at the Radioactive Waste Management Complex.

a. Anticipated completion FY 2002 by BNFL, Inc.

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ACRONYMS

AEC	Atomic Energy Commission
AFBC	atmospheric fluidized bed combustion
AMWTF	Advanced Mixed Waste Treatment Facility
ANL-W	Argonne National Laboratory-West
ANSI	American National Standards Institute
AST	above-ground storage tank
ATR	Advanced Test Reactor
BBWI	Bechtel BWXT Idaho, LLC
BORAX	Boiling Water Reactor Experiment
BRC	below regulatory concern
CAM	continuous air monitor
CEMS	continuous emission monitoring system
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFA	Central Facilities Area
CFR	Code of Federal Regulations
CSSF	Calcined Solids Storage Facility
CGS	Calcine Grinder Setup
COMS	continuous opacity monitoring system
CPP	Chemical Processing Plant (now known as INTEC)
CTF	Contained Test Facility (formerly LOFT)
DEQ	Department of Environmental Quality
DOE	Department of Energy
DOE-ID	Department of Energy-Idaho Operations Office
DOG	dissolver off-gas
DOP	dioctyl phthalate
DOT	Department of Transportation
DU	depleted uranium
DVF	Drum Venting Facility
ECF	Expended Core Facility
EDE	effective dose equivalent
EIS	environmental impact statement
EPA	Environmental Protection Agency
ETR	Engineering Test Reactor
FAA	Federal Aviation Administration
FDP	Fluorinel Dissolution Process
FSA	Fuel Storage Area
HAP	hazardous air pollutant
HEPA	high-efficiency particulate air
HFEF	Hot Fuel Examination Facility (located at ANL-W)

HLLWE	high level liquid waste evaporator
HQ	headquarters
HVAC	heating, ventilation, and air conditioning
ICPP	Idaho Chemical Processing Plant (now known as INTEC)
IDAPA	Idaho Administrative Procedures Act
IET	Initial Engine Test
INEEL	Idaho National Engineering and Environmental Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center
JP-4	jet propulsion 4
JP-8	jet propulsion 8
LET&D	Liquid Effluent Treatment and Disposal (Facility)
LLW	low-level radioactive waste
LOFT	Loss-of-fluid Test
M&O	management and operations
MCR	maximum continuous rating
MDF	Material Development Facility
MTR	Materials Test Reactor
MWSF	Mixed Waste Storage Facility
NA	not applicable
NESHAP	National Emission Standards for Hazardous Air Pollutants
NRF	Naval Reactors Facility
NWCF	New Waste Calcining Facility
OCM	organic composite material
PBF	Power Burst Facility
PCS	petroleum-contaminated soil
PEW	process equipment waste
PM	particulate matter
PM-10	particulate matter with a diameter less than 10 μ
PREPP	Process Experimental Pilot Plant
PRF	Process Reclamation Facility
PSD	prevention of significant deterioration
PTC	permit to construct
RAL	Remote Analytical Laboratory
RAM	remote area monitor
RCRA	Resource Conservation and Recovery Act
RCT	radiation control technician
RDF	refuse-derived fuel
RE	Retrieval Enclosure
RESL	Radiological Environmental Sciences Laboratory
RFP	Rocky Flats Plant
RWMC	Radioactive Waste Management Complex
SAL	Special Analysis Laboratory

SDA	Subsurface Disposal Area
SES	Special Equipment Services
SMC	Specific Manufacturing Capability (Facility)
SPING	stack particulate, iodine, and noble gas
SRT	special response team
SWEPP	Stored Waste Examination Pilot Plant
TAN	Test Area North
TMI-2	Three Mile Island Unit 2
TRA	Test Reactor Area
TRAHC	Test Reactor Area Hot Cell
TRU	transuranic
TSA	Transuranic Storage Area
TSF	Technical Support Facility
TSP	total suspended particulates
U.S.C.	United States Code
UST	underground storage tanks
UTM	Universal Transverse Mercator
VMT	vehicle miles traveled
VOC	volatile organic compound
VOCNM	Volatile organic compound-non methane
VOG	vessel off-gas
WCF	Waste Calcining Facility
WERF	Waste Experimental Reduction Facility
WIPP	Waste Isolation Pilot Plant
WMF	Waste Management Facility
WROC	Waste Reduction Operations Complex
WRRTF	Water Reactor Research Test Facility
WSF	Waste Storage Facility
WWTF	Warm Waste Treatment Facilities

SYMBOLS AND ABBREVIATIONS

α	alpha
β	beta
β/γ	beta/gamma
Btu	British thermal unit
Ci	curie
Ci/mo	curie per month
Ci/yr	curie per year
Cm ²	square centimeters
CO	carbon monoxide
g	gram
gr	grain
hp	horse power
lb	pound
μm	micrometers (10^{-6} meters)
MBtu	million British thermal unit
mrem	thousandth of a roentgen equivalent man
mrem/yr	millirem per year
NO _x	nitrogen oxide
SO _x	sulfurous oxide
v/v	volume per volume
w.c.	water column

1. AREA-SPECIFIC INFORMATION

1.1 Facility Description

The CFA encompasses about 550 acres in the southwestern portion of the INEEL Site and contains over 80 buildings. The purpose of CFA is to provide technical and support services to the INEEL Site. These services include environmental monitoring and calibration laboratories, communication systems, security, fire protection, medical services, warehouses, cafeteria, vehicle and equipment pools, the INEEL Landfill Complex, hazardous waste storage, DOE-ID West offices, and bus operations.

Administratively, the INEEL has been divided into a grid system where each grid area is identified as a block area having a unique number. Utility services and areas outside facility fence lines within these block areas are administered by the CFA landlord and will hereafter be referred to as simply “block area.” Air emissions from block area sources are addressed in this volume of the application. Howe Peak Transformer Station has a standby propane generator. The security firing range (B21) is used for safety training. The INEEL’s main guard gate (B27) is located on Portland Avenue between CFA and U.S. Highways 20 and 26; it has a backup generator and associated tank. The north guard gate (B08), located on Lincoln Boulevard just before it turns into U.S. Highway 33 between CFA and TAN, also has a backup generator and associated tank. The area outside the NRF having two underground tanks is B16. These block area sources are identified in this application as not-significant sources.

The location of CFA at the INEEL is shown in Figure III-1-1. Detailed area plot plans for CFA and the main guard gate are shown in Figures III-1-2 through III-1-3, respectively. A map identifying the various land uses surrounding the INEEL is shown in Figure III-1-4.

- ANL-W Argonne National Laboratory–West
- CFA Central Facilities Area
- INTEC Idaho Nuclear Technology and Engineering Center
- NRF Naval Reactors Facility
- PBF Power Burst Facility
- RWMC Radioactive Waste Management Complex
- TAN Test Area North
- TRA Test Reactor Area

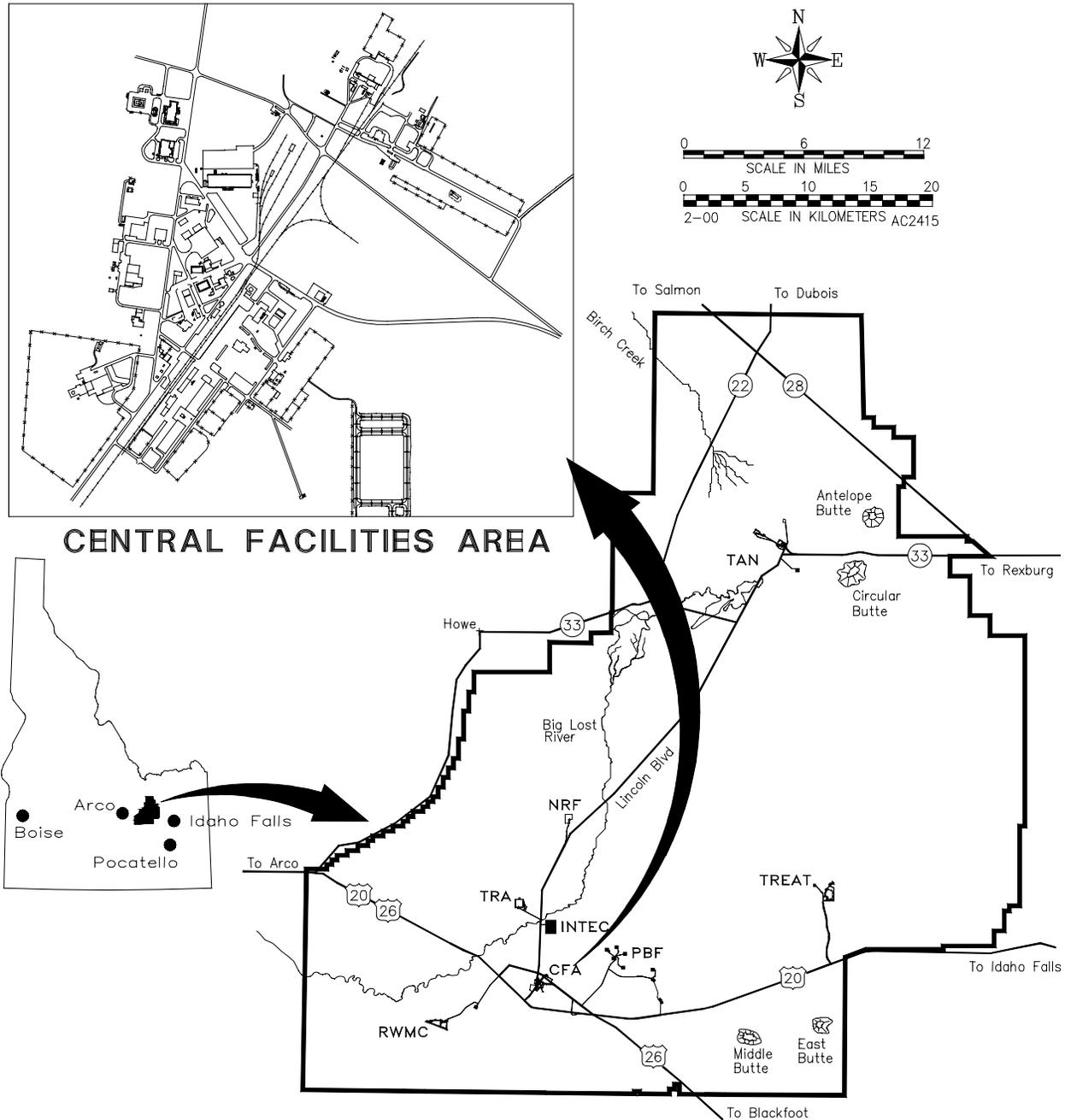


Figure III-1-1. CFA location on a map of the INEEL and surrounding area.

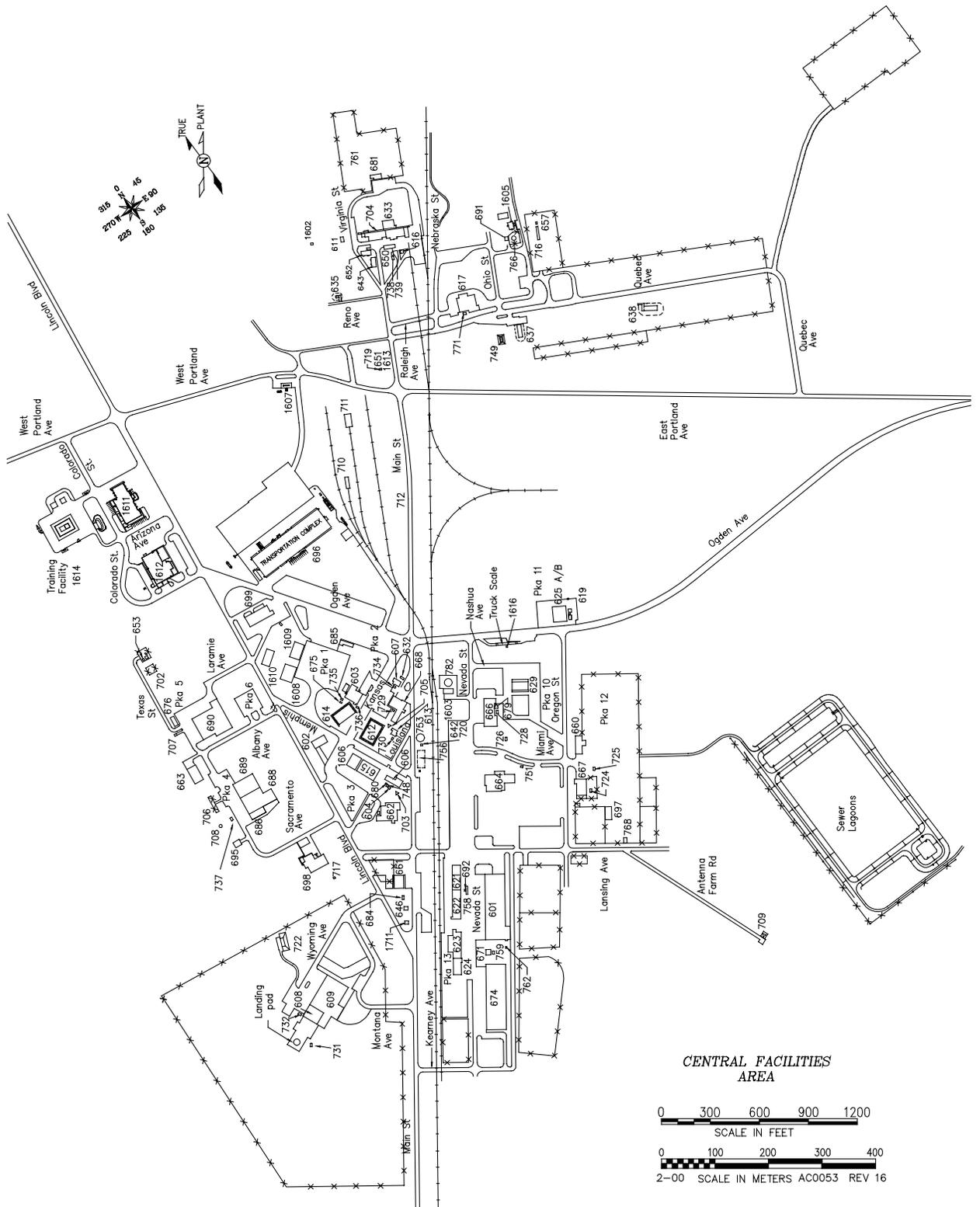
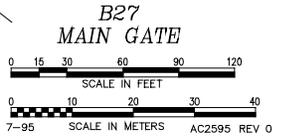
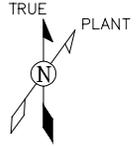
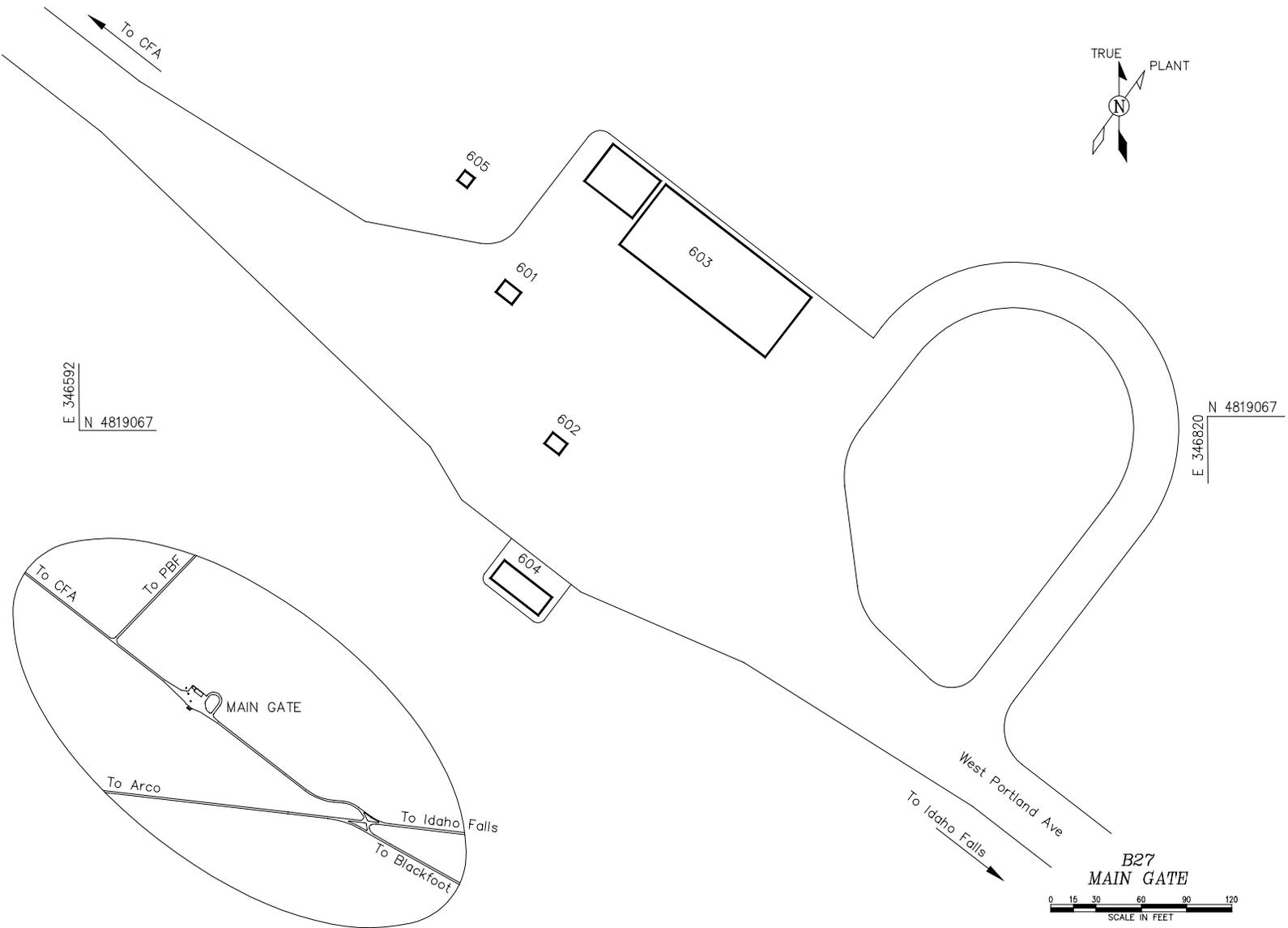


Figure III-1-2. Detailed CFA building plot plan.



NOTE: UTM COORDINATES

Figure III-1-3. Diagram showing location of main gate.

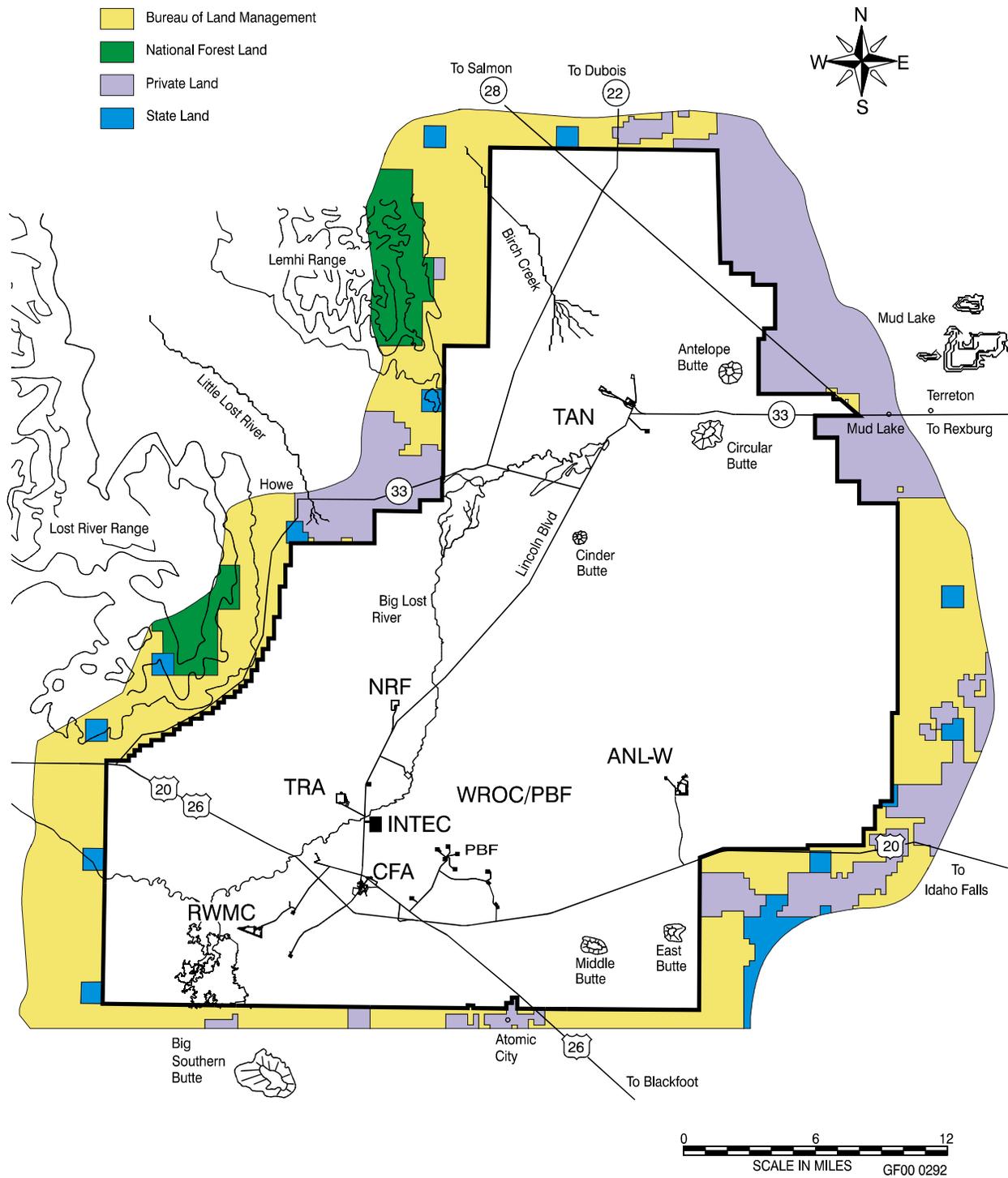


Figure III-1-4. Map identifying the various land uses surrounding the INEEL.

1.2 CFA Emission Sources

Table III-1-1 lists the significant air emission sources at CFA that are detailed in the application. Tables III-1-2, and III-1-3 lists the not-significant sources at CFA that fall within the criteria described in Volume I, Section 3.10. The not-significant sources will not be specifically addressed in the permit application other than in these tables.

Table III-1-1. Significant air emission sources at CFA.

Building No.	Building Name	Vent/Stack No.	Source Description	Comment
CFA-609	Security Headquarters	005	Boiler	Boiler servicing Safeguards and Security Facility
CFA-650	Heating Plant	007	Boiler	Boiler servicing Health Physic Instrument Laboratory CFA-633 Building
CFA-662	Cafeteria	011	Boiler	Boiler servicing Cafeteria
CFA-662	Cafeteria	027	Boiler	Boiler servicing Cafeteria
CFA-671	Boiler House	007 ^a	Boiler	Boiler servicing CFA Miscellaneous Buildings
CFA-671	Boiler House	008 ^a	Boiler	Boiler servicing CFA Miscellaneous Buildings
CFA-688	Technical Center	043	Boiler	Boiler servicing the Engineering Technical Center
CFA-688	Technical Center	044	Boiler	Boiler servicing the Engineering Technical Center
Multiple ^b	Multiple		Internal Combustion Engines	These units are not specifically exempted by IDAPA 58.01.01.317
Multiple ^b	Multiple		Petroleum Storage Tanks	40 CFR 60 Subpart Kb

a. This source consumes prevention of significant deterioration (PSD) increment. A general discussion of this program is included in Section 6.6 in Volume I.

b. This category includes multiple units at varying locations. They are addressed generally as a source category.

Table III-1-2. Not-significant, non-radiological air emission sources at CFA.

Building No.	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
B21-608	Indoor Range	012 ^a	Air filtration system	IDAPA 58.01.01.317.b.i.(30)
CFA-100	Area	001	Landfill Complex asbestos operations	No emissions, see Volume I, Section 5.7 and 6.3
CFA-104	Area	001	INEEL Landfill Complex commercial/industrial waste operations	Fugitive dust source, see Volume I, Section 6.3
CFA-105	Area	001	INEEL Landfill Complex land-farming operations	See Appendix A
CFA-602	Material Testing Laboratory & Field Engineering	016	Fume hood	IDAPA 58.01.01.317.b.i.(30)
CFA-608	Security Helicopter Hanger	001 ^a	Boiler	IDAPA 58.01.01.317.b.i.(7)
CFA-612	Office/Three Labs	007	Nonradiological analysis instrument exhaust	IDAPA 58.01.01.317.b.i.(30)
CFA-612	Office/Three Labs	008	Nonradiological analysis fume hood	IDAPA 58.01.01.317.b.i.(30)
CFA-612	Office/Three Labs	010	Nonradiological analysis fume hood	IDAPA 58.01.01.317.b.i.(30)
CFA-612	Office/Three Labs	012	Nonradiological analysis fume hood	IDAPA 58.01.01.317.b.i.(30)
CFA-622	Multi Craft Shop	009 ^a , 015 ^a , 019 ^a , 020 ^a , 021 ^a	Welding Shop	IDAPA 58.01.01.317.b.i.(9)
CFA-623	Multi Craft Shop No. 3	007 ^a	Wood Shop	IDAPA 58.01.01.317.b.i.(30)
CFA-623	Multi Craft Shop	005	Paint Shop	IDAPA 58.01.01.317.b.i.(17)
CFA-623	Multi Craft Shop	017	Paint Shop	IDAPA 58.01.01.317.b.i.(17)
CFA-625	CFA Laboratory Complex	010	Analytical Laboratory	IDAPA 58.01.01.317.b.i.(30)
CFA-625	CFA Laboratory Complex	009	Analytical Laboratory	IDAPA 58.01.01.317.b.i.(30)

Table III-1-2. (continued).

Building No.	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
CFA-633	Health Physics Instrument Laboratory	067	Analytical Laboratory	IDAPA 58.01.01.317.b.i.(30)
CFA-660	Laborers & Equipment Operator Bldg.	020 ^a , 021 ^a , 022 ^a	Space heaters	IDAPA 58.01.01.317.b.i.(5)
CFA-666	Old Fire Station	032 ^a , 033 ^a , 034 ^a , 035 ^a , 036 ^a , 037 ^a , 038 ^a , 039 ^a , 040 ^a , 041 ^a ,	Space heaters	IDAPA 58.01.01.317.b.i.(5)
CFA-688	Technical Center	002	Technical welding	IDAPA 58.01.01.317.b.i.(9)
CFA-690	Radiological/ Environmental Laboratory	All	Analytical Laboratory instrument and fume hood exhaust stacks	IDAPA 58.01.01.317.b.i.(30)
CFA-696	CFA Transportation Complex	001 ^a	1 MBtu/hr steam cleaner	IDAPA 58.01.01.317.b.i.(5)
CFA-696	CFA Transportation Complex	002 ^a	1 MBtu/hr steam cleaner	IDAPA 58.01.01.317.b.i.(5)
CFA-696	CFA Transportation Complex	003 ^a	Vehicle Repair Paint Shop	IDAPA 58.01.01.317.b.i.(17)
CFA-696	CFA Transportation Complex	005 ^a	Vehicle Shop	IDAPA 58.01.01.317.b.i.(9)
CFA-696	CFA Transportation Complex	006 ^a , 007 ^a , 008 ^a , 009 ^a , 010 ^a , 011 ^a , 012 ^a , 040 ^a	Exhaust trunks from vehicle repair/ maintenance	IDAPA 58.01.01.317.b.i.(30)
CFA-696	CFA Transportation Complex	021	Engine dynamometer exhaust	IDAPA 58.01.01.317.b.i.(30)
CFA-698	Standards and Calibration Laboratory	007, 013	Laboratory fume hoods	IDAPA 58.01.01.317.b.i.(30)
CFA-786			Wastewater treatment lagoon	IDAPA 58.01.01.317.b.i.(29)

Table III-1-2. (continued).

Building No.	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
CFA-787			Wastewater storage lagoon	IDAPA 58.01.01.317.b.i.(29)
CFA-788			Wastewater lagoon	IDAPA 58.01.01.317.b.i.(29)
CFA-B27-601	Main Gate, Generator Building	98CFA00390	60-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
CFA-B8-601	Gate #4	98CFA00355	60-gallon diesel AST	IDAPA 58.01.01.317.b.i.(30)
CFA-1603	Firewater Pumphouse	98CFA00366	285-gallon diesel #2 AST	IDAPA 58.01.01.317.b.i.(30)
CFA-1603	Firewater Pumphouse	98CFA00013	285-gallon diesel #2 AST	IDAPA 58.01.01.317.b.i.(30)
CFA-1607	Service Station	98CFA00304	15,000-gallon gasoline UST	IDAPA 58.01.01.317.b.i.(30)
CFA-609	Security Headquarters	98CFA00061	12,000-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-650	Heating Plant	98CFA00378	2,500-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-650	Heating Plant	98CFA00140	2,500-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-662	Cafeteria	98CFA00157	12,000-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-668	Communications Bldg.	98CFA00204	1,000-gallon diesel #2 UST	IDAPA 58.01.01.317.b.i.(30)
CFA-671	Boiler House	98CFA00225	20,000-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-688	Tech Center	98CFA00260	2,500-gallon diesel UST	IDAPA 58.01.01.317.b.i.(30)
CFA-688	Tech Center	98CFA00261	500-gallon fuel oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-689	Tech Center (South Side)	98CFA00270	42,000-gallon diesel #2 AST	IDAPA 58.01.01.317.b.i.(30)
CFA-696	New Big Shop	98CFA00296	2,500-gallon motor oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA-696	New Big Shop	98CFA00298	2,500-gallon motor oil UST	IDAPA 58.01.01.317.b.i.(30)

Table III-1-2. (continued).

Building No.	Building Name	ID# for Vent/Stack or Tank	Source Description	Justification
CFA-696	New Big Shop	98CFA00299	2,500-gallon diesel UST	IDAPA 58.01.01.317.b.i.(30)
CFA-696	New Big Shop	98CFA00302	15,000-gallon diesel UST	IDAPA 58.01.01.317.b.i.(30)
CFA-696	New Big Shop	98CFA00301	15,000-gallon diesel UST	IDAPA 58.01.01.317.b.i.(30)
CFA-696	New Big Shop	98CFA00300	6,000-gallon waste oil UST	IDAPA 58.01.01.317.b.i.(30)
CFA N/A	Fuel Station (Vehicle)	99NRF00002	15,000-gallon gasoline UST	IDAPA 58.01.01.317.b.i.(30)

a. This source consumes PSD increment. A general discussion of this program is included in Volume I, Section 6.6.

1.3 Not-Significant Radiological Emission Source Description

1.3.1 CFA-625-010, Environmental Chemistry Laboratory

The CFA-625-010 source is a research and analysis laboratory known as the Environmental Chemistry Laboratory. Analytical organic and inorganic sample preparation techniques performed in the laboratory may include digestion and extraction, weighing, drying, filtering, mixing, and heating of materials. The laboratory ventilation system exhausts all of the radiological fume hoods and instrument exhaust ducts through a single blower and stack. The laboratory complex is a single-level, prefabricated, modular building. No control equipment is required for this source; however, a HEPA filter is installed on the hood exhaust. No emission monitoring equipment is required for this source.

1.3.2 CFA-690, Radiological and Environmental Sciences Laboratory (RESL)

The RESL is a radiological/analytical laboratory operated by the DOE-ID; RESL has undergone significant changes over the past several years. Programs that directly supported the INEEL site such as personnel dosimetry, bioassay measurements, and environmental monitoring and surveillance have been turned over to INEEL contractors. The mission that has evolved continues to draw upon RESL's traditional strengths as a recognized leader in radioanalytical chemistry and in dosimetry/radiological calibration technology, but is more "inherently federal" in nature. RESL provides quality assurance, traceable to the National Institute of Standards and Technology, to support federal technical oversight of analytical and radiation protection programs. It also conducts programs to evaluate the performance of contractor and commercial laboratories.

On going programs and activities currently being conducted by RESL staff include the following:

- Developing and conducting DOE-wide technical assessment and mixed analyte performance evaluation programs for DOE's Office of Environmental Management National Analytical Management Program to evaluate the analytical capabilities of laboratories that analyze environmental restoration activities.
- Developing and conducting DOE-wide laboratory accreditation programs for the Office of Environment, Safety and Health.
- Support to the Nuclear Regulatory Commission as their "Reference Laboratory for Radioactivity and Radiation Measurements".
- Performing analytical measurements to determine radioactivity and other contaminants in special environmental samples as needed by DOE and the Nuclear Regulatory Commission.
- Research and development to support the needs of the above programs.

To better support these programs, RESL expanded its analytical capabilities several years ago to include nonradiological hazardous chemicals in addition to performing radiochemical analyses. The instrumentation and staff enable RESL to measure organic and inorganic chemicals in mixed waste samples and to better support mixed analyses performance evaluation development.

Table III-1-3 lists the not-significant radionuclide emission sources for CFA. Not-significant sources meet the criteria described in IDAPA 58.01.01.317.b.i.30.

Table III-1-3. Not-significant radionuclide air emission sources at CFA.

Source ID	Source Description
CFA-625-010	Laboratory Hood
CFA 690-001	Laboratory Hood
CFA 690-002	Laboratory Hood
CFA 690-003	Laboratory Hood
CFA 690-004	Laboratory Hood
CFA 690-005	Laboratory Hood
CFA 690-006	Laboratory Hood
CFA 690-007	Laboratory Hood
CFA 690-008	Laboratory Hood
CFA 690-009	Laboratory Hood
CFA 690-010	Laboratory Hood
CFA 690-015	Laboratory Hood
CFA 690-042	Laboratory Hood
CFA 690-045	Laboratory Hood
CFA 690-046	Laboratory Hood
CFA 690-047	Laboratory Hood
CFA 690-048	Laboratory Hood
CFA 690-049	Laboratory Hood
CFA 690-059	Laboratory Hood

All the referenced sources in Table III-1-3 adhere to the following:

- Annual emission determinations,
- Periodic confirmatory monitoring to determine the need for continuous emission monitoring (point sources only),
- Keeping records of emission determinations and periodic confirmatory monitoring,
- Refer to Table II of the NESHAP annual report for description of effluent control equipment.

The annual radiological emissions from these sources are combined with all other radionuclide emissions from the INEEL to determine compliance with the 10 mrem/yr EDE as required in 40 CFR Part 61, Subpart H. The results are published in the INEEL National Emission Standard for Hazardous Air Pollutants - Radionuclides.

2. SOURCE SPECIFIC INFORMATION



2.1 CFA-609 Safeguards and Security Headquarters

2.1.1 General Description

CFA-609 is safeguards and security headquarters for INEEL. The building consists of security headquarters, connected with CFA-608, a preengineered and prefabricated helicopter building. The building houses the INEEL security operations personnel and includes office space and security training facilities. Significant emission sources associated with CFA-609 include one boiler (CFA-609-005). Figure III-2-1 shows the plan view for CFA-609.

2.1.2 CFA-609-005, Specific Information

This section contains information on the CFA-609-005 boiler. See Figure III-2-2, the state operating permit application forms for this source, which shows operating parameters based on modifications to existing PTC-023-00001 submitted August 30, 1995 to the State of Idaho DEQ. The permit to construct (PTC) modification was approved December 5, 1995 under new permit, Boiler for Space Heating at CFA 609, HQ, SRT Building Permit, PTC-023-00001, with final amendment February 14, 1996.

2.1.2.1 Process Description. The combustion source (CFA-609-005) is a commercial fire tube low-pressure steam-producing boiler for space heating. Boiler CFA-609-005 is powered by No. 2 fuel oil. The boiler is housed in a preengineered, single-level, security headquarters facility. See Figure III-2-3 for the process flow diagram. No emission monitoring or control equipment is required for this source.

2.1.2.2 Maximum Regulated Pollutant Emissions. The following addresses regulated pollutants potentially emitted from this source. The quantities listed represent emissions releases based on the requested operating limits associated with the boiler.

Pollutant	CAS	Annual Maximum Emissions (ton/yr)	Criteria Pollutant
CO	630-08-0	6.25E-02	X
NO _x	—	2.50E-01	X
PM	—	2.50E-02	X
SO _x	—	9.00-01	X
VOCNM	—	4.25E-03	X

2.1.2.3 Compliance Requirements

2.1.2.3.1 Permitted Emission Limits—The following are existing limits for which this source must maintain compliance, per PTC-023-00001 (boiler for spaceheating at CFA 609 HQ/SRT Building, February 14, 1996).

Pollutant	CAS	Annual Maximum Emissions	Units
Particulate matter ^a	—	0.03	lb/hr
Particulate matter ^a	—	0.025	ton/yr
Visible emissions ^b	—	^b	—

a. Particulate matter emissions from the boiler exhaust stack shall not exceed 0.03 lb/hr or 0.025 ton/yr .

b. Visible emissions from the boiler stack shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60 minute period, as required by Idaho Administration Procedures Act (IDAPA) 58.01.01.625, Rules for the Control of Air Pollution in Idaho.

2.1.2.3.2 Existing Permit Requirements—The following bullets list all existing State of Idaho related enforceable requirements specific to this source. This source is regulated by PTC-023-00001, dated February 14, 1996.

- Operating requirements: The boiler shall burn No. 2 fuel oil, JP-4, or JP-8 fuel. The sulfur content of the fuel shall not exceed 0.50% by weight as specified in IDAPA 58.01.01.728.02. The total fuel consumption of the boiler shall not exceed 25,000 gal/yr.
- Monitoring requirements: The permittee shall monitor and record in a log the fuel consumption of the boiler on a monthly basis. The most recent 2-year collection of data shall be kept on-site and shall be made available to department representatives upon request.
- Reporting requirements: None.

2.1.2.3.3 Other Enforceable Requirements—Current Idaho air regulations at IDAPA 58.01.01.625 VISIBLE EMISSIONS allow 20% opacity for up to 3 minutes in any 60 minute period.

2.1.2.3.4 Compliance Plan—This source is in compliance and will continue to comply with the indicated applicable requirements as described in this application (Figure III-2-4). For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contained a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirements.

2.1.2.3.5 Compliance Methodology Forms—See Figure III-2-4.

2.1.2.4 Emission Calculations. The following sub-sections provides a description of calculations used to calculate regulated pollutant emission in the regulated pollutant table.

2.1.2.4.1 Nonradionuclide Emissions—See Volume I, Appendix C. Emission estimates for fuel burning equipment are derived from the EPA’s Compilation of Air Pollutant Emission Factors, Volume I, “Stationary Point and Area Sources,” AP-42 calculation methods. AP-42 emissions calculations for fuel burning equipment are based on annual fuel burned for a type of industrial engine or boiler.

Under Section 2.1 emissions were calculated in by multiplying maximum engineered fuel use (15 gal/hr, 11,160 gal/mo, and 25,000 gal/yr) by the appropriate AP-42 emission factors.

Maximum fuel usage equivalent to the emission limit of 0.03 lb/hr using the following equation:

$$\frac{0.03 \text{ lb}}{\text{hr}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 2 \text{ lb PM}} = \frac{15 \text{ gal}}{\text{hr}} \quad (1)$$

Maximum monthly fuel usage equivalent to emission limit of 0.03 lb/hr using the following equation:

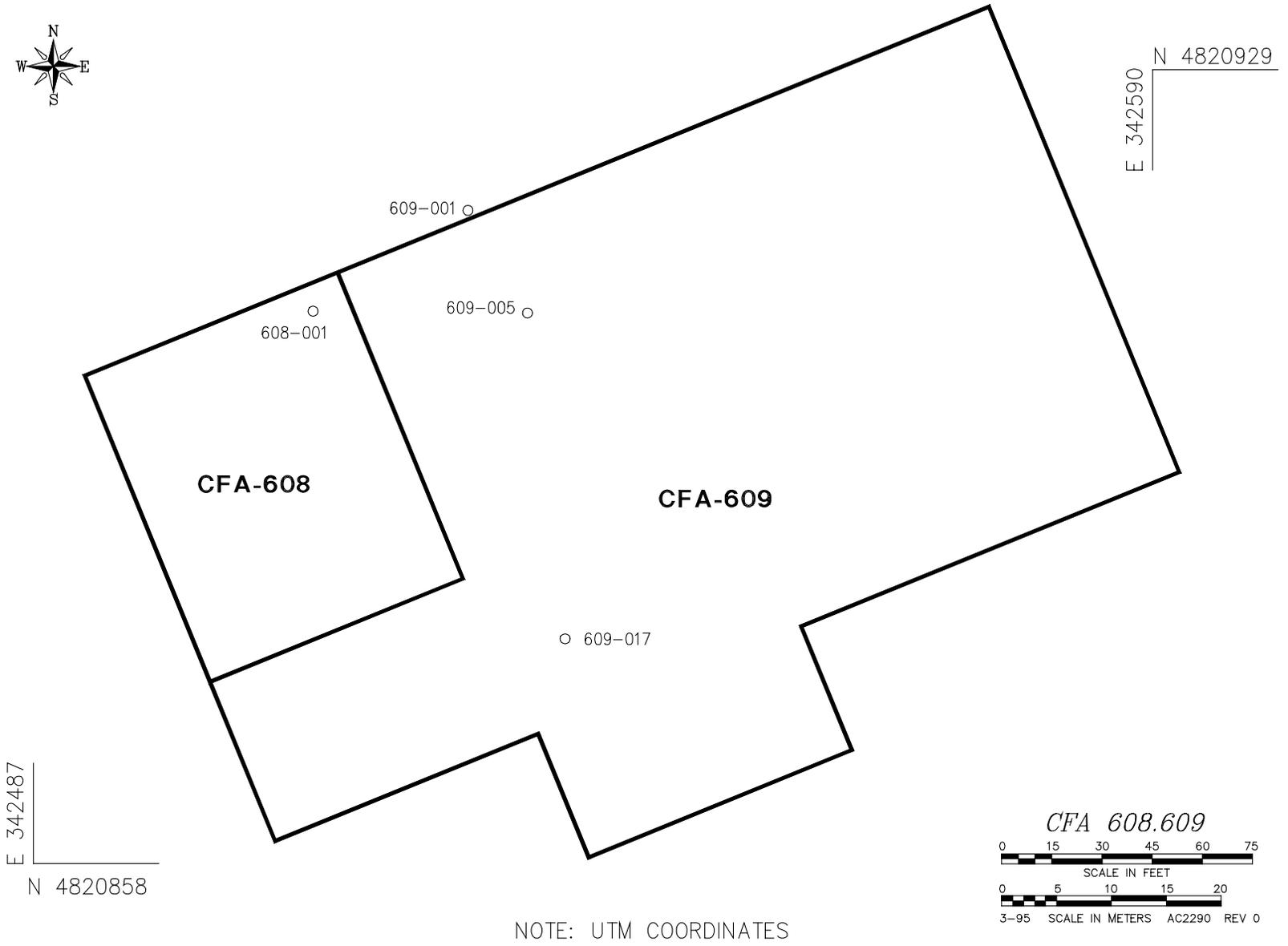
$$\frac{0.03 \text{ lb}}{\text{hr}} \times \frac{744 \text{ hr}}{\text{mo}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 2 \text{ lb PM}} = \frac{11,160 \text{ gal}}{\text{mo}} \quad (2)$$

Maximum annual fuel usage equivalent to omission limit of 0.025 ton/yr using the following equation:

$$\frac{0.025 \text{ ton}}{\text{year}} \times \frac{2000 \text{ lb}}{\text{ton}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 2 \text{ lb PM}} = \frac{25,000 \text{ gal}}{\text{year}} \quad (3)$$

2.1.2.4.2 Radionuclide Emissions—Not required since there are no radionuclide emissions from this emission unit.

Figure III-2-1. Plan view for CFA-609.



NOTE: UTM COORDINATES

Figure III-2-2. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 609 - 005	Boiler	CFA - 609
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
Cleaver Brooks	CB-101-50	1987

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
2.092						
BURNER TYPE	% USED FOR PROCESS	% USED FOR SPACE HEAT				
11	0	100				

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		NA	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	15	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	25,000	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

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Figure III-2-2. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	DWK	WK/YR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.53	4,820.90	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
27	10	830	400

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	7.50E-02 lb/hr 6.25E-02 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	3.00E-01 lb/hr 2.50E-01 ton/yr	NA	NA
Particulate	NA	2 lb/1,000 gal	NA	3.00E-02 lb/hr 2.50E-02 ton/yr	3.00E-02 lb/hr 2.50E-02 ton/yr	CFA PM Permit No. 023-0000
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	1.08E+00 lb/hr 9.00E-01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	5.10E-03 lb/hr 4.25E-03 ton/yr	NA	NA

IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."
Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.



Figure III-2-3. Process flow diagram for CFA-609-005.

Emission Point Number CFA-609-005

REQUIREMENT 1

Applicable requirement: Particulate matter emissions shall not exceed 0.030 lb/hr or 0.025 ton/yr . This is based on AP-42 Emission Fractions and maximum fuel use (25,000 gal/yr).

Requirement basis: PTC-023-00001, Boiler for Spaceheating at CFA 609 HQ/SRT Building, February 14, 1996

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than the values equivalent to the emission limits (11,160 gal/mo and 25,000 gal/yr) using AP-42 methodologies.

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: PM/PM-10

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: Estimated Emissions

Frequency of reporting: Annual Air Emissions Inventory

Beginning date: NA

Figure III-2-4. Compliance Certification Form (method of compliance).

Emission Point Number CFA-609-005

REQUIREMENT 2

Applicable requirement: Visible emissions from the boiler stack shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60 minute period, as required by IDAPA 58.01.01.625, Rules for the Control of Air Pollution in Idaho, and as determined using the Department's Procedures for Air Pollution Control

Requirement basis: PTC-023-00001, Boiler for Space Heating at CFA 609 HQ/SRT Building, February 14, 1996

Method required for determining compliance: None required

Method used to prove compliance: See Volume I, Section 5.1.3

REFERENCE TEST METHOD

Reference test method description: Visual opacity determination by Certified Emission Evaluator

Reference test method citation: Procedures Manual for Air Pollution Control, Section II (Evaluation of Visible Emissions Manual)

MONITORING

Monitoring device type: Visual

Monitor location description: As described in Evaluation of Visible Emissions Manual

Regulated pollutant being monitored: Opacity

General description of frequency and duration of sampling and how data will be reported: As needed, trained observers will do opacity determinations

RECORDKEEPING

Data (parameter) being recorded: Opacity

Frequency of recordkeeping (how often data are recorded): When reading is taken

REPORTING

General description of what is reported: NA

Frequency of reporting: NA

Beginning date: NA

Figure III-2-4. (continued).

Emission Point Number CFA-609-005

REQUIREMENT 3

Applicable requirement: The boiler shall burn No. 2 fuel oil, JP-4, or JP-8 fuel; the sulfur content of the fuel shall not exceed 0.50% by weight as specified in IDAPA 58.01.01.728.02

Requirement basis: PTC-023-00001 Boiler for Space Heating at CFA 609 HQ/SRT Building, February 14, 1996)

Method required for determining compliance: None required

Method used to prove compliance: Verify fuel type by fuel records

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: NA

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: None required

Frequency of recordkeeping (how often data are recorded): NA

REPORTING

General description of what is reported: NA

Frequency of reporting: NA

Beginning date: NA

Figure III-2-4. (continued).

Emission Point Number CFA-609-005

REQUIREMENT 4

Applicable requirements: The permittee shall monitor and record in a log the fuel consumption of the boiler on a monthly basis; the most recent 2-year collection of data shall be kept on-site and shall be made available to Department representatives upon request

Total fuel consumption for this boiler shall not exceed 11,000 gal/mo. Total fuel consumption shall not exceed 25,000 gal/yr.

Requirement basis: PTC-023-00001, (Boiler for Space Heating at CFA 609 HQ/SRT Building, February 14, 1996)

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than 25,000 gal/yr

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: Fuel records

Monitor location description: NA

Regulated pollutant being monitored: NA

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: NA

Frequency of reporting: NA

Beginning date: NA

Figure III-2-4. (continued).



2.2 CFA-650 Heating Plant

2.2.1 General Description

CFA-650 is a heating plant housing one boiler. Figure III-2-5 shows the CFA-650 plan view.

2.2.2 CFA-650-007 Specific Information

This section contains information on the CFA-650-007 boiler stack. Figure III-2-6 is the state operating permit application forms for this source.

2.2.2.1 Process Description. CFA-650-007 is a boiler that provides heat to the Health Physics Instrument Laboratory. This facility is a heating plant with one oil-fired, commercial fire tube boiler used for space heat. It is housed in a single-level heating plant servicing Health Physics Instrument Laboratory operations. The boiler feeds buildings CFA-633, CFA-656, and CFA-659. Boiler CFA-650-007 is powered by No. 2 fuel oil. Figure III-2-7 shows the process flow diagram. No control or monitoring equipment is required for this source.

2.2.2.2 Maximum Regulated Pollutant Emissions. The following addresses regulated pollutants potentially emitted from this source. The quantities listed represent emission releases based on the fuel use associated with the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999.

Pollutant	CAS	Annual Maximum Emissions (ton/yr)	Criteria Pollutant
CO	630-08-0	4.75E-01	X
NO _x	—	1.90E+00	X
PM	—	1.90E-01	X
SO _x	—	6.84E+00	X
VOCNM	—	3.23E-02	X

2.2.2.3 Compliance Requirements.

2.2.2.3.1 Permitted Emission Limits—The following are limits for which this source must maintain compliance, per Idaho Nuclear Technology and Engineering Center, nitrogen oxide sources Permit, PTC-023-00001, October 18, 1999.

Pollutant	CAS	Annual Maximum Emissions	Units
NO _x	—	0.58	lb/hr
NO _x	—	1.90	ton/yr

2.2.2.3.2 Existing Permit Requirements—“NO_x emissions from all INEEL wide NO_x sources shall not exceed their corresponding pounds per hour (lb/hr) or tons per year (ton/yr) emission limits listed in Appendix A” of the INTEC NO_x Permit (Permit No. 032-00001, October 18, 1999).

2.2.2.3.3 Other Enforceable Requirements—Current Idaho air regulations at IDAPA 58.01.01.625 VISIBLE EMISSIONS allow 20% opacity for up to 3 minutes in any 60 minute period.

2.2.2.4 Compliance Methodology and Status.

2.2.2.4.1 Compliance Plan—This source is in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.2.2.4.2 Compliance Methodology Forms—See Figure III-2-8.

2.2.2.5 Emission Calculations. The following sub-section provides a description of calculations used to calculate regulated pollutant emission in the regulated pollutant table.

2.2.2.5.1 Nonradionuclide Emissions—See Volume I, Appendix C. Emission estimates for fuel burning equipment are derived from the EPA’s Compilation of Air Pollutant Emission Factors, Volume I, “Stationary Point and Area Sources,” AP-42 calculation methods. AP-42 emissions calculations for fuel burning equipment are based on annual fuel burned for a specific industrial engine or boiler.

The maximum regulated emissions shown in Section 2.2.2.2 were calculated by determining the maximum engineered fuel throughput (29 gal/hr, 21,576 gal/mo, and 190,000 gal/yr) to correspond with the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999. These throughput factors were multiplied by AP-42 emission factors to calculate the other criteria pollutants.

Maximum hourly fuel usage equivalent to emission limit of 0.58 lb/hr using the following equation:

$$\frac{0.58 \text{ lb NO}_x}{\text{hr}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{29 \text{ gal}}{\text{hr}} \quad (4)$$

Monthly fuel usage equivalent to emission limit of 0.58 lb/hr using the following equation:

$$\frac{0.58 \text{ lb NO}_x}{\text{hr}} \times \frac{744 \text{ hr}}{\text{mo}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{21,576 \text{ gal}}{\text{mo}} \quad (5)$$

Annual fuel usage equivalent to emission limit of 1.90 ton/yr using the following equation:

$$\frac{1.90 \text{ ton NO}_x}{\text{yr}} \times \frac{2,000 \text{ lb}}{\text{ton}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{190,000 \text{ gal}}{\text{yr}} \quad (6)$$

2.2.2.5.2 Radionuclide Emissions—Not required since there are no radionuclide emissions from this emission unit.

Figure III-2-5. Plan view for CFA-650.

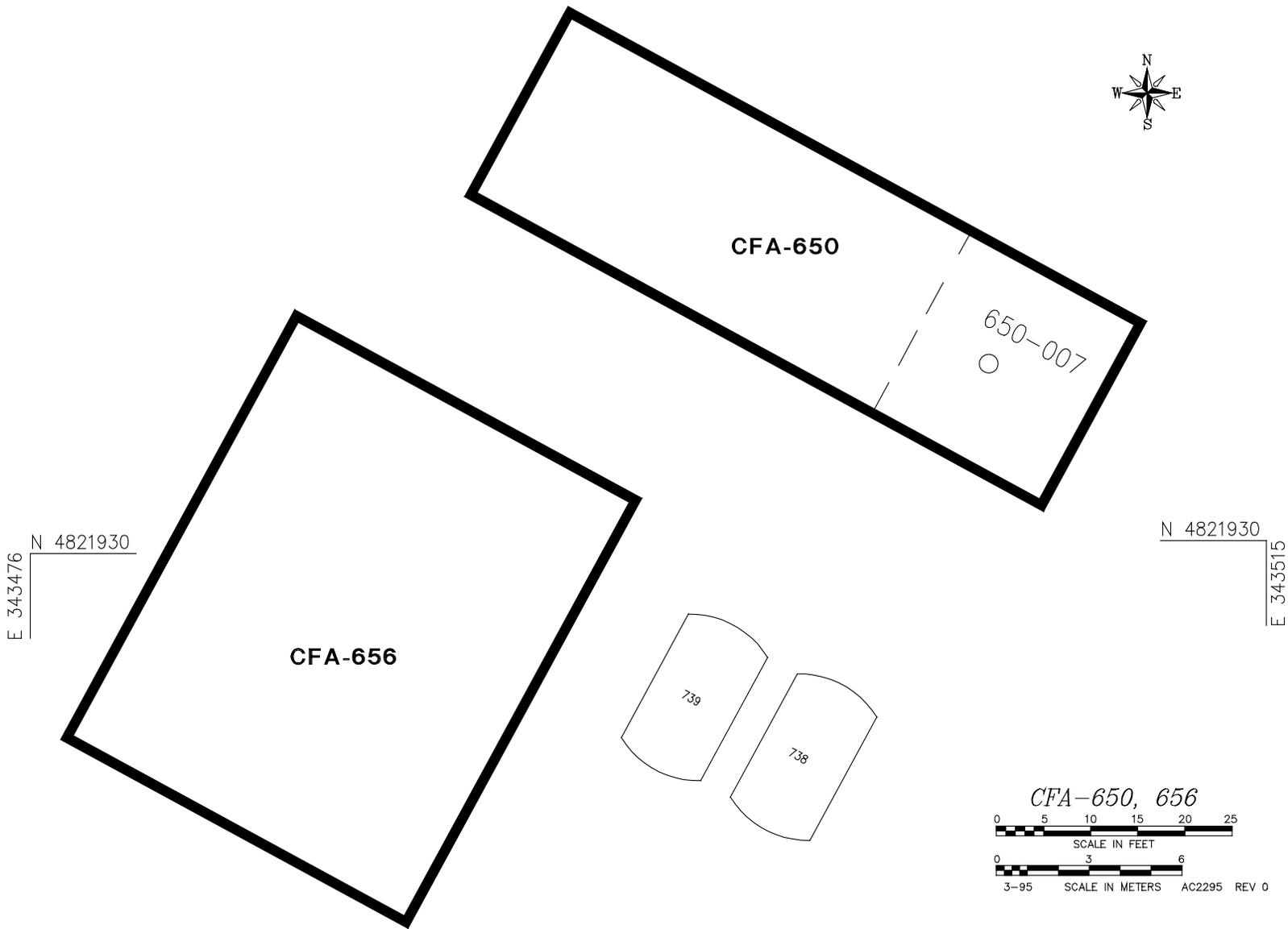


Figure III-2-6. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 650 - 007	Boiler	CFA - 650
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
Cleaver Brooks	CB500X-125	~1972

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
4.9						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	0		100			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		NA	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	29	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	190,000	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

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Figure III-2-6. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	343.50	4821.93	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
34	12	1073	325

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	1.45E-01 lb/hr 4.75E-01 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	5.80E-01 lb/hr 1.90E+00 ton/yr	5.8E-01 lb/hr 1.90E+00 ton/yr	INTEC NO _x Permit 023-0001
Particulate	NA	2 lb/1,000 gal	NA	5.80E-02 lb/hr 1.90E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	2.09E+00 lb/hr 6.84E+00 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	9.86E-03 lb/hr 3.23E-02 ton/yr	NA	NA
IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA						

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."
Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.

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Figure III-2-7. Process flow diagram for CFA-650-007.

Emission Point Number CFA-650-007

REQUIREMENT

Applicable requirement: Nitrogen oxide 0.58 lb/hr 1.90 ton/yr

Requirement basis: Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999.

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than the values equivalent to the emission limits (21,576 gal/mo and 190,000 gal/yr)

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: NO_x

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: Estimated Emissions

Frequency of reporting: Annual Air Emissions Inventory

Beginning date: NA

Figure III-2-8. Compliance Certification Form (method of compliance).



2.3 CFA-662 Cafeteria/Conference Building

2.3.1 General Description

CFA-662 is a cafeteria/conference building, which houses two boilers and is designated by two air emissions vents: CFA-662-011 and CFA-662-027. The cafeteria also has a designated fume hood for employee food preparation that is considered not-significant as described in Volume I, Section 3.10. Figure III-2-9 shows the CFA-662 plan view.

2.3.2 CFA-662-011/027 Specific Information

This section contains information on the CFA-662 boiler stacks designated as emission sources CFA-662-011 and CFA-662-027. See Figures III-2-10 and III-2-11 for the state operating permit application forms for these sources.

2.3.2.1 Process Description. CFA-662-001 and -027 are commercial water tube boilers used for space heat and process heat. The boilers, located in the below-ground boiler area and housed in a single-story cafeteria with a basement, feed buildings CFA-606, CFA-662, and CFA-640. No. 2 fuel oil is the primary fuel for the boilers. Propane is used as a secondary fuel.

See Figures III-2-12 and III-2-1 for the process flow diagrams. No control or monitoring equipment is required for this source.

2.3.2.2 Maximum Regulated Pollutant Emissions. The following addresses regulated pollutants potentially emitted from this source. The quantities listed represent emission limits based on PTC-023-00001 (INTEC NO_x Sources, October 18, 1999). The permitted limit is for combined CFA-662-011 and -028 boiler operations. The maximum regulated pollutant emissions in the following table reflects combined boiler operations.

Pollutant	CAS	Annual Maximum Emissions ^a (ton/yr)	Criteria Pollutant
CO	630-08-0	7.85E-01	X
NO _x	—	3.14E+00	X
PM	—	3.14E-01	X
SO _x	—	1.13E+01	X
VOCNM	—	5.34E-02	X

a. Combined maximum emissions for CFA 662-011 and CFA 662-027.

2.3.2.3 Compliance Requirements.

2.3.2.3.1 Permitted Emission Limits—The following are limits for which the CFA-662-011 and -027 boilers must maintain compliance (combined emissions), per 023-00001, reissued February 13, 1995.

Pollutant	CAS	Annual Maximum Emissions	Units
NO _x	—	0.96	lb/hr
NO _x	—	3.14	ton/yr

2.3.2.3.2 Existing Permit Requirements—“NO_x emissions from all INEL wide NO_x sources shall not exceed their corresponding pounds per hour (lb/hr) or tons per year (ton/yr) emission limits listed in Appendix A” of the INTEC NO_x Permit (Permit No. 023-00001, October 18, 1999).

2.3.2.3.3 Other Enforceable Requirements—Current Idaho air regulations at IDAPA 58.01.01.625 VISIBLE EMISSIONS allow 20% opacity for up to 3 minutes in any 60 minute period.

2.3.2.4 Compliance Methodology and Status.

2.3.2.4.1 Compliance Plan—This source is in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirements on the schedule provided in the applicable requirement.

2.3.2.4.2 Compliance Methodology Forms—See Figure III-2-14.

2.3.2.5 Emission Calculations. The following section provides a description of calculations used to calculate regulated pollutant emission in the regulated pollutant table.

2.3.2.5.1 Nonradionuclide Emissions—See Volume I, Appendix C. Emission estimates for fuel burning equipment are derived from the EPA’s Compilation of Air Pollutant Emission Factors, Volume I, Stationary Point and Area Sources, AP-42 calculation methods. AP-42 emissions calculations for fuel burning equipment are based on annual fuel burned for a specific industrial engine or boiler.

The maximum regulated emissions shown in Section 2.3.2.2.2 were calculated by determining the maximum fuel throughput for the combined CFA-662-011 and -027 boiler operations (48 gal/hr, 35,712 gal/mo, 314,000 gal/yr) to correspond with the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999. These throughput factors were multiplied by AP-42 emission factors to calculate the other criteria pollutants.

Maximum hourly fuel usage equivalent to emission limit of 0.96 lb/hr using the following equation:

$$\frac{0.96 \text{ lb NO}_x}{\text{hr}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{48 \text{ gal}}{\text{hr}} \quad (7)$$

Maximum monthly fuel usage equivalent to emission limit of 0.96 lb/hr using the following equation:

$$\frac{0.96 \text{ lb NO}_x}{\text{hr}} \times \frac{744 \text{ hr}}{\text{mo}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{35,712 \text{ gal}}{\text{mo}} \quad (8)$$

Maximum annual fuel usage equivalent to emission limit of 3.14 ton/yr using the following equation:

$$\frac{3.14 \text{ ton NO}_x}{\text{yr}} \times \frac{2,000 \text{ lb}}{\text{ton}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{314,000 \text{ gal}}{\text{yr}} \quad (9)$$

2.3.2.5.2 Radionuclide Emissions—Not required since there are no radionuclide emissions from this emission unit.

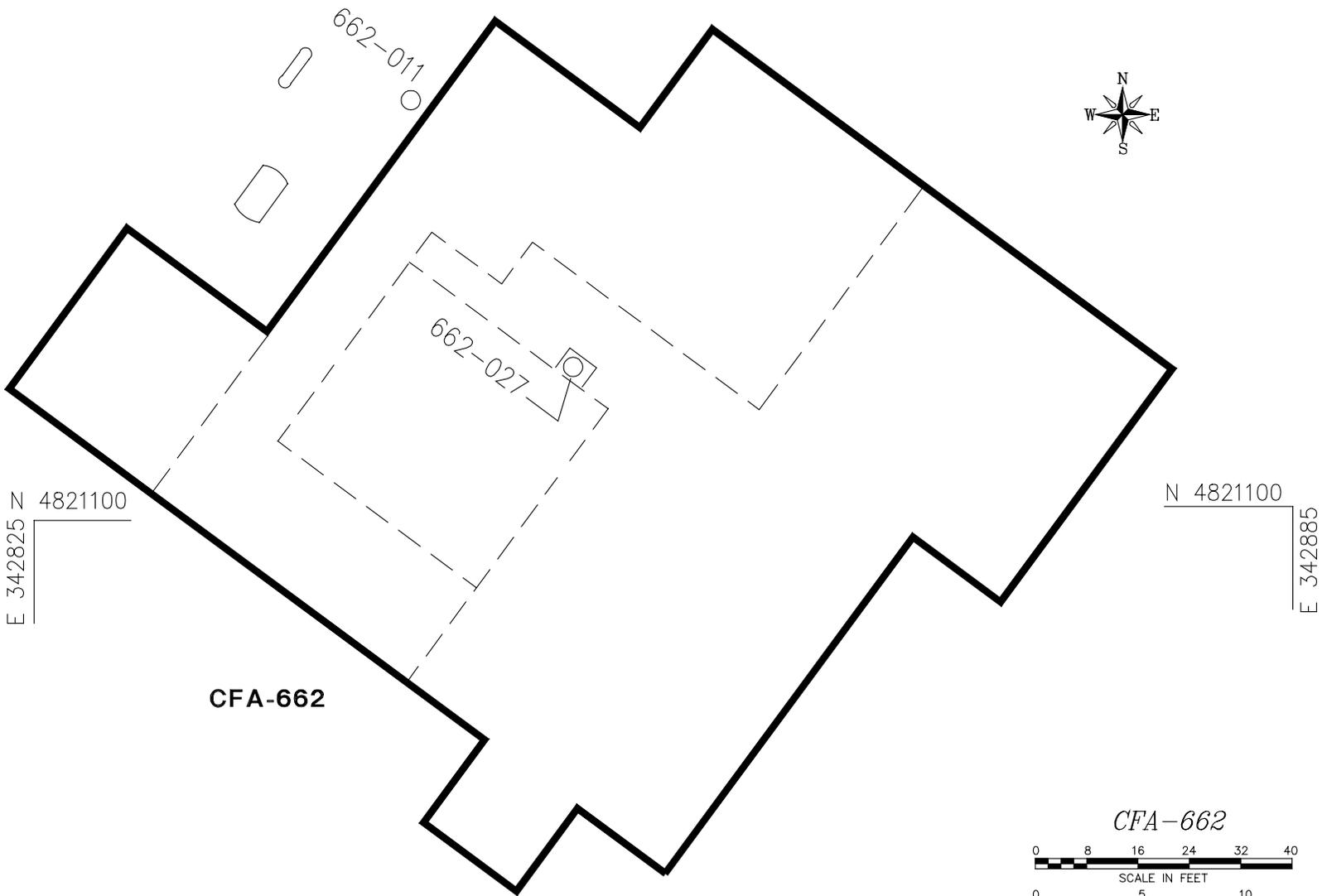


Figure III-2-9. Plan view for CFA-662.

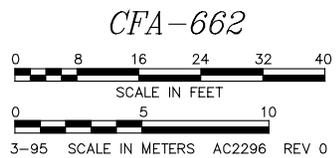


Figure III-2-10. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 662 - 011	Boiler	CFA - 662
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
International (1966)	No # plate	1966

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
2.03						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	30		70			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	NA		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	48 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	314,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combination of boilers CFA-662-011 and -027.

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Figure III-2-10. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	25	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	343.84	4821.12	NA
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
48	12	844.71	450

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	2.40E-01 lb/hr 7.85E-01 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	9.6E-01 lb/hr 3.14E+00 ton/yr	9.6E-01 lb/hr 3.14E+00 ton/yr	INTEC NO, Permit 023-00001
Particulate	NA	2 lb/1,000 gal	NA	9.6E-02 lb/hr 3.14E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	3.46E+00 lb/hr 1.13E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	1.63E-02 lb/hr 5.34E-02 ton/yr	NA	NA

IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."

b. Estimated emissions reflects combined operation of boilers CFA-662-011 and -027

Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.

Figure III-2-11. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 662 - 027	Boiler	CFA - 662
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
Cleaver Brooks	M4S-5000	1980

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
5						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	30		70			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

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FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	NA		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	48 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	314,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combination of boilers CFA-662-011 and -027.

Figure III-2-10. (continued).

PART B				OPERATING DATA			
% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE			
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR	
41	27	5	27	24	7	52	

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

STACK DATA

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.85	4821.10	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
36	18	1295	550

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	2.40E-01 lb/hr 7.85E+01 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	9.6E-01 lb/hr 3.14E+00 ton/yr	9.6E-01 lb/hr 3.14E+00 ton/yr	INTEC NO. x Permit 023-00001
Particulate	NA	2 lb/1,000 gal	NA	9.6E-02 lb/hr 3.14E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	3.46E+00 lb/hr 1.13E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	1.63E-02 lb/hr 5.34E-02 ton/yr	NA	NA

IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."
 b. Estimated emissions reflects combined operation of boilers CFA-662-011 and -027.
 Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.

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Figure III-2-12. Process flow diagram for CFA-662-011.



Figure III-2-13. Process flow diagram for CFA-662-027.

Emission Point Number CFA-662-011, CFA-662-027

REQUIREMENT

Applicable requirement: Nitrogen oxide 0.96 lb/hr, 3.14 ton/yr

Requirement basis: Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999.

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than the values equivalent to the emission limits (35,712 gal/mo and 314,000 gal/yr)

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: NO_x

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: Estimated Emissions

Frequency of reporting: Annual Air Emissions Inventory

Beginning date: NA

Figure III-2-13. Compliance Certification Form (method of compliance).



2.4 CFA-671 Boiler House Heating Plant

2.4.1 General Description

CFA-671 is the Boiler House Heating Plant, which provides several CFA buildings with heat from two Cleaver-Brooks boilers. The two boilers are associated with two stacks identified as CFA-671-007 and CFA-671-008. See Figure III-2-15 for the plan view.

2.4.2 CFA-671-007/008 Specific Information

This section contains information on the CFA-671 boiler stacks designated as emission source CFA-671-007 and CFA-671-008. Figure III-2-16 and III-2-17 are the state operating permit application forms for this source.

2.4.2.1 Process Description. CFA-671-007 and -008 are commercial fire tube boilers used for space heat. No. 2 fuel oil is the primary fuel for the boilers. Propane is used as a secondary fuel. The boiler is housed in the single-level Boiler House Heating Plant and feeds steam heat to Buildings CFA-601, CFA-621, CFA-622, CFA-623, CFA-624, CFA-654, and CFA-674.

See Figures III-2-18 and III-2-19 for the process flow diagrams. No control or monitoring equipment is required for this source.

2.4.2.2 Maximum Regulated Pollutant Emissions. The following information addresses regulated pollutants potentially emitted from these sources. The quantities listed represent emissions limits based on Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999. The permit limit is for combined CFA-671-007 and -008 boiler operations. The maximum regulated pollutant emissions in the following table reflect combined boiler operations.

Pollutant	CAS	Annual Maximum Emissions ^a (ton/yr)	Criteria Pollutant
CO	630-08-0	1.24E+00	X
NO _x	—	4.98E+00	X
PM	—	4.98E-01	X
SO _x	—	1.79E+01	X
VOCNM	—	8.47E-02	X

a. Combined maximum emissions for CFA-671-007 and -008.

2.4.2.3 Compliance Requirements.

2.4.2.3.1 Permitted Emission Limits—The following are the limits for which these two boilers must maintain compliance.

Pollutant	CAS	Limit	Units
NO _x	—	1.52	lb/hr
NO _x	—	4.98	ton/yr

2.4.2.3.2 Existing Permit Requirements—“NO_x emissions from all INEL wide NO_x sources shall not exceed their corresponding pounds per hour (lb/hr) or tons per year (ton/yr) emission limits listed in Appendix A” of the INTEC NO_x Permit (Permit No. 023-00001, October 18, 1999).

2.4.2.3.3 Other Enforceable Requirements—Current Idaho air regulations at IDAPA 58.01.01.625 VISIBLE EMISSIONS allow 20% opacity for up to 3 minutes in any 60 minute period.

2.4.2.4 Compliance Methodology and Status.

2.4.2.4.1 Compliance Plan—These sources are in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.4.2.4.2 Compliance Methodology Forms—See Figure III-2-20.

2.4.2.5 Emission Calculations. The following sub-section provides a description of calculations used to calculate regulated pollutant emission in the regulated pollution table.

2.4.2.5.1 Nonradionuclide Emissions—See Volume I, Appendix C. Emission estimates for fuel burning equipment are derived from the EPA’s Compilation of Air Pollutant Emission Factors, Volume I, Stationary Point and Area Sources, AP-42 calculation methods. AP-42 emissions calculations for fuel burning equipment are based on annual fuel burned for a specific industrial engine or boiler.

The maximum regulated emissions shown in Section 2.4.2.2 were calculated by determining the maximum fuel throughput to correspond with the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999 for combined CFA-671-007 and -008 operations. This throughput (76.00 gal/hr, 56,544 gal/mo, and 498,000 gal/yr) was multiplied by AP-42 emission factors to calculate the other criteria pollutants.

Maximum hourly fuel usage equivalent to emission limit of 1.52 lb/hr using the following equation:

$$\frac{1.52 \text{ lb NO}_x}{\text{hr}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{76 \text{ gal}}{\text{hr}} \quad (10)$$

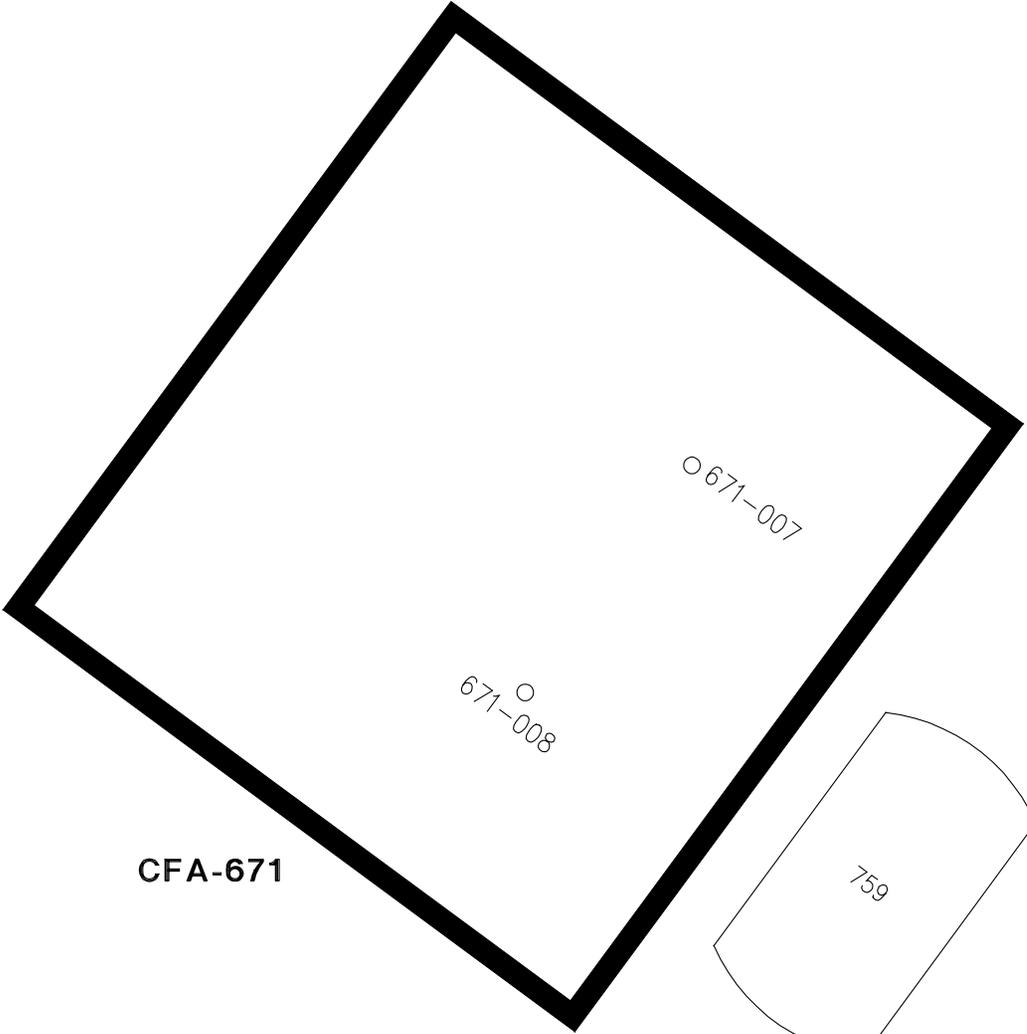
Maximum monthly fuel usage equivalent to emission limit of 1.52 lb/hr using the following equation:

$$\frac{1.52 \text{ lb NO}_x}{\text{hr}} \times \frac{744 \text{ hr}}{\text{mo}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{56,544 \text{ gal}}{\text{mo}} \quad (11)$$

Maximum annual fuel usage equivalent to emission limit of 4.98 ton/yr using the following equation:

$$\frac{4.98 \text{ ton NO}_x}{\text{yr}} \times \frac{2,000 \text{ lb}}{\text{ton}} \times \frac{1,000 \text{ gal}}{\text{emission factor } 20 \text{ lb NO}_x} = \frac{498,000 \text{ gal}}{\text{yr}} \quad (12)$$

2.4.2.5.2 Radionuclide Emissions—Not required since there are no radionuclide emissions from this emission unit.



N 4820785
E 342830

N 4820785
E 342848

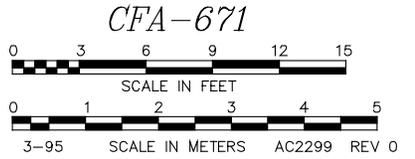


Figure III-2-15. Plan view for CFA-671.

Figure III-2-16. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 671 - 007	Boiler	CFA - 671
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
Cleaver Brooks	CB-500-200	1979

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
7.83						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	0		100			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	76 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	498,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combination of boilers CFA-662-011 and -027.

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Figure III-2-16. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.84	4820.78	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
28	14	1700	240

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	3.80E-01 lb/hr 1.24E+00 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	1.52E+00 lb/hr 4.98E+00 ton/yr	1.52E+00 lb/hr 4.98E+00 ton/yr	INTEC NO. Permit 023-00001
Particulate	NA	2 lb/1,000 gal	NA	1.52E+00 lb/hr 4.98E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	5.47E+00 lb/hr 1.79E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	2.58E-02 lb/hr 8.47E-02 ton/yr	NA	NA
IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA						

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."

b. Estimated emissions reflects combined operation of boilers CFA-671-007 and -008.

Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.

Figure III-2-17. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 671 - 008	Boiler	CFA - 671
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
Cleaver Brooks	CB-400-200	1980

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
7.83						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	0		100			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

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FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	76 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	498,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combined operation of boilers CFA-671-007 and -008.

Figure III-2-17. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.83	4820.78	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
28	12	1700	240

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	3.80E-01 lb/hr 1.24E+00 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	1.52E+00 lb/hr 4.98E+00 ton/yr	1.52E+00 lb/hr 4.98E+00 ton/yr	INTEC NO _x Permit No.023-00001
Particulate	NA	2 lb/1,000 gal	NA	1.52E+00 lb/hr 4.98E+01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	5.47E+00 lb/hr 1.79E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	2.58E-02 lb/hr 8.47E+02 ton/yr	NA	NA
IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA						

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."

b. Estimated emissions reflects combined operation of boilers CFA-671-007 and -008.

Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.



Figure III-2-18. Process flow diagram for CFA-671-007.



Figure III-2-19. Process flow diagram for CFA-671-008.

Emission Point Number CFA-671-007, -008

REQUIREMENT

Applicable requirement: Nitrogen oxide 1.52 lb/hr, 4.98 ton/yr

Requirement basis: Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999.

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than the values equivalent to the emission limits (56,544 gal/mo and 498,000 gal/yr)

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: NO_x

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: Estimated Emissions

Frequency of reporting: Annual Air Emissions Inventory

Beginning date: NA

Figure III-2-20. Compliance Certification Form (method of compliance).



2.5 CFA-688 Engineering Technical Center

2.5.1 General Description

CFA-688, the Engineering Technical Center, is used mainly for office space. The center also contains a machine shop with welding capabilities to provide technical metal work.

The Engineering Technical Center houses two Kewanee boilers which supply heat to the Engineering Technical Center and the Radiological and Environmental Sciences Laboratory, and houses an emergency diesel generator.

The Engineering Technical Center high bay has an electric crane, which is used sparingly to move heavy pieces of metal into the welding area. Emissions from this area include only technical maintenance welding emissions; the emissions are considered not-significant. Figure III-2-21 shows the CFA-688 plan view.

2.5.2 CFA-688-043/044 Specific Information

This section contains information on the CFA-688 boilers with stacks designated as emission sources CFA-688-043 and CFA-688-044. See Figure III-2-22 and III-2-23 for the state operating permit application forms for this source.

2.5.2.1 Process Description. CFA-688-043 and -044 are industrial fire tube boilers used for space heating in CFA-688/689. No. 2 fuel oil is the primary fuel and propane is used as a secondary fuel. The boiler is housed in the single-level Engineering Technical Center Building and feeds steam to buildings CFA-688, CFA-689, and CFA-690. Figures III-2-24 and III-2-25 show the process flow diagrams. No control or monitoring equipment is required for this source.

2.5.2.2 Maximum Regulated Pollutant Emissions. The following addresses regulated pollutants potentially emitted from this source. The quantities listed represent emissions releases based on the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999. The permit limit is for combined CFA-688-043 and -044 boiler operations. The maximum regulated pollutant emissions in the following data reflect combined boiler operations for CFA-688-043 and -044.

Pollutant	CAS	Maximum Emissions ^a (ton/yr)	Criteria Pollutant
CO	630-08-0	1.80E+00	X
NO _x	—	7.21E+00	X
PM	—	7.21E-01	X
SO _x	—	2.60E+01	X
VOCNM	—	8.72E-02	X

a. Combined maximum emissions for CFA-688-043 and -044.

2.5.2.3 Compliance Requirements.

2.5.2.3.1 Permitted Emission Limits—The following are the limits for which the combined CFA-688-043 and -044 boilers must maintain compliance, per Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999.

Pollutant	CAS	Limit	Units
Nitrogen oxide	—	7.21	ton/yr
Nitrogen oxide	—	2.32	lb/hr

2.5.2.3.2 Existing Permit Requirements—NO_x emissions from all INEEL wide NO_x sources shall not exceed their corresponding pounds per hour (lb/hr) or tons per year (ton/yr) emission limits listed in Appendix A of the INTEC NO_x Permit (Permit No. 023-00001, October 18, 1999).

2.5.2.3.3 Other Enforceable Requirements—Current Idaho air regulations at IDAPA 58.01.01.625 VISIBLE EMISSIONS allow 20% opacity for up to 3 minutes in any 60 minute period.

2.5.2.4 Compliance Methodology and Status.

2.5.2.4.1 Compliance Plan—This source is in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.5.2.4.2 Compliance Methodology Forms—See Figure III-2-26.

2.5.2.5 Emission Calculations. The following sub-section provides a description of calculations used to calculate regulated pollutant emission in the regulated pollutant table.

2.5.2.5.1 Nonradionuclide Emissions—See Volume I, Appendix C. Emission estimates for fuel burning equipment are derived from the EPA’s Compilation of Air Pollutant Emission Factors, Volume I, “Stationary Point and Area Sources,” AP-42 calculation methods. AP-42 emissions calculations for fuel burning equipment are based on annual fuel burned for a type of industrial engine or boiler.

The maximum regulated emissions shown in Section 2.5.2.2 were calculated by determining the maximum fuel throughput for the combined CFA-688-043 and -044 boilers to correspond with the NO_x limit in Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999. This throughput (116 gal/hr, 86,304 gal/mo, and 721,000 gal/yr) was then multiplied by AP-42 factors to calculate the other criteria pollutant limits.

The maximum hourly fuel usage equivalent to emission limit of 2.32 lb/hr using the following equation:

$$\frac{2.32 \text{ lb NO}_x}{\text{hr}} \times \frac{1,000 \text{ gal}}{\text{emission factor 20 lb NO}_x} = \frac{116 \text{ gal}}{\text{hr}} \quad (13)$$

Maximum monthly fuel usage equivalent to emission limit of 2.32 lb/hr using the following equation:

$$\frac{2.32 \text{ lb NO}_x}{\text{hr}} \times \frac{744 \text{ hr}}{\text{mo}} \times \frac{1,000 \text{ gal}}{\text{emission factor 20 lb NO}_x} = \frac{86,304 \text{ gal}}{\text{mo}} \quad (14)$$

Maximum annual fuel usage equivalent to emission limit of 7.21 ton/yr using the following equation:

$$\frac{7.21 \text{ ton NO}_x}{\text{yr}} \times \frac{2,000 \text{ lb}}{\text{ton}} \times \frac{1,000 \text{ gal}}{\text{emission factor 20 lb NO}_x} = \frac{721,000 \text{ gal}}{\text{yr}} \quad (15)$$

2.5.2.5.2 Radionuclide Emissions—Not required since there are no radionuclide emissions from this emission unit.

Figure III-2-21. Plan view for CFA-688.

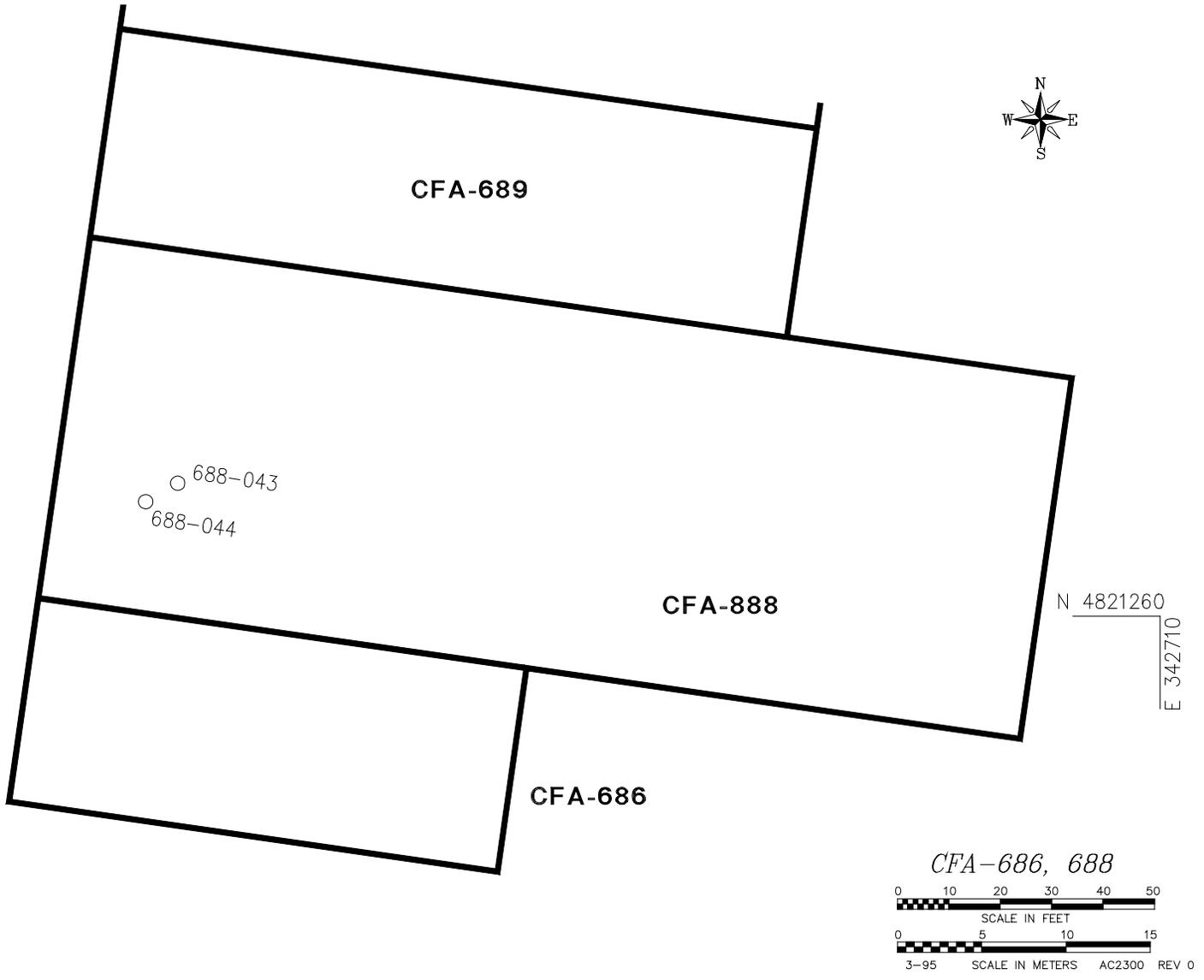


Figure III-2-22. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION	STACK DESCRIPTION	BUILDING DESCRIPTION
CFA - 688 - 043	Boiler	CFA - 688
MANUFACTURER	MODEL	DATE INSTALLED OR LAST MODIFIED
AM. STND-Kewanee 350 Boiler	KPSH-88 1962	1973

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
11.34						
BURNER TYPE	% USED FOR PROCESS		% USED FOR SPACE HEAT			
11	0		100			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	116 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	721,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combined operation of boilers CFA-688-043 and -044.

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Figure III-2-22. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.65	4821.26	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
51	24	3600	550

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	5.80E-01 lb/hr 1.80E-00 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	2.32E-00 lb/hr 7.21E-00 ton/yr	2.32E+00 lb/hr 7.21E+00 ton/yr	INTEC NOx Permit 023-0001
Particulate	NA	2 lb/1,000 gal	NA	2.32E-01 lb/hr 7.21E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	8.35E-00 lb/hr 2.60E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	3.94E-02 lb/hr 8.72E-02 ton/yr	NA	NA

IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."

b. Estimated emissions reflects the combined operation of boilers CFA-688-043 and -044.

Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.

Figure III-2-23. State Operating Permit Application Form.

DEQ USE ONLY		DEQ USE ONLY	
DEQ PLANT ID CODE	DEQ PROCESS CODE	DEQ STACK ID CODE	DEQ BUILDING ID CODE
PRIMARY SCC	SECONDARY SCC	DEQ SEGMENT CODE	

PART A

GENERAL INFORMATION

PROCESS CODE OR DESCRIPTION CFA - 688 - 044	STACK DESCRIPTION Boiler	BUILDING DESCRIPTION CFA - 688
MANUFACTURER Kewanee150 Boiler	MODEL Size KPSH-83	DATE INSTALLED OR LAST MODIFIED 1962

RATED CAPACITY (CHOOSE APPROPRIATE UNITS)

MBTU/HR 5.04	OR	THOUSAND LB/HR STEAM	OR	KW	OR	HP
BURNER TYPE 11	% USED FOR PROCESS 0		% USED FOR SPACE HEAT 100			

(1) BURNER TYPES: 01) SPREADER STOKER, 02) CHAIN OR TRAVELING GRATE, 03) HAND FIRED, 04) CYCLONE FURNACE, 05) WET BOTTOM (PULVERIZED COAL), 06) DRY BOTTOM (PULVERIZED COAL), 07) UNDERFEED STOKER, 08) TANGENTIALLY FIRED, 09) HORIZONTALLY FIRED, 10) AXIALLY FIRED, 11) OTHER (SPECIFY TO THE RIGHT):

Air Atomizing

FUEL DATA

PARAMETER	PRIMARY FUEL	UNITS	SECONDARY FUEL	UNITS
FUEL CODE (2)	02		14	
% SULFUR	0.5		NA	
% ASH	NA		NA	
% NITROGEN	NA		NA	
% CARBON	NA		NA	
% HYDROGEN	NA		NA	
% MOISTURE	NA		NA	
HEAT CONTENT (BTU/UNIT)	140,000	Btu/gal	NA	NA
MAXIMUM HOURLY COMBUSTION RATE (UNITS/HR)	116 ^a	gal	NA	NA
NORMAL ANNUAL COMBUSTION RATE (UNITS/YR)	721,000 ^a	gal	NA	NA

(2) FUEL CODES: 01) NATURAL GAS, 02) #1 OR #2 FUEL OIL, 03) #4 FUEL OIL, 04) #5 FUEL OIL, 05) USED OIL, 06) WOOD CHIPS, 07) WOOD BARK, 08) WOOD SHAVINGS, 09) SANDER DUST, 10) SUBBITUMINOUS COAL, 11) BITUMINOUS COAL, 12) ANTHRACITE COAL, 13) LIGNITE COAL, 14) PROPANE, 15) OTHER (SPECIFY TO THE RIGHT):

a. Throughput based on combined operation of boilers CFA-688-043 and -044.

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Figure III-2-23. (continued).

PART B

OPERATING DATA

% OPERATIONS PER QUARTER				NORMAL OPERATING SCHEDULE		
DEC-FEB	MAR-MAY	JUNE-AUG	SEPT-NOV	HR/D	D/WK	WEEKS/YEAR
41	27	5	27	24	7	52

**POLLUTION CONTROL EQUIPMENT
NOT APPLICABLE**

VENTILATION AND BUILDING/AREA DATA

STACK DATA

ENCLOSED? (Y/N)	HOOD TYPE (APP I)	MINIMUM FLOW (ACFM)	% CAPTURE EFFICIENCY
N	NA	NA	NA
BUILDING HEIGHT (FT)	BUILDING/AREA LENGTH (FT)	BUILDING/AREA WIDTH (FT)	
NA	NA	NA	

GROUND ELEVATION (FT)	UTM X COORDINATE (KM)	UTM Y COORDINATE (KM)	STACK ^a TYPE
4,936	342.65	4821.26	02
STACK EXIT HEIGHT FROM GROUND LEVEL (FT)	STACK EXIT DIAMETER (IN.)	STACK EXIT GAS FLOW RATE (ACFM)	STACK EXIT TEMP (°F)
51	18	1540	480

a. 01) DOWNWARD, 02) VERTICAL (UNCOVERED), 03) VERTICAL COVERED, 04) HORIZONTAL, 05) FUGITIVE

AIR POLLUTANT EMISSIONS

POLLUTANT	CAS NO.	EMISSION FACTOR	% CONTROL EFFICIENCY	ESTIMATED OR MEASURED EMISSIONS ^b	ALLOWABLE EMISSIONS	REFERENCE
Carbon monoxide	630-08-0	5 lb/1,000 gal	NA	5.80E-01 lb/hr 1.80E+00 ton/yr	NA	NA
Nitrogen oxides	NA	20 lb/1,000 gal	NA	2.32E+00 lb/hr 7.21E+00 ton/yr	2.32E+00 lb/hr 7.21E+00 ton/yr	INTEC No _x Permit 023-0001
Particulate	NA	2 lb/1,000 gal	NA	2.32E-01 lb/hr 7.21E-01 ton/yr	NA	NA
Sulfur oxides	NA	72 lb/1,000 gal ^a	NA	8.35E+00 lb/hr 2.60E+01 ton/yr	NA	NA
VOC-nonmethane	NA	0.34 lb/1,000 gal	NA	3.94-02 lb/hr 8.72E-02 ton/yr	NA	NA

IN LB/UNITS. Use same hourly UNITS given PROCESSING DATA

a. Emission factor 72 results from 144 multiplied by the % weight sulfur content. Source AP-42, Table 1.3-1 data for "commercial equipment."

b. Estimated emissions reflects the combined operation of boilers CFA-688-043 and -044.

Note: The normal INEEL heating season is 39 weeks. The maximum schedule shown allows for flexibility for unusual weather and off-season maintenance.



Figure III-2-24. Process flow diagram for CFA-688-043.



Figure III-2-25. Process flow diagram for CFA-688-044.

Emission Point Number CFA-688-043, -044

REQUIREMENT

Applicable requirement: Nitrogen oxide 2.32 lb/hr, 7.21 ton/yr

Requirement basis: Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources Permit, PTC-023-00001, October 18, 1999

Method required for determining compliance: None required

Method used to prove compliance: Verify that fuel usage is less than the values equivalent to the calculated emission limits (86,304 gal/mo and 721,000 gal/yr)

REFERENCE TEST METHOD

Reference test method description: NA

Reference test method citation: NA

MONITORING

Monitoring device type: NA

Monitor location description: NA

Regulated pollutant being monitored: NOx

General description of frequency and duration of sampling and how data will be reported: NA

RECORDKEEPING

Data (parameter) being recorded: Fuel use through boiler recorded monthly

Frequency of recordkeeping (how often data are recorded): Monthly

REPORTING

General description of what is reported: Estimated Emissions

Frequency of reporting: Annual Air Emissions Inventory

Beginning date: NA

Figure III-2-26. Compliance Certification Form (method of compliance).

2.6 Internal Combustion Engines

2.6.1 General Description

Internal Combustion Engines of various sizes and configurations are utilized throughout CFA. These engines are either PTC-grandfathered units or units which are documented as qualifying for a PTC-exemption in accordance with IDAPA 58.01.01.220. Engines may be gasoline, propane or diesel-fired. Uses for these units include: emergency generators, stand-by generators and fire-water pumps.

2.6.2 Engine Specific Information

Table III-2-1 provides the internal combustion engines currently in use at CFA.

2.6.2.1 Process Description. These units are utilized for various support functions at CFA.

2.6.2.2 Maximum Regulated Pollutant Emissions. Emissions are not quantified here because type and number of units may be continually changing and there are no associated emission limits.

2.6.2.3 Compliance Requirements.

2.6.2.3.1 Permitted Emission Limits—None.

2.6.2.3.2 Existing Permit Requirements—None.

2.6.2.3.3 Other Enforceable Requirements

- The State of Idaho regulates visible emissions as determined by emission opacity. Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60-minute period. See compliance methodology form in Section 5.1 of Volume I.
- Diesel engines shall not burn fuel with a sulfur content greater than 0.5% by weight.

2.6.2.4 Compliance Methodology and Status.

2.6.2.4.1 Compliance Plan—These sources are in compliance and will continue to comply with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, these sources will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, these sources will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.6.2.4.2 Compliance Methodology Forms—Not required for these units.

2.6.2.5 Emission Calculations—NA.

Table III-2-1. Internal combustion engines currently in use at CFA.

Building No.	Building Name	Vent/Stack No.	Source Description
B08-601	TAN Guard House	003	60-hp standby generator
B27-601	Main Gate		60-hp standby generator
CFA-609	Security Headquarters	001	166-hp standby generator
CFA-633	Gantry Crane	091	110 hp generator
CFA-668	Communication Building		345-hp standby generator
CFA-675	Generator Building	002	150-hp standby generator
CFA-679	Firehouse Generator Building	007	60-hp standby generator
CFA-688	Engineering Technical Center	001	≈300-hp standby generator
CFA-688	Engineering Technical Center	047	100-hp standby generator
CFA-1603	Firewater Pump Building	001 - 002	Two 196-hp standby firewater pumps
CFA-1611	CFA Fire Station		220-hp standby generator
GE-B28601	East Butte Generator		Propane-Fired Generator, ≈61hp
HPTF-601	Howe Peak	001	Propane-Fired 80-hp standby generator

2.7 Petroleum Storage Tanks

2.7.1 General Description

Storage tanks are utilized for storage of petroleum products at CFA. These tanks (are identified under Section 2.7.2) were constructed after July 23, 1984 and each has a capacity greater than 10,567 gallons, they are subject to 40 CFR 60 Subpart Kb requirements.

2.7.2 Specific Information

The following tanks are used to store diesel/fuel oil except for the gasoline storage tank 98CFA00304.

Tank Contents	Tank Inventory Capacity (in gallons)	Tank Inventory #	Date Installed	Dimensions
Diesel	15,000	98CFA00301	1994	10 ft x 29 ft 2 in
Diesel	15,000	98CFA00302	1994	10 ft x 29 ft 2 in
Fuel Oil	20,000	98CFA00225	1994	10 ft x 37 ft 6 in
Fuel Oil	12,000	98CFA00061	1994	8 ft x 36 ft
Fuel Oil	12,000	98CFA00157	1994	18 ft x 26 ft
Gasoline	15,000	98CFA00304	1994	10 ft x 29 ft 2 in

2.7.2.1 Process Description. The processes involved are basic filling and draining of vented storage tanks.

2.7.2.2 Maximum Regulated Pollutant Emissions. VOCNM emissions from these tanks combined with all other petroleum storage tanks at the INEEL are less than 1 ton/yr.

2.7.2.3 Compliance Requirements.

2.7.2.3.1 Permitted Emission Limits—There are no permit limits associated with these sources.

2.7.2.3.2 Existing Permit Requirements—None.

2.7.2.3.3 Other Enforceable Requirements—New Source Performance Standards (NSPS) require retention of records showing the dimensions of the tank and a calculations of the tank volume.

The State of Idaho regulates visible emissions as determined by emission opacity. Visible emissions shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60-minute period. See compliance methodology form in Section 5.1 of Volume I.

2.7.2.4 Compliance Methodology and Status.

2.7.2.4.1 Compliance Plan—This source is in compliance, and will continue to comply, with the indicated applicable requirements as described in this application. For each applicable requirement that will become effective during the term of the Tier I operating permit that does not contain a more detailed schedule, this source will meet the applicable requirement on a timely basis. For each applicable requirement that will become effective during the term of the Tier I operating permit that contains a more detailed schedule, this source will comply with the applicable requirement on the schedule provided in the applicable requirement.

2.7.2.4.2 Compliance Methodology Forms—See Section 5.4 of Volume 1.

2.7.2.5 Emission Calculations. Not required.

2.7.2.5.1 Nonradionuclide Emissions—Not required.

2.7.2.5.2 Radionuclide Emissions—Not applicable.

Appendix A

CFA Landfarming Not-Significant Justification

Appendix A

CFA Landfarming Not-Significant Justification

CFA-105-001 is the source designation for the petroleum-contaminated soil (PCS) land-farming operations associated with the INEEL Landfill Complex. PCS is defined as soil, sand, gravel, or other earth materials contaminated with petroleum products. Volumes up to 1,500 yd³ of PCS can be remediated at the landfill complex during each calendar year. The land-farming method employed at the INEEL is a single application land treatment. Media contaminated by petroleum are transferred from INEEL spill sites to land-farm areas within the INEEL Landfill Complex. The PCS is spread to a uniform thickness of approximately 6 in. The PCS is allowed to remain in the land farming area until the desired levels of treatment are completed. Petroleum contaminants are removed from the PCS through volatilization and biological decomposition.

The Idaho Department of Environmental Quality (DEQ) had determined that PCS land-farming operations that comply with State setback requirements and do not exceed 1,500 yd³/yr, are exempt from air permitting requirements (see the following Idaho UST Information Series: No. 7). The landfarming activities at CFA comply with the DEQ requirements for PTC-exemption.

Appendix B
Permits

<p>STATE OF IDAHO</p> <p>PERMIT TO CONSTRUCT AN AIR POLLUTION EMITTING SOURCE</p>	<p>PERMIT NUMBER</p> <p style="text-align: center;">0 2 3 - 0 0 0 0 1</p> <p>AQCR CLASS SIC</p> <p style="text-align: center;">0 6 1 A 1 9 9 9 9</p> <p>ZONE UTM COORDINATE (km)</p> <p style="text-align: center;">1 2 3 4 3 . 9 4 8 2 6 . 0</p>		
<p>1. PERMITTEE U.S. Department of Energy, Idaho Operations Office</p>			
<p>2. PROJECT Idaho Nuclear Technology and Engineering Center, Nitrogen Oxide Sources</p>			
<p>3. MAILING ADDRESS 785 DOE Place</p>	<p>CITY Idaho Falls</p>	<p>STATE Idaho</p>	<p>ZIP CODE 83401-1562</p>
<p>4. SITE LOCATION COUNTY Butte</p>	<p>NO. OF FULL-TIME EMPLOYEES 8,100</p>	<p>PROPERTY AREA AT SITE (Acreage) 569,600</p>	
<p>5. PERSON TO CONTACT Lisa A. Green</p>	<p>TITLE DOE Environmental Programs</p>	<p>TELEPHONE (208) 526-0417</p>	
<p>6. EXACT PLANT LOCATION Eight (8) miles north of the southern border of INEEL on Lincoln Blvd., INEEL</p>			
<p>7. GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS Energy Research and Development</p>			
<p>8. GENERAL CONDITIONS</p> <p>This permit is issued according to the <i>Rules for the Control of Air Pollution in Idaho</i>, Section 16.01.01.200, and pertains only to emissions of air contaminants that are regulated by the State of Idaho and to the sources specifically allowed to be constructed by this permit.</p> <p>This permit (a) does not affect the title of the premises upon which the equipment is to be located, (b) does not release the Permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment, (c) does not release the Permittee from compliance with other applicable federal, state, tribal, or local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Idaho Department of Health and Welfare, Division of Environmental Quality (DEQ) or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.</p> <p>This permit is not transferable to another person, place, piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.</p> <p>This permit has been granted on the basis of design information presented with its application. Changes of design or equipment that result in any change in the nature or amount of emissions must be approved in advance by DEQ unless exempted by the <i>Rules for the Control of Air Pollution in Idaho</i> Sections 220 through 223.</p>			
<p style="text-align: center;"><i>Lisa A. Green</i></p> <p>ADMINISTRATOR, STATE AIR QUALITY PROGRAM DIVISION OF ENVIRONMENTAL QUALITY</p>			<p>DATE: October 18, 1999</p>

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PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION	PERMIT NUMBER									
U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho	<table border="1" style="margin: auto; border-collapse: collapse;"> <tr> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">-</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> </tr> </table>	0	2	3	-	0	0	0	0	1
0	2	3	-	0	0	0	0	1		
SOURCE										
A. Fluorinal and Storage Facility (FAST)										

1. SOURCE DESCRIPTION

1.1 FAST Process Description

Receipt, movement, and general handling of nuclear fuel is associated with the storage of fuel in the FAST (Fluorinal and storage) facility. Storage of fuel is maintained in large water-filled basins. Areas in the building and equipment associated with the past practice of dissolving fuel are shutdown.

1.2 FAST Control Description

The FAST final exhaust is vented through four (4) parallel sets of filters consisting of prefilters and a stage of High Efficiency Particulate Air (HEPA) filters. Each stage is made up of twenty-four (24) individual HEPA filters. Normally all four (4) separate air streams are on-line going through the filters. Any one of the separate filter banks may be isolated to allow maintenance or other activities. All gases emitted from the FAST pass through these final stages of HEPA filtration before entering the FAST stack.

1.3 FAST Equipment Listing

- 1.3.1 FAST stack
- 1.3.2 FAST fuel storage basin
- 1.3.3 FAST dissolution cell
- 1.3.4 HEPA filters (two in series) at the FAST dissolution cell
- 1.3.5 FAST FM area vessels
- 1.3.6 Prefilter stages (four in parallel)
- 1.3.7 HEPA filtration stages (four in parallel)

1.4 FAST Stack Specifications

The FAST stack (CPP-676-001) has the following specifications:

Stack Height	-	160.0 feet
Stack Diameter	-	5.4 feet
Flow Rate	-	92,000 acfm (actual cubic feet per minute)

2. EMISSION LIMITS

Emissions of radionuclides from the FAST stack shall not, by themselves, or in combination with emissions from other INEEL sources, exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent in excess of ten (10) millirem per year, in accordance with 40 CFR 61, Subpart H. Doses due to radon-220 and radon-222, and their respective decay products are excluded from this limit.

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PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION	PERMIT NUMBER
U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho	0 2 3 - 0 0 0 0 1
SOURCE	
A. Fluorinal and Storage Facility (FAST)	

3. OPERATING REQUIREMENTS

3.1 Radionuclide Requirements

The permittee shall maintain and operate instrumentation in accordance with 40 CFR 61, Subpart H, to verify proper operation of the air pollution control equipment installed and ensure that the limits in Section 2 are met.

3.2 HEPA Filter Requirements

The permittee shall install, operate, and maintain at least one (1) stage of HEPA filters having a minimum particle removal efficiency of no less than 99.97%. The permittee shall maintain and operate instrumentation to measure the pressure drop across the filter stages. HEPA filter efficiency shall be tested after installation and on an annual basis according to the ANSI N510 testing standard. All HEPA filters must be pretested and certified prior to installation and must meet government performance specifications and overpressure and rough handling requirements per MIL-F-51068. The permittee shall maintain written procedures in place which specify the conditions which require change out of the filters.

4. MONITORING REQUIREMENTS

4.1 Radionuclide Monitoring

The permittee shall perform radionuclide sampling and dose calculations as specified by 40 CFR 61, Subpart H. Effective dose equivalents to members of the public shall be calculated using EPA-approved sampling procedures and EPA model CAP-88PC or other EPA-approved models.

4.2 EPA Filter Monitoring

The permittee shall monitor the pressure drop across the HEPA filter stages.

5. REPORTING REQUIREMENTS

The permittee shall submit an annual report by July 1 that provides the results of dose calculations based on collected INEEL emissions during the preceding calendar year (January 1 to December 31).

DATE: October 18, 1999

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PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION	PERMIT NUMBER
U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho	0 2 3 - 0 0 0 0 1
SOURCE	
B. LET&D, Ventilation Air System, and Process Off-Gas System	

1. SOURCE DESCRIPTION

The emissions exhausting from the main stack are derived from three (3) separate systems: the Liquid Effluent Treatment and Disposal (LET&D) facility, the ventilation air system, and the process off-gas system.

1.1 LET&D Process and Control Description

The LET&D facility treats the Process Equipment Waste (PEW) Evaporator condensate, which is a low-level liquid waste (LLLW), by an acid fractionation process. The acid portion or bottoms are used at the New Waste Calcining Facility (NWCF) or stored in the Tank Farm. The remaining gaseous overheads are discharged to the main stack.

The gaseous overheads, produced in the fractionation process, are processed through one of two parallel off-gas trains. The LET&D off-gas trains consist of a mist eliminator, a superheater, two banks of HEPA filters, and a blower. Liquid droplets are removed by mist eliminators and returned to the fractionators. The gas is then heated to ensure there is no liquid water in the stream. Any solids are removed by HEPA filters. There are two (2) HEPA filter banks, one (1) of which is required to be operating whenever a fractionator is operated. Each bank consists of two (2) filter stages in series, each stage consisting of two (2) filters. The blower provides the motive force for the effluent. After the blower, the effluent is discharged to the main stack.

1.2 Ventilation Air System Process and Control Description

The ventilation air system is comprised of ventilation air from CPP-601, 602, 604, 640, and 1618. This air is used to heat, ventilate, and to provide contamination control for the above facilities. This air, which comprises the bulk of the flow to the main stack, passes through the Ventilation Atmospheric Protection System (VAPS). This gas cleanup system consists of a fiberglass bed prefilter, HEPA filters arranged in twenty-six (26) parallel banks of four (4) filters; and three (3) blowers; two (2) of which normally operate. The blowers provide the motive force for the system and exhaust the air to the main stack.

1.3 Off-Gas Process and Control Description

The flow from Process Atmospheric Protection System (PAPS) is exhausted to the main stack. The PAPS flow is comprised of three (3) off-gas systems: the dissolver off-gas (DOG), the vessel off-gas (VOG), and the waste calcining off-gas. The PAPS system consists of a demister, superheater, and a single stage of three (3) parallel HEPA filters. From the PAPS, the off-gas is exhausted to the main stack.

The flow in the DOG system is comprised of off-gas from fuel processing facilities in CPP-601 and the Rare Gas Plant in CPP-604. These facilities are not being operated due to the current mission. The vacuum

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PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION	PERMIT NUMBER
U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho	0 2 3 - 0 0 0 0 1
SOURCE	
B. LET&D, Ventilation Air System, and Process Off-Gas System	

provided by the DOG system is used for contamination control. The DOG system consists of a mist eliminator, a superheater, a single stage of non-HEPA filters, and a blower. The blower effluent is discharged to the PAPS and then the main stack.

The flow in the VOG system is comprised of off-gas from the High-Level Liquid Waste (HLLW) Tank Farm (eleven [11] large waste tanks and numerous other small tanks, valve boxes, etc.), the PEW evaporator, fuel processing facilities in CPP-601 and the Pilot Plants in CPP-620 and 637. The system provides vacuum and contamination control to vessels in the connected facilities. The VOG system consists of a mist eliminator, a superheater, and a HEPA filter. In past practice, the Pilot Plant off-gasses were always combined with CPP-601 off-gas prior to passing through the VOG system. In the future, the 620/637 Pilot Plants will also have the capability of exhausting off-gas directly to the main stack after local HEPA filtration.

The flow in the NWCF and WCF Process Off-gas system (POG) is comprised of off-gas from the NWCF and WCF. The NWCF and the WCF were built to reduce HLLW to a smaller volume and more stable solid form known as calcine. The NWCF replaced the WCF and is the only active calciner.

High Level Liquid Waste from the Tank Farm is solidified in a fluidized-bed calciner at about 500 degrees Celsius using liquid fuel (typically kerosene) and oxygen to produce heat. The off-gas from the calciner vessel is cleaned by a high-efficiency cyclone, liquid scrub system, and four (4) parallel banks of HEPA filters. One (1) or two (2) of the HEPA filter banks are on-line during operation. Each filter bank is made up of three (3) stages, each with two (2) HEPA filters. Each filter bank provides the removal efficiency equivalent to two (2) stages of HEPA filtration at 99.97% each, during test conditions.

The calcined waste produced at the NWCF is transported by a pneumatic system to the Calcined Solids Storage Bins. The air used to transport the calcine is vented back through the NWCF and is discharged to the main stack. There are currently five (5) sets of filled bins. The sixth bin set is being filled and the seventh is being prepared for service. Each bin set consists of stainless steel bins inside a concrete vault. Bin sets 1, 2, and 3 are ventilated through the PAPS via the WCF off-gas line. Bin sets 4, 5, 6, and 7 have pressure relief systems which relieve through filters to the atmosphere when they are isolated from the NWCF calcine transfer system.

1.4 Pollution Control Equipment Listing

- | | |
|-------|---|
| 1.4.1 | LET&D Mist eliminators (2 parallel trains) |
| 1.4.2 | LET&D HEPA filtration (2 banks) |
| 1.4.3 | VAPS Glass fiber bed filtration |
| 1.4.4 | VAPS HEPA filtration (26 banks) |
| 1.4.5 | PAPS Mist eliminator |
| 1.4.6 | PAPS HEPA filtration (1 stage of 3 filters) |
| 1.4.7 | DOG Mist eliminator |
| 1.4.8 | DOG Non-HEPA filtration |

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**PERMIT TO CONSTRUCT
PERMITTEE, PROJECT, AND LOCATION**

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INEEL/INTEC
Idaho Falls, Idaho

PERMIT NUMBER

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SOURCE

B. LET&D, Ventilation Air System, and Process Off-Gas System

- 1.4.9 VOG Mist eliminator
- 1.4.10 VOG HEPA filtration (1 filter)
- 1.4.11 NWCF High efficiency cyclone
- 1.4.12 NWCF Wet scrubber system
- 1.4.13 NWCF HEPA filtration (4 banks)
- 1.4.16 Bin Sets 4, 5, 6, and 7 Non-HEPA Filtration (1 or 2 filters)

1.5 Main Stack Specification

The Main Stack (CPP-708) has the following specifications:

Stack Height	-	250.0 feet
Stack Diameter	-	6.5 feet
Flow Rate	-	119,000 acfm (actual cubic feet per minute)

2. **EMISSION LIMITS**

2.1 Nitrogen Oxide (NO_x) Emission Limits

NO_x emissions shall not exceed four hundred seventy-two pounds per hour (472 lb/hr), as determined by the in-stack continuous emission monitoring system (CEMS), by approved U.S. EPA Reference Methods or approved alternative. Because the NWCF is the only substantial contributor of NO_x emissions to the main stack, continuous emission monitoring for NO_x is required only when the NWCF is operating. Annual NO_x emissions shall not exceed seventeen hundred tons per year (1700 T/yr), as determined by summing the actual hourly emissions as shown by the CEMS and the results of any other emissions estimation methods that were used.

2.2 Radionuclide Emissions Limits

Emissions of radionuclides from the main stack shall not, by themselves, or in combination with emissions from other INEEL sources, exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent in excess of ten (10) millirem per year, in accordance with 40 CFR 61, Subpart H. Doses due to radon-220 and radon-222, and their respective decay products, are excluded from this limit.

3. **OPERATING REQUIREMENTS**

3.1 Radionuclide Requirements

The permittee shall maintain and operate instrumentation in accordance with 40 CFR 61, Subpart H, to verify proper operation of the air pollution control equipment installed and ensure the limits in Section 2.2 are met.

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PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION	PERMIT NUMBER
U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho	0 2 3 - 0 0 0 0 1
SOURCE	
B. LET&D, Ventilation Air System, and Process Off-Gas System	

3.2 HEPA Filter Requirements

The permittee shall install, operate, and maintain HEPA filter stages for the VAPS, PAPS, and NWCF having a minimum particle removal efficiency of no less than 99.97%. The permittee shall maintain and operate instrumentation to measure the pressure drop across the filter stages. HEPA filter efficiency shall be tested after installation and on an annual basis according to the ANSI N510 testing standard. All HEPA filters must be pretested and certified prior to installation and meet the government performance specification and overpressure and rough-handling requirements per MIL-F-51068. The permittee shall maintain written procedures in place which specify the conditions which require change out of the filters.

4. MONITORING REQUIREMENTS

4.1 CEMS Monitoring

The permittee shall maintain and operate an in-stack CEMS (continuous emissions monitor system) for the measurement of nitrogen oxides and gas flow rate at the main stack. The CEMS is required to be operated only while the NWCF is operating. The CEMS shall meet the requirements specified in 40 CFR 60, Appendix B. The permittee will maintain documentation which describes quality assurance procedures and maintenance procedures.

4.2 Radionuclide Monitoring

The permittee shall perform radionuclide sampling and dose calculations in accordance with 40 CFR 61, Subpart H. Effective dose equivalents to members of the public shall be calculated using EPA-approved sampling procedures and EPA model CAP-88PC or other EPA-approved models.

4.3 HEPA Filter Monitoring

The permittee shall monitor the pressure drop across the HEPA filter stages.

4.4 Scrubber Monitoring

The permittee shall monitor the water flow rate and the pressure drop across all scrubbers.

5. REPORTING REQUIREMENTS

The permittee shall submit an annual report by July 1 that provides the results of dose calculations based on collected INEEL emissions during the preceding calendar year (January 1 to December 31).

DATE: October 18, 1999

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<p>PERMIT TO CONSTRUCT PERMITTEE, PROJECT, AND LOCATION</p> <p>U.S. Department of Energy INEEL/INTEC Idaho Falls, Idaho</p>	<p>PERMIT NUMBER</p> <table border="1" style="margin: auto;"> <tr> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">2</td> <td style="padding: 2px 5px;">3</td> <td style="padding: 2px 5px;">-</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">0</td> <td style="padding: 2px 5px;">1</td> </tr> </table>	0	2	3	-	0	0	0	0	1
0	2	3	-	0	0	0	0	1		
<p>SOURCE</p> <p>C. INEEL-wide No_x Sources</p>										

1. SOURCE DESCRIPTION

1.1 Project Description

This permit was originally issued on 5/20/88 and addressed the increased throughput capacity and air emissions associated with the Fuel Processing Restoration (FPR) project. This project was cancelled and the permit has been modified to remove the sections that were no longer applicable.

The facilities listed under this source heading with their corresponding NO_x short-term and long-term emission limits are located throughout the INEEL. The top portion of the INEEL site (approximately divided at the 43 degree, 45 minute latitude) was separated from this project mainly for modeling purposes. Although the Test Area North facility was included in the inventory of existing sources submitted in the original application, it was later excluded from modeling and will not be listed in this permit.

1.2 Facility and Acronym Listing

1.2.1	Idaho Nuclear Technology and Engineering Center	INTEC
1.2.2	Coal Fired Steam Generating Facility	CFSGF
1.2.3	Argonne National Laboratory	ANL
1.2.4	Auxiliary Reactor Area	ARA
1.2.5	Central Facilities Area	CFA
1.2.6	Naval Reactor Facility	NRF
1.2.7	Power Burst Facility Area	PBF
1.2.8	Test Reactor Area	TRA
1.2.9	Waste Management Operations	WMO
1.2.10	Radioactive Waste Management Complex	RWMC

2. EMISSION LIMITS

NO_x emissions from all INEELwide NO_x sources shall not exceed their corresponding pound-per-hour (lb/hr) or tons-per-year (T/yr) emission limits listed in Appendix A.

3. MONITORING REQUIREMENTS

The permittee shall operate and maintain an ambient monitoring network for the measurement of NO_x. The monitor(s) shall be operated as specified in Title 40, Parts 50 and 58 of the Code of Federal Regulations. For specific methods and quality control, follow EPA's "Quality Assurance Handbook for Air Pollution Measurement Systems." The permittee will maintain a monitoring plan subject to DEQ approval, which describes the installation (dates), quality assurance, and maintenance procedures.

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**PERMIT TO CONSTRUCT
PERMITTEE, PROJECT, AND LOCATION**

U.S. Department of Energy
INEEL/INTEC
Idaho Falls, Idaho

PERMIT NUMBER

0 2 3 - 0 0 0 0 1

SOURCE

Appendix A

APPENDIX A

INEELwide Nitrogen Oxide Emission Limits
in pounds per hour (lb/hr) and tons per year (T/yr)

SOURCE DESCRIPTION	NOx (lb/hr)	NOx (T/yr)
INTEC/B-601 (B&W boiler)	10.285	22.46
INTEC/B-602 (B&W boiler)	10.285	22.46
INTEC/B-604 (Murray boiler)	20.075	74.20
INTEC/B-605 (Cleaver Brooks boiler)	20.075	74.20
ANL/Boiler No. 1 (Keeler boiler)	3.36	14.72
ANL/Boiler No. 2 (Keeler boiler)	3.36	14.72
ANL/Boiler No. 3 (Keeler boiler)	3.36	14.72
ANL/Boiler No. 4 (Cleaver Brooks boiler)	3.74	14.72
CFA/CFA-650 B-25 (Cleaver Brooks boiler)	0.58	1.90
CFA/CFA-662 B-28 and B-35 (one stack)	0.96	3.14
CFA/CFA-668 B31 (Kewanee Scotch boiler)	0.046	0.15
CFA/CFA-671 B-33 and B-34 (one stack)	1.52	4.98
CFA/CFA-688 B-101 and B-102 (one stack)	2.32	7.21
NRF/Boiler No. 1 (Vogt boiler)	22.66	37.13
NRF/Boiler No. 2 (Vogt boiler)	22.66	37.13
NRF/Boiler No. 3 (Vogt boiler)	22.66	37.13
PBF/PBF-620-620 M-31 (Cyclotherm boiler)	0.24	0.79

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PERMIT TO CONSTRUCT GENERAL PROVISIONS

- A. All emissions authorized herein shall be consistent with the terms and conditions of this permit and the *Rules for the Control of Air Pollution in Idaho*. The emission of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the *Rules for the Control of Air Pollution in Idaho*, and the Environmental Protection and Health Act, Idaho Code 39-101, et.seq.
- B. The Permittee shall at all times (except as provided in the *Rules for the Control of Air Pollution in Idaho*) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.
- C. The Permittee shall allow the Director, and/or the authorized representative(s), upon the presentation of credentials:
1. To enter at reasonable times upon the premises where an emission source is located, or in which any records are required to be kept under the terms and conditions of this permit; and
 2. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring methods required in this permit, and require stack emission testing in conformance with IDAPA 16.01.01.157 when deemed appropriate by the Director.
- D. Nothing in this permit is intended to relieve or exempt the Permittee from compliance with any applicable federal, state, or local law or regulation, except as specifically provided herein.
- E. The Permittee shall notify DEQ, in writing, of the required information for the following events within five (5) working days after occurrence:
1. Initiation of Construction - Date
 2. Completion/Cessation of Construction - Date
 3. Actual Production Startup - Date
 4. Initial Date of Achieving Maximum Production Rate - Production Rate and Date
- F. If emission testing is specified, the Permittee must schedule such testing within sixty (60) days after achieving the maximum production rate, but not later than one hundred and eighty (180) days after initial startup. Such testing must **strictly** adhere to the procedures outlined in IDAPA 16.01.01.157 and shall not be conducted on weekends or state holidays without prior written DEQ approval. Testing procedures and specific time limitations may be modified by DEQ by prior negotiation if conditions warrant adjustment. DEQ shall be notified at least fifteen (15) days prior to the scheduled compliance test. Any records or data generated as a result of such compliance test shall be made available to DEQ upon request.
- The maximum allowable operating rate shall be limited to 120% of the average operating rate attained during any performance test period, for which a test protocol has been granted prior approval by DEQ, unless (1) the test demonstrates noncompliance, (2) a more restrictive operating limit is specified elsewhere in this permit, or (3) at such an operating rate, emissions would exceed any emission limit(s) set forth in this permit.
- G. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, th application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

DATE: October 18, 1999

STATE OF IDAHO PERMIT TO CONSTRUCT AN AIR POLLUTION EMITTING SOURCE		PERMIT NUMBER								
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		AQCR		CLASS		SIC				
		0	6	1	A	1	8	9	2	2
ZONE		UTM COORDINATE (km)								
1	2	3	4	2	3	4	8	2	1	2
1. PERMITTEE Department of Energy - Idaho Operations Office										
2. PROJECT Boiler for Spaceheating at CFA 609 HQ/SRT Building										
3. MAILING ADDRESS 850 Energy Drive				CITY Idaho Falls			STATE Idaho		ZIP CODE 83401	
4. SITE LOCATION COUNTY Butte		NO. OF FULL TIME EMPLOYEES 6,000			PROPERTY AREA AT SITE (Acreage) 596,000					
5. PERSON TO CONTACT Donald N. Rasch				TITLE Senior Environmental Engineer			TELEPHONE (208) 526-0561			
6. EXACT PLANT LOCATION SW quarter, Section 1, T2N, R293, BM										
7. GENERAL NATURE OF BUSINESS & KINDS OF PRODUCTS Government Energy Research and Development										
GENERAL CONDITIONS <p>This permit is issued according to the Rules for the Control of Air Pollution in Idaho, Section 16.01.01.200, and pertains only to emissions of air contaminants which are regulated by the State of Idaho and to the sources specifically allowed to be constructed by this permit.</p> <p>This permit (a) does not affect the title of the premises upon which the equipment is to be located, (b) does not release the permittee from any liability for any loss due to damage to person or property caused by, resulting from, or arising out of the design, installation, maintenance, or operation of the proposed equipment, (c) does not release the permittee from compliance with other applicable federal, state, tribal or local laws, regulations, or ordinances, (d) in no manner implies or suggests that the Department of Health and Welfare, or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to damage to person or property caused by, resulting from, or arising out of design, installation, maintenance, or operation of the proposed equipment.</p> <p>This permit is not transferable to another person, place, piece or set of equipment. This permit will expire if construction has not begun within two years of its issue date or if construction is suspended for one year.</p> <p>THIS PERMIT HAS BEEN GRANTED ON THE BASIS OF DESIGN INFORMATION PRESENTED WITH ITS APPLICATION. CHANGES OF DESIGN OR EQUIPMENT THAT RESULT IN ANY CHANGE IN THE NATURE OR AMOUNT OF EMISSIONS MUST BE APPROVED IN ADVANCE BY THE DEPARTMENT.</p>										
<i>Will D. Green</i> ASSISTANT ADMINISTRATOR DIVISION OF ENVIRONMENTAL QUALITY				DATE: December 5, 1995						

PERMIT TO CONSTRUCT	P E R M I T N U M B E R
PERMITTEE, PROJECT, AND LOCATION	
Department of Energy - Idaho Operations Office Boiler for Spaceheating CFA 609 Idaho National Engineering Laboratory	0 2 3 - 0 0 0 0 1
SOURCE	
Cleaver Brooks Boiler	

1. SOURCE DESCRIPTION

1.1 Process Description

A No. 2 fuel oil-fired boiler generates low pressure steam for space heating.

1.2 Equipment List

1.2.1 Cleaver Brooks CB-101-50 boiler using No. 2 fuel oil with a capacity of 2,092,000 Btu/hr, or Department approved equivalent.

2. EMISSION LIMITS

2.1 Particulate Matter Emission

Particulate matter emissions from the boiler exhaust stack shall not exceed 0.03 lb/hr or 0.025 T/yr.

2.2 Visible Emissions

Visible emissions from the boiler stack shall not exceed 20% opacity for a period or periods aggregating more than 3 minutes in any 60 minute period, as required by IDAPA 16.01.01.625 (Rules for the Control of Air Pollution in Idaho) and as determined using the "Department's Procedures Manual for Air Pollution Control".

3. OPERATING REQUIREMENTS

3.1 Fuel Oil Specification

The boiler shall burn No. 2 fuel oil, JP-4 or JP-8 fuel. The sulfur content of the fuel shall not exceed 0.50% by weight as specified in IDAPA 16.01.01.728.02

3.2 Fuel Oil Consumption

The total fuel consumption of the boiler shall not exceed 25,000 gallons per year.

4. MONITORING REQUIREMENTS

4.1 Fuel Consumption

The permittee shall monitor and record in a log the fuel consumption of the boiler on a monthly basis. The most recent two-year collection of data shall be kept on-site and shall be made available to Department representatives upon request.

mf

DATE: February 14, 1996

JF/dct:INEL/CFAG09R1.PTC

PERMIT TO CONSTRUCT	PERMIT NUMBER
PERMITTEE, PROJECT, AND LOCATION	
Department of Energy - Idaho Operations Office Boiler for Spaceheating CFA 609 Idaho National Engineering Laboratory	023 - 00001
SOURCE	
Cleaver Brooks Boiler	

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3. OPERATING REQUIREMENTS

3.1 Fuel Oil Specification

The boiler shall burn No. 2 fuel oil exclusively. The sulfur content of the fuel shall not exceed 0.50% by weight as specified in IDAPA 16.01.01.728.02

3.2 Fuel Oil Consumption

The total fuel consumption of the boiler shall not exceed 25,000 gallons per year.

4. MONITORING REQUIREMENTS

4.1 Fuel Consumption

The permittee shall monitor and record in a log the fuel consumption of the boiler on a monthly basis. The most recent two-year collection of data shall be kept on-site and shall be made available to Department representatives upon request.

DATE: December 5, 1995

JF/act: DWR/L/CFA-609A.PTC

PERMIT TO CONSTRUCT GENERAL PROVISIONS

- P All emissions authorized herein shall be consistent with the terms and conditions of this permit and the Rules for the Control of Air Pollution in Idaho. The emission of any pollutant in excess of the limitations specified herein, or noncompliance with any other condition or limitation contained in this permit, shall constitute a violation of this permit and the Rules for the Control of Air Pollution in Idaho, and the Environmental Protection and Health Act, Idaho Code 39-101, et. seq.
- B. The permittee shall at all times (except as provided in the Rules for the Control of Air Pollution in Idaho) maintain in good working order and operate as efficiently as practicable, all treatment or control facilities or systems installed or used to achieve compliance with the terms and conditions of this permit and other applicable Idaho laws for the control of air pollution.
- C. The permittee shall allow the Director, and/or his authorized representative(s), upon the presentation of credentials:
- 1) To enter at reasonable times upon the premises where an emission source is located, or in which any records are required to be kept under the terms and conditions of this permit; and
 - 2) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit, to inspect any monitoring methods required in this permit, and require stack emission testing in conformance with the Department's Procedures Manual for Air Pollution Control when deemed appropriate by the Director.
- D. Nothing in this permit is intended to relieve or exempt the permittee from compliance with any applicable federal, state, or local law or regulation, except as specifically provided herein.
- F The permittee shall notify the Idaho Division of Environmental Quality, in writing, of the required information for the following events within five working days after occurrence;
- 1) Initiation of Construction - Date
 - 2) Completion/Cessation of Construction - Date
 - 3) Actual Production Start up - Date
 - 4) Initial Date of Achieving Maximum Production Rate - Production Rate and Date
- F. If emission testing is specified, the permittee must schedule such testing within sixty (60) days after achieving the maximum production rate, but not later than one hundred and eighty (180) days after initial start up. Such testing must strictly adhere to the procedures outlined in the Department's Procedures Manual for Air Pollution Control, and will not be conducted on weekends or state holidays. Testing procedures and specific time limitations may be modified by the Idaho Division of Environmental Quality by prior negotiation if conditions warrant adjustment. The Idaho Division of Environmental Quality shall be notified at least fifteen (15) working days prior to the scheduled compliance test. Any records or data generated as a result of such compliance test shall be made available to the Department upon request.
- The performance tests will be performed at the maximum production rate. If this maximum rate is not achieved during testing, the allowable production rate will be limited to the production rate attained during testing.
- G. The provisions of this permit are severable, and if any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby.

DATE: December 5, 1995

37/dcf:1288L/CFA-609A.PTC