INL/RPT-22-65892-Revision-0

Annual FEC-PTC Report - CDRL F.70

March 2022

Kristopher John Murray

Changing the World's Energy Future

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Idaho National Laboratory
Idaho Falls, Idaho 83415

http://www.inl.gov

Prepared for the
U.S. Department of Energy
Under DOE Idaho Operations Office
Contract DE-AC07-05ID14517

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Revision 0

Idaho National Laboratory Annual Report for Permit to Construct P-2015.0023 & P-2020.0045 for Calendar Year 2021

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ABSTRACT

The U.S. Department of Energy (DOE) Idaho National Laboratory (INL) Site operates facilities with potential emissions of criteria and hazardous air pollutants.

This report documents the calendar year 2021 criteria and hazardous air pollutants emissions and has been prepared to comply with permit to construct (PTC) P-2015.0023 for the period of 1-1-2021 up to the effective date of PTC P-2020.0045 (1-29-2021), and PTC P-2020.0045 for the period from 1-29-2021 through 12-31-2021. The Idaho Administrative Procedures Act (IDAPA) 58.01.01.178, Standard Contents of Permits Establishing a Facility Emissions Cap (FEC) requires that all permits establishing a FEC shall include sufficient reporting to assure compliance with the permit establishing the FEC.

Total hazardous air pollutant (HAP) emissions for the year were 0.10 tons in aggregate and the maximum individual HAP was toluene at 0.04 tons. Criteria pollutant emissions were 0.75 tons for sulfur dioxide, 24.33 tons for oxides of nitrogen, 6.07 tons of carbon monoxide, 2.53 tons of total particulate matter and 0.99 tons of volatile organic compounds (VOC).

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FIGURES

TABLES

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ACRONYMS

ATRC	Advanced Test Reactor Complex
AMWTP	Advanced Mixed Waste Treatment Project
BEA	Battelle Energy Alliance
CAP	criteria air pollutant
CFA	Central Facilities Area
CO	carbon monoxide
DOE	Department of Energy
ICE	internal combustion engines
ICP	Idaho Cleanup Project
IDAPA	Idaho Administrative Procedures Act
IEC	Idaho Environmental Coalition
INL	Idaho National Laboratory
INTEC	Idaho Nuclear Technology and Engineering Center (formerly ICPP)
HAP	hazardous air pollutant
MFC	Materials and Fuels Complex
NO_2	nitrogen dioxide
NRF	Naval Reactors Facility
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	permit to construct
RWMC	Radioactive Waste Management Complex
SMC	Specific Manufacturing Capability
SO_2	sulfur dioxide
TAN	Test Area North
T/yr	tons per consecutive 12 calendar month period
VOC	volatile organic compounds

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Idaho National Laboratory Annual Report for Permit to Construct P-2015.0023 & P-2020.0045 for Calendar Year 2021

1. INTRODUCTION

The U.S. Department of Energy (DOE) Idaho National Laboratory (INL) Site operates facilities with potential emissions of criteria air pollutants (CAP) and hazardous air pollutants (HAP). This report has been prepared to comply with permit to construct (PTC) P-2015.0023 & P-2020.0045, Condition 2.9 and 2.6 respectively, as well as Idaho Administrative Procedures Act (IDAPA) 58.01.01.178.04, Recordkeeping.

This report documents the CAP and HAP emissions from the INL emission sources previously regulated by PTC P-2015.0023 and currently regulated by P-2020.0045. In addition to annual emissions the report includes record summaries of the data used for determining the 12-month total facility-wide CAP and HAP emissions, and the 12-month rolling emissions totals. A table of emissions units with changes that occurred during the calendar year is also included.

2. INL OVERVIEW

INL is a science-based, applied engineering national laboratory dedicated to supporting DOE's missions in nuclear and energy research, science, and national defense. Battelle Energy Alliance, LLC, (BEA) is the maintenance and operations contractor and operates INL under contract with DOE. BEA conducts research, development, demonstration, and deployment activities. In addition to these research facilities, BEA manufactures armor under a contract with the Department of Defense. In addition to the primary mission of INL, environmental cleanup and remediation is also performed at INL by the Idaho Cleanup Project (ICP) contractor. Fluor Idaho was the ICP contractor through this reporting period (12/31/2021), and has since transferred to Idaho Environmental Coalition (IEC), LLC. The Naval Reactors Facility (NRF) is operated for the U.S. Naval Nuclear Propulsion Program by the Fluor Marine Propulsion, LLC. NRF prepares and packages spent naval nuclear fuel for dry storage and eventual transport to a permanent repository.

There are currently 7 major facility areas at the INL Site (Figure 1) that are potential sources of pollutant emissions that are included in this report. They are:

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

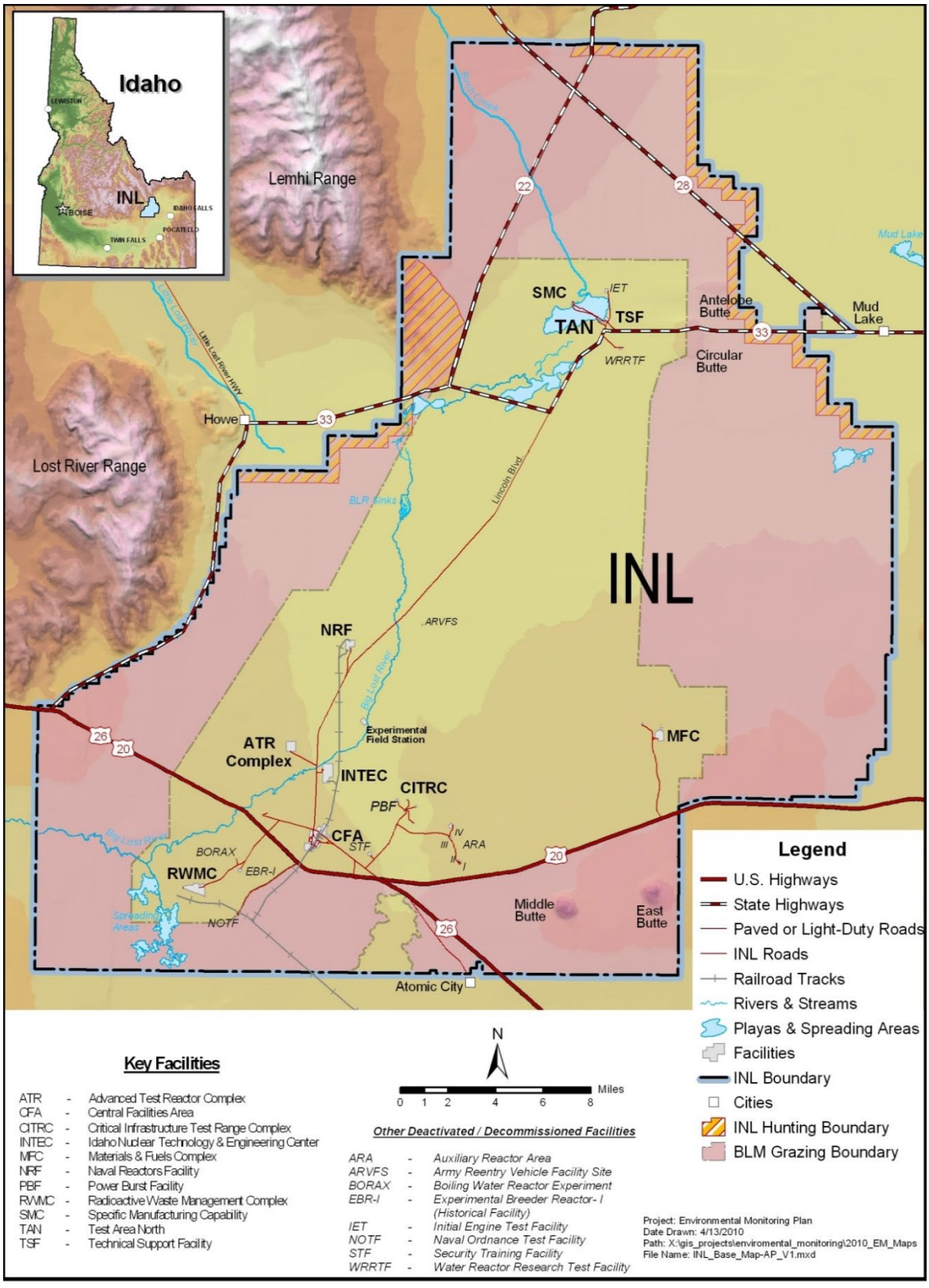

Figure 1 - Idaho National Laboratory Site Facilities

3. Criteria and Hazardous Air Pollutant Emissions

Facility-wide emissions from the US DOE–INL facility are listed in Table 1 and Table 2 below. Table 1 contains emissions for the rolling 12-month period ending January 31, 2021 along with the permitted emission limits from PTC P-2015.0023. Table 2 contains the 12-month rolling emissions ending December 31, 2021 along with the permitted limits from PTC P-2020.0045.

Table 1 - Criteria and Hazardous Air Pollution Emissions for P-2015.0023

	$PM_{10}/PM_{2.5}$ T/yr	**SO_2 T/yr**	**NOx T/yr**	**CO T/yr**	**VOC T/yr**	**Individual HAP T/yr**	**HAP**	**Aggregate HAP T/yr**
Rolling 12-Mo Emissions	2.94	1.12	40.27	11.36	1.85	0.29	Hydrochloric Acid	0.53
Permit Limit	6.6	16.9	95.0	17.7	3.7	<10	---	<25

Table 2 - Criteria and Hazardous Air Emissions for P-2020.0045

	PM_{10} T/yr	**$PM_{2.5}$ T/yr**	**SO_2 T/yr**	**NOx T/yr**	**CO T/yr**	**VOC T/yr**	**Individual HAP T/yr**	**HAP**	**Aggregate HAP T/yr**
Rolling 12-Mo Emissions	2.53	2.53	0.75	24.33	6.07	0.99	0.04	Toluene	0.10
Permit Limit	85	85	70	95	90	90	<10	---	<25

4. Monthly and 12 Month Rolling Emissions Totals

Appendix A contains the monthly and 12-month rolling emissions totals generated under the criteria pollutant emissions calculation and HAP emissions calculation for the reporting period.

5. Data Records

Records of data used for determining emissions are contained in Appendix B and are summaries of records maintained at the individual facilities.

6. Methods, Equations and Emission Factors

No new emission methods, equations, emissions factors, or sources for emissions factors were used to determine the 12-month total facility-wide criteria pollutant and HAP emissions for the calendar year.

7. Emission Unit Changes

The following emission unit changes occurred in calendar year 2021.

Table 3 - ICE Source Changes

Facility	Engine ID	Action	Installation Date	Removal Date	Purpose
MFC	ANL-785-016	Removed	1975	2021	
MFC	785-SGN-003	Added	2021	NA	ESG replaced ANL-785-016
MFC	ANL-785-017	Removed	~1950	2021	
MFC	785-SGN-004	Added	2021	NA	ESG replaced ANL-785-017
MFC	ANL-1743	Added	2022[b]	NA	ESG
MFC	ANL-1750	Added	2021	NA	ESG
SMC	GEN-1617-01	Added	2022[b]	NA	ESG
SMC	GEN-691-01	Added	2022[b]	NA	ESG

Facility	Engine ID	Action	Installation Date	Removal Date	Purpose
INTEC	R13845	Added[a]	2005	NA	ESG provides power to Idaho CERCLA Disposal Facility (ICDF) when commercial power isn't available.
INTEC	R13846	Added[a]	2005	NA	Provides power to the Weather/Decontamination Enclosure.

[a] Engines were installed in 2005 and are existing engines in accordance with 40 CFR 63, Subpart ZZZZ, but haven't been included in the emission calculations until this reporting year.

[b] Engines included in tables, but not yet operational. Expected in 2022.

Appendix C contains lists of stationary sources with changes annotated. These changes took place after the 2020 permit application and are maintained to comply with Permit Condition 2.6.

Appendix A

Emissions

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Table A-1; 2021 Monthly Emissions (tons)

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
PM	3.63E-01	3.19E-01	3.15E-01	2.24E-01	1.21E-01	8.78E-02	8.33E-02	8.98E-02	1.06E-01	1.85E-01	2.78E-01	3.57E-01
SO2	9.29E-02	5.49E-02	8.03E-02	6.37E-02	4.50E-02	5.03E-02	5.48E-02	6.63E-02	7.48E-02	4.33E-02	5.62E-02	6.49E-02
NOx	3.05	2.38	2.55	2.03	1.28	1.16	1.22	1.39	1.57	1.88	2.42	3.39
CO	8.75E-01	6.20E-01	6.35E-01	5.09E-01	3.23E-01	2.78E-01	3.03E-01	3.24E-01	3.66E-01	4.87E-01	6.19E-01	7.29E-01
VOCs, as VOCs	1.14E-01	6.12E-02	9.32E-02	7.79E-02	6.00E-02	6.62E-02	7.48E-02	8.81E-02	1.03E-01	6.77E-02	1.05E-01	7.61E-02

Max HAP (tons)	5.06E-03	4.22E-03	3.86E-03	3.41E-03	3.24E-03	3.16E-03	3.16E-03	3.16E-03	3.19E-03	3.37E-03	3.57E-03	4.71E-03
Max HAP	Formaldehyde	Formaldehyde	Formaldehyde	Toluene	Toluene	Toluene	Toluene	Toluene	Toluene	Toluene	Toluene	Formaldehyde
Total HAP	1.83E-02	1.07E-02	1.01E-02	8.22E-03	6.45E-03	5.60E-03	5.59E-03	5.48E-03	5.72E-03	7.70E-03	9.48E-03	1.10E-02
1,1,1-Trichloroethane	4.02E-04	1.01E-04	9.83E-05	9.23E-05	8.58E-05	8.31E-05	8.20E-05	8.21E-05	8.24E-05	9.07E-05	9.74E-05	1.03E-04
1,1,2,2-Tetrachloroethane	2.74E-08	2.76E-08	2.39E-08	3.01E-08	3.01E-08	6.56E-08	1.54E-07	3.01E-08	1.40E-08	9.13E-08	3.01E-08	9.89E-08
1,1,2-Trichloroethane	2.00E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05	3.52E-05
1,1-Dichloroethane	2.05E-07	1.21E-07	2.15E-08	2.71E-08	8.33E-09	1.66E-07	1.05E-07	2.75E-07	1.88E-07	2.00E-07	3.09E-07	2.16E-07
1,1-Dichloroethylene	3.33E-06	4.77E-06	4.67E-06	4.67E-06	4.66E-06	4.80E-06	4.70E-06	4.92E-06	4.84E-06	4.82E-06	4.96E-06	4.83E-06
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	3.35E-05	4.08E-06	4.08E-06	4.08E-06	4.08E-06	4.09E-06	4.13E-06	4.08E-06	4.07E-06	4.11E-06	4.08E-06	4.11E-06
1,2-Dichloropropane	1.91E-07	1.22E-07	2.24E-08	2.83E-08	9.58E-09	1.70E-07	1.15E-07	2.77E-07	1.88E-07	2.05E-07	3.10E-07	2.22E-07
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Butadiene	1.63E-05	3.83E-06	7.85E-06	6.70E-06	5.23E-06	7.74E-06	1.08E-05	9.09E-06	9.66E-06	6.09E-06	5.05E-06	6.88E-06
1,3-Dichloropropene	4.38E-09	8.08E-09	6.21E-09	9.32E-09	9.36E-09	2.72E-08	7.16E-08	9.32E-09	1.27E-09	4.01E-08	9.32E-09	4.39E-08
1,4-Dichlorobenzene	2.83E-06	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07
1,4 Dioxane	2.28E-06	1.13E-07	1.60E-08	1.88E-08	NA	1.42E-07	4.17E-08	2.67E-07	1.87E-07	1.64E-07	3.01E-07	1.77E-07
2,2,4-Trimethyl pentane	1.87E-07	1.13E-07	1.60E-08	1.88E-08	NA	1.42E-07	4.17E-08	2.67E-07	1.87E-07	1.64E-07	3.01E-07	1.77E-07
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	8.00E-07	1.21E-12	1.71E-13	2.01E-13	NA	1.52E-12	4.45E-13	2.85E-12	2.00E-12	1.75E-12	3.21E-12	1.89E-12
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetaldehyde	3.20E-04	7.01E-05	1.50E-04	1.26E-04	9.70E-05	1.32E-04	1.56E-04	1.73E-04	1.91E-04	9.15E-05	9.53E-05	1.02E-04
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	1.97E-04	1.02E-05	1.94E-05	1.73E-05	1.38E-05	2.12E-05	3.22E-05	2.31E-05	2.38E-05	1.91E-05	1.39E-05	2.07E-05
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	1.57E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09	2.07E-09
Arsenic	5.18E-05	4.66E-05	4.11E-05	2.73E-05	1.24E-05	5.29E-06	3.41E-06	2.32E-06	3.59E-06	2.29E-05	3.75E-05	5.10E-05
Benzene	5.37E-04	1.56E-04	2.35E-04	2.33E-04	1.89E-04	2.22E-04	2.55E-04	2.93E-04	3.22E-04	2.52E-04	2.47E-04	2.20E-04

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	3.94E-05	3.51E-05	3.09E-05	2.06E-05	9.42E-06	4.09E-06	2.68E-06	1.86E-06	2.81E-06	1.73E-05	2.82E-05	3.84E-05
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	1.41E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromoform	5.70E-08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	3.72E-04	3.68E-04	3.64E-04	3.54E-04	3.43E-04	3.37E-04	3.36E-04	3.35E-04	3.36E-04	3.51E-04	3.62E-04	3.72E-04
Carbon disulfide	3.80E-05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Carbon Tetrachloride	1.43E-03	3.52E-05	3.51E-05	3.51E-05	3.51E-05	3.52E-05	3.52E-05	3.53E-05	3.52E-05	3.53E-05	3.53E-05	3.53E-05
Carbonyl sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	6.91E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.61E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05	3.60E-05
Chloroethane (ethyl chloride)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	9.46E-05	8.90E-05	8.89E-05	8.89E-05	8.89E-05	8.91E-05	8.90E-05	8.92E-05	8.91E-05	8.91E-05	8.92E-05	8.91E-05
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	3.88E-05	3.50E-05	3.08E-05	2.05E-05	9.31E-06	3.98E-06	2.57E-06	1.76E-06	2.71E-06	1.72E-05	2.81E-05	3.83E-05
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresols (m, p & o)	3.81E-05	6.07E-07	5.10E-07	5.13E-07	4.94E-07	6.36E-07	5.36E-07	7.61E-07	6.81E-07	6.58E-07	7.95E-07	6.71E-07
Cyanide	3.80E-05	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	2.36E-05	6.99E-05	7.74E-06	4.58E-06	2.61E-05	2.16E-06	1.93E-06	2.69E-06	1.96E-06	4.27E-06	1.26E-05	7.68E-06
Ethylene Dibromide	7.34E-09	1.36E-08	1.04E-08	1.56E-08	1.57E-08	4.55E-08	1.20E-07	1.56E-08	2.13E-09	6.72E-08	1.56E-08	7.36E-08
Formaldehyde	5.06E-03	4.22E-03	3.86E-03	2.62E-03	1.26E-03	7.05E-04	6.36E-04	4.86E-04	6.22E-04	2.22E-03	3.46E-03	4.71E-03
Hexachlorobenzene	1.83E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07	2.92E-07
Hexachlorobutadiene	7.00E-07	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	4.38E-06	3.03E-06	2.94E-06	2.94E-06	2.92E-06	3.06E-06	2.96E-06	3.19E-06	3.11E-06	3.08E-06	3.22E-06	3.10E-06
Hexane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrochloric Acid	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1.18E-04	1.06E-04	9.32E-05	6.22E-05	2.85E-05	1.25E-05	8.24E-06	5.79E-06	8.65E-06	5.22E-05	8.51E-05	1.16E-04
Manganese	7.76E-05	6.99E-05	6.16E-05	4.10E-05	1.86E-05	7.92E-06	5.10E-06	3.47E-06	5.37E-06	3.43E-05	5.62E-05	7.65E-05
Mercury	3.91E-05	3.51E-05	3.09E-05	2.06E-05	9.37E-06	4.18E-06	2.67E-06	2.08E-06	2.95E-06	1.74E-05	2.85E-05	3.85E-05
Methanol	1.31E-04	7.00E-06	6.45E-06	7.20E-06	7.20E-06	1.16E-05	2.22E-05	7.45E-06	5.43E-06	1.48E-05	7.49E-06	1.57E-05
Methyl isobutyl ketone	4.38E-06	1.26E-04	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07
Methylene chloride	1.88E-04	9.01E-06	8.91E-06	8.92E-06	8.90E-06	9.10E-06	9.14E-06	9.17E-06	9.06E-06	9.16E-06	9.20E-06	9.19E-06
Naphthalene	1.33E-04	1.12E-04	1.07E-04	8.12E-05	5.02E-05	3.46E-05	3.46E-05	3.67E-05	4.23E-05	7.90E-05	1.07E-04	1.29E-04
Nickel	3.71E-04	3.67E-04	3.63E-04	3.53E-04	3.41E-04	3.36E-04	3.35E-04	3.34E-04	3.35E-04	3.49E-04	3.60E-04	3.70E-04
Nitrobenzene	3.81E-05	6.07E-07	5.10E-07	5.13E-07	4.94E-07	6.36E-07	5.36E-07	7.61E-07	6.81E-07	6.58E-07	7.95E-07	6.71E-07
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyls	2.11E-03	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06	2.92E-06

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	3.80E-04	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07	4.94E-07
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POM/PAH	4.13E-04	3.09E-04	2.89E-04	2.10E-04	1.12E-04	7.49E-05	7.02E-05	7.20E-05	8.53E-05	1.92E-04	2.77E-04	3.50E-04
Selenium	1.94E-04	1.74E-04	1.54E-04	1.02E-04	4.63E-05	1.98E-05	1.27E-05	8.65E-06	1.34E-05	8.56E-05	1.40E-04	1.91E-04
Styrene	4.10E-09	7.57E-09	5.82E-09	8.73E-09	8.77E-09	2.54E-08	6.71E-08	8.73E-09	1.19E-09	3.76E-08	8.73E-09	4.11E-08
Tetrachloroethylene	2.02E-05	3.53E-05	3.52E-05	3.52E-05	3.52E-05	3.53E-05	3.52E-05	3.54E-05	3.53E-05	3.53E-05	3.55E-05	3.53E-05
Toluene	4.53E-03	3.60E-03	3.73E-03	3.41E-03	3.24E-03	3.16E-03	3.16E-03	3.16E-03	3.19E-03	3.37E-03	3.57E-03	3.68E-03
Trichloroethylene	6.93E-05	8.06E-05	8.05E-05	8.05E-05	8.05E-05	8.06E-05	8.05E-05	8.07E-05	8.06E-05	8.06E-05	8.08E-05	8.06E-05
Vinyl Chloride	2.83E-07	4.57E-09	3.51E-09	5.27E-09	5.29E-09	1.54E-08	4.05E-08	5.27E-09	7.18E-10	2.27E-08	5.27E-09	2.48E-08
Xylene	6.44E-04	3.46E-04	8.57E-05	7.43E-05	2.13E-04	6.92E-05	7.76E-05	9.40E-05	9.87E-05	7.50E-05	1.21E-04	7.07E-05

Table A-2; 12 Month Rolling Emissions (tons)

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
PM	2.94	2.91	2.93	2.96	2.81	2.73	2.60	2.55	2.56	2.56	2.54	2.53
SO2	1.12	1.08	1.08	1.08	1.02	9.84E-01	9.58E-01	8.79E-01	8.64E-01	8.15E-01	7.79E-01	7.47E-01
NOx	40.27	39.68	39.83	39.96	33.73	30.91	25.39	24.38	24.54	24.06	23.96	24.33
CO	11.36	11.12	11.05	10.98	9.26	8.43	6.89	6.56	6.50	6.31	6.20	6.07
VOCs, as VOCs	1.85	1.78	1.76	1.75	1.53	1.40	1.22	1.11	1.09	1.03	1.02	9.87E-01

Max HAP (tons)	2.88E-01	2.38E-01	1.90E-01	1.51E-01	1.12E-01	6.80E-02	4.63E-02	4.53E-02	4.45E-02	4.36E-02	4.27E-02	4.18E-02
Max HAP	Hydrochloric Acid	Hydrochloric Acid	Hydrochloric Acid	Hydrochloric Acid	Hydrochloric Acid	Hydrochloric Acid	Toluene	Toluene	Toluene	Toluene	Toluene	Toluene
Total HAP	5.26E-01	4.64E-01	4.05E-01	3.55E-01	3.02E-01	2.45E-01	1.97E-01	1.51E-01	1.38E-01	1.27E-01	1.16E-01	1.04E-01
1,1,1-Trichloroethane	5.55E-03	5.17E-03	4.79E-03	4.42E-03	4.04E-03	3.66E-03	3.28E-03	2.91E-03	2.53E-03	2.15E-03	1.78E-03	1.40E-03
1,1,2,2-Tetrachloroethane	1.59E-04	1.45E-04	1.30E-04	1.16E-04	1.01E-04	8.71E-05	7.28E-05	5.82E-05	4.37E-05	2.94E-05	1.50E-05	6.23E-07
1,1,2-Trichloroethane	2.40E-04	2.55E-04	2.71E-04	2.86E-04	3.01E-04	3.16E-04	3.31E-04	3.46E-04	3.61E-04	3.77E-04	3.92E-04	4.07E-04
1,1-Dichloroethane	2.68E-04	2.44E-04	2.20E-04	1.95E-04	1.71E-04	1.47E-04	1.23E-04	9.85E-05	7.42E-05	5.01E-05	2.60E-05	1.84E-06
1,1-Dichloroethylene	2.06E-04	1.93E-04	1.79E-04	1.65E-04	1.51E-04	1.38E-04	1.24E-04	1.10E-04	9.67E-05	8.31E-05	6.96E-05	5.60E-05
1,2,4-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromo-3-chloropropane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	5.68E-04	5.23E-04	4.79E-04	4.34E-04	3.90E-04	3.45E-04	3.01E-04	2.56E-04	2.12E-04	1.67E-04	1.23E-04	7.84E-05
1,2-Dichloropropane	2.61E-04	2.38E-04	2.14E-04	1.90E-04	1.66E-04	1.43E-04	1.19E-04	9.58E-05	7.23E-05	4.88E-05	2.54E-05	1.86E-06
1,2-Diphenylhydrazine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3-Butadiene	2.34E-04	2.21E-04	2.12E-04	2.02E-04	1.87E-04	1.75E-04	1.66E-04	1.43E-04	1.32E-04	1.19E-04	1.06E-04	9.52E-05
1,3-Dichloropropene	2.97E-07	2.90E-07	2.58E-07	2.53E-07	2.39E-07	2.54E-07	3.03E-07	2.19E-07	1.89E-07	2.21E-07	2.10E-07	2.40E-07
1,4-Dichlorobenzene	2.95E-04	2.69E-04	2.43E-04	2.17E-04	1.91E-04	1.64E-04	1.38E-04	1.12E-04	8.64E-05	6.03E-05	3.43E-05	8.26E-06
1,4 Dioxane	2.53E-05	2.33E-05	2.12E-05	1.91E-05	1.71E-05	1.51E-05	1.31E-05	1.12E-05	9.33E-06	7.41E-06	5.62E-06	3.70E-06
2,2,4-Trimethyl pentane	2.61E-04	2.37E-04	2.14E-04	1.90E-04	1.66E-04	1.43E-04	1.19E-04	9.56E-05	7.21E-05	4.85E-05	2.51E-05	1.61E-06
2,4,5-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4,6-Trichlorophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2,4-Dinitrotoluene	7.63E-04	6.94E-04	6.25E-04	5.55E-04	4.86E-04	4.17E-04	3.47E-04	2.78E-04	2.09E-04	1.39E-04	7.01E-05	8.00E-07
4-Nitrophenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acetaldehyde	4.50E-03	4.24E-03	4.08E-03	3.90E-03	3.57E-03	3.30E-03	3.05E-03	2.66E-03	2.46E-03	2.18E-03	1.93E-03	1.70E-03
Acetophenone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Acrolein	2.50E-03	2.31E-03	2.13E-03	1.95E-03	1.74E-03	1.55E-03	1.37E-03	1.15E-03	9.63E-04	7.78E-04	5.90E-04	4.11E-04
Acrylonitrile	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Aniline	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	1.88E-08	1.93E-08	1.98E-08	2.03E-08	2.08E-08	2.13E-08	2.18E-08	2.23E-08	2.28E-08	2.33E-08	2.38E-08	2.43E-08
Arsenic	9.56E-04	8.95E-04	8.37E-04	7.79E-04	7.20E-04	6.60E-04	5.98E-04	5.40E-04	4.81E-04	4.26E-04	3.66E-04	3.05E-04

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Benzene	1.05E-02	1.00E-02	9.75E-03	9.46E-03	7.65E-03	6.69E-03	5.07E-03	4.52E-03	4.25E-03	3.81E-03	3.50E-03	3.16E-03
Benzidine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	9.95E-04	9.24E-04	8.55E-04	7.87E-04	7.18E-04	6.47E-04	5.76E-04	5.08E-04	4.38E-04	3.72E-04	3.01E-04	2.31E-04
bis(2-Chloroethyl)ether	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	1.69E-07	1.55E-07	1.41E-07	1.26E-07	1.12E-07	9.84E-08	8.43E-08	7.03E-08	5.62E-08	4.22E-08	2.81E-08	1.41E-08
Bromoform	6.84E-07	6.27E-07	5.70E-07	5.13E-07	4.56E-07	3.99E-07	3.42E-07	2.85E-07	2.28E-07	1.71E-07	1.14E-07	5.70E-08
Bromomethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	4.99E-03	4.92E-03	4.85E-03	4.78E-03	4.71E-03	4.64E-03	4.57E-03	4.51E-03	4.44E-03	4.37E-03	4.30E-03	4.23E-03
Carbon disulfide	4.56E-04	4.18E-04	3.80E-04	3.42E-04	3.04E-04	2.66E-04	2.28E-04	1.90E-04	1.52E-04	1.14E-04	7.60E-05	3.80E-05
Carbon Tetrachloride	1.75E-02	1.61E-02	1.47E-02	1.32E-02	1.18E-02	1.04E-02	8.95E-03	7.52E-03	6.09E-03	4.67E-03	3.24E-03	1.81E-03
Carbonyl sulfide	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	8.36E-04	8.02E-04	7.69E-04	7.35E-04	7.01E-04	6.67E-04	6.34E-04	6.00E-04	5.66E-04	5.33E-04	4.99E-04	4.65E-04
Chloroethane (ethyl chloride)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	1.56E-03	1.52E-03	1.47E-03	1.43E-03	1.38E-03	1.34E-03	1.30E-03	1.25E-03	1.21E-03	1.16E-03	1.12E-03	1.07E-03
Chloromethane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	4.15E-04	3.96E-04	3.80E-04	3.64E-04	3.48E-04	3.30E-04	3.11E-04	2.95E-04	2.79E-04	2.65E-04	2.47E-04	2.29E-04
Cobalt	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cresols (m, p & o)	7.16E-04	6.55E-04	5.94E-04	5.33E-04	4.72E-04	4.11E-04	3.50E-04	2.89E-04	2.28E-04	1.67E-04	1.06E-04	4.50E-05
Cyanide	1.21E-03	1.10E-03	9.97E-04	8.91E-04	7.85E-04	6.79E-04	5.73E-04	4.67E-04	3.61E-04	2.55E-04	1.49E-04	4.34E-05
Dibenzofuran	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dimethyl phthalate	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	2.88E-03	2.86E-03	2.79E-03	2.75E-03	2.73E-03	2.63E-03	2.59E-03	2.54E-03	2.88E-04	2.46E-04	2.07E-04	1.65E-04
Ethylene Dibromide	4.98E-07	4.86E-07	4.32E-07	4.24E-07	4.01E-07	4.27E-07	5.08E-07	3.67E-07	3.17E-07	3.70E-07	3.52E-07	4.02E-07
Formaldehyde	3.51E-02	3.45E-02	3.42E-02	3.40E-02	3.33E-02	3.27E-02	3.21E-02	3.14E-02	3.10E-02	3.09E-02	3.03E-02	2.98E-02
Hexachlorobenzene	2.20E-06	2.31E-06	2.42E-06	2.53E-06	2.64E-06	2.75E-06	2.85E-06	2.96E-06	3.07E-06	3.18E-06	3.29E-06	3.39E-06
Hexachlorobutadiene	8.40E-06	1.06E-05	1.28E-05	1.51E-05	1.73E-05	1.95E-05	2.17E-05	2.39E-05	2.62E-05	2.84E-05	3.06E-05	3.28E-05
Hexachlorocyclopentadiene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hexachloroethane	3.11E-04	2.86E-04	2.61E-04	2.36E-04	2.11E-04	1.87E-04	1.62E-04	1.37E-04	1.12E-04	8.74E-05	6.27E-05	3.79E-05
Hexane	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Hydrochloric Acid	2.88E-01	2.38E-01	1.90E-01	1.51E-01	1.12E-01	6.80E-02	3.40E-02	NA	NA	NA	NA	NA
Isophorone	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	1.95E-02	1.78E-02	1.61E-02	1.44E-02	1.26E-02	1.09E-02	9.22E-03	7.52E-03	5.81E-03	4.12E-03	2.41E-03	6.95E-04
Manganese	4.69E-04	4.65E-04	4.66E-04	4.66E-04	4.66E-04	4.63E-04	4.59E-04	4.59E-04	4.59E-04	4.64E-04	4.61E-04	4.58E-04
Mercury	6.73E-04	6.31E-04	5.92E-04	5.53E-04	5.12E-04	4.71E-04	4.30E-04	3.90E-04	3.50E-04	3.14E-04	2.72E-04	2.31E-04
Methanol	2.05E-03	1.88E-03	1.71E-03	1.55E-03	1.38E-03	1.22E-03	1.07E-03	8.88E-04	7.18E-04	5.64E-04	3.99E-04	2.43E-04
Methyl isobutyl ketone	5.26E-05	1.75E-04	1.71E-04	1.67E-04	1.63E-04	1.59E-04	1.55E-04	1.51E-04	1.47E-04	1.44E-04	1.40E-04	1.36E-04
Methylene chloride	2.68E-03	2.46E-03	2.24E-03	2.03E-03	1.81E-03	1.59E-03	1.37E-03	1.16E-03	9.39E-04	7.22E-04	5.05E-04	2.88E-04
Naphthalene	1.54E-03	1.52E-03	1.52E-03	1.53E-03	1.29E-03	1.18E-03	9.61E-04	9.43E-04	9.51E-04	9.46E-04	9.50E-04	9.47E-04
Nickel	4.22E-03	4.22E-03	4.22E-03	4.22E-03	4.22E-03	4.22E-03	4.21E-03	4.21E-03	4.21E-03	4.22E-03	4.21E-03	4.21E-03
Nitrobenzene	8.82E-04	8.06E-04	7.30E-04	6.54E-04	5.78E-04	5.01E-04	4.25E-04	3.49E-04	2.73E-04	1.97E-04	1.21E-04	4.50E-05
N-Nitrosodimethylamine	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Polychlorinated biphenyls	3.65E-02	3.34E-02	3.03E-02	2.72E-02	2.40E-02	2.09E-02	1.78E-02	1.46E-02	1.15E-02	8.39E-03	5.26E-03	2.14E-03

Pollutant	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Pentachloronitrobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pentachlorophenol	4.55E-03	4.17E-03	3.80E-03	3.42E-03	3.04E-03	2.66E-03	2.28E-03	1.90E-03	1.52E-03	1.14E-03	7.64E-04	3.85E-04
Phenol	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Phosphorus	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
POM/PAH	4.04E-03	3.96E-03	3.91E-03	3.87E-03	3.42E-03	3.18E-03	2.76E-03	2.67E-03	2.63E-03	2.58E-03	2.52E-03	2.45E-03
Selenium	1.92E-03	1.85E-03	1.78E-03	1.71E-03	1.64E-03	1.57E-03	1.49E-03	1.42E-03	1.35E-03	1.29E-03	1.22E-03	1.14E-03
Styrene	2.78E-07	2.72E-07	2.42E-07	2.37E-07	2.24E-07	2.38E-07	2.84E-07	2.05E-07	1.77E-07	2.07E-07	1.97E-07	2.25E-07
Tetrachloroethylene	6.67E-04	6.44E-04	6.20E-04	5.96E-04	5.73E-04	5.49E-04	5.25E-04	5.02E-04	4.79E-04	4.55E-04	4.32E-04	4.08E-04
Toluene	5.27E-02	5.18E-02	5.11E-02	5.02E-02	4.88E-02	4.77E-02	4.63E-02	4.53E-02	4.45E-02	4.36E-02	4.27E-02	4.18E-02
Trichloroethylene	1.26E-03	1.23E-03	1.20E-03	1.17E-03	1.15E-03	1.12E-03	1.09E-03	1.06E-03	1.04E-03	1.01E-03	9.83E-04	9.56E-04
Vinyl Chloride	3.54E-06	3.25E-06	2.96E-06	2.67E-06	2.38E-06	2.11E-06	1.86E-06	1.53E-06	1.23E-06	9.68E-07	6.81E-07	4.17E-07
Xylene	9.59E-03	9.00E-03	8.31E-03	7.72E-03	6.89E-03	6.07E-03	5.14E-03	4.43E-03	3.80E-03	3.16E-03	2.58E-03	1.97E-03

Appendix B

Data Records

INTENTIONALLY BLANK

Table B-1; Annual Use

Annual Use and Output Summary	Annual Use		Conv. Factor		Output/Consumption	
Engines ≤ 600 hp	25,440	(gal)	1.40E-01	MMBtu/gal	*3,561.67*	*MMBtu's*
Liquefied Natural Gas Engines (LNG)	8,688	(ft^3)	1.08E-03	MMBtu/ft3	*9.34*	*MMBtu's*
Propane (LPG)	312.64	(gal)	9.10E-02	MMBtu/gal	*28.45*	*MMBtu's*
Engines > 600 hp	16,890	(gal)	1.40E-01	MMBtu/gal	*2,364.65*	*MMBtu's*
Boiler (No. 2 Diesel)	1,118,864	(gal)	1.00E-03	Tgal/gal	*1,118.86*	*1,000 gallons*
Boiler (Propane-LPG)	97,031	(gal)	1.00E-03	Tgal/gal	*97.03*	*1,000 gallons*

Annual Use by ≤ 600 hp Engine

Facility	Engine ID	Fuel Rate	Rate Units	Op. (hr)	Consumption (gal)
AMWTP	BGEN-232-001	16.8	(gph)	25.8	433.44
AMWTP	BGEN-RCE-001	4.9	(gph)	261.2	1279.88
ATR	609-M-87	13.1	(gph)	43.2	565.92
ATR	619-10	26	(gph)	6.7	174.2
ATR	633-M-1	16.1	(gph)	8.4	135.24
ATR	680-M-1	11.1	(gph)	5.3	58.83
ATR	688-M-1	20	(gph)	10	200
ATR	688-M-2	20	(gph)	6.4	128
CFA	ARA-632	7.4	(gph)	90.6	670.44
CFA	B27-601	2.88	(gph)	44.4	127.87
CFA	B27-607/609	14.9	(gph)	61.45	915.61
CFA	B8-601	2.88	(gph)	26.7	76.9
CFA	CFA-1603-001	10	(gph)	54.9	549
CFA	CFA-1603-002	10	(gph)	73.3	733
CFA	CFA-609-001	8.33	(gph)	3.4	28.32
CFA	CFA-609-002	4.3	(gph)	31.1	133.73
CFA	CFA-668-001	16.4	(gph)	13.8	226.32
CFA	PER-638-004	10	(gph)	66.6	666
CFA	TAN-601	3.44	(gph)	52.8	181.63
CFA	TAN-665-002	9.7	(gph)	42.8	415.16
CFA	TAN-687	3.26	(gph)	20.4	66.5
INTEC	COM-UTI-616	23.8	(gph)	117	2784.6
INTEC	MOT-YDA-202	4.5	(gph)	8.8	39.6
INTEC	P-UTI-608	17.59	(gph)	28.7	504.83
INTEC	P-UTI-672	19.15	(gph)	56.8	1087.72
INTEC	P-UTI-673	19.15	(gph)	104.4	1999.26
INTEC	R13845	3.5	(gph)	33.8	118.3
INTEC	R13846	3.5	(gph)	206.5	722.75
MFC	ANL-774-001	9	(gph)	9.6	86.4
MFC	ANL-1728	10.4	(gph)	13.9	144.56
MFC	ANL-1729	13.6	(gph)	15.8	214.88
MFC	ANL-1740	12	(gph)	49.8	597.6
MFC	ANL-701-009	9.4	(gph)	5	47
MFC	ANL-704-015	4	(gph)	3.1	12.4
MFC	ANL-707-002	21	(gph)	28.7	602.7
MFC	ANL-709-008	24	(gph)	19	456
MFC	ANL-709-016	24	(gph)	12	288
MFC	ANL-720-017	9	(gph)	2.3	20.7
MFC	ANL-720-018	2.8	(gph)	29.7	83.16
MFC	ANL-725	2.8	(gph)	10.3	28.84
MFC	ANL-733	4	(gph)	373.2	1492.8
MFC	ANL-752A-001	20	(gph)	3	60
MFC	ANL-754-003	4	(gph)	0.5	2
MFC	ANL-756	22.7	(gph)	4	90.8
MFC	ANL-765	1.08	(gph)	0.1	0.11
MFC	ANL-765A	1.08	(gph)	0.1	0.11
MFC	ANL-785-016	5	(gph)	2	10
MFC	785-SGN-003	22.7	(gph)	11.2	254.24
MFC	ANL-785-017	28	(gph)	60.3	1688.4
MFC	785-SGN-004	22.7	(gph)	12.3	279.21
MFC	ANL-787	11.6	(gph)	0.3	3.48
MFC	ANL-792A-002	21	(gph)	35	735
MFC	ANL-1743	24.9	(gph)	0	0
MFC	ANL-1750	7.2	(gph)	16.5	118.8
RWMC	BA-CMP-T1101	1.45	(gph)	60.7	88.02
RWMC	FW-ENG-3901	13.2	(gph)	42.74	564.17
RWMC	FW-ENG-4301	7.24	(gph)	44.9	325.08
RWMC	HV-GEN-RE301	8.2	(gph)	10.6	86.92
RWMC	S-GEN-1	19	(gph)	3.25	61.75
RWMC	S-GEN-301	20.61	(gph)	47	968.67
RWMC	S-GEN-RE401	8.2	(gph)	12.7	104.14
RWMC	S-GEN-RE501	8.12	(gph)	12.6	102.31
RWMC	S-GEN-RE701	8.2	(gph)	43.8	359.16
RWMC	S-GEN-RE801	8.2	(gph)	12.9	105.78
RWMC	S-GEN-RE901	15.5	(gph)	11.6	179.8
SMC	TAN 675-010	15.6	(gph)	9.9	154.44
SMC	GEN-1617-01	5.05	(gph)	0	0
SMC	GEN-691-01	4.57	(gph)	0	0
Total ≤ 600 hp Engine Fuel Consumption (gal) =					**25,440**

Table B-1, (cont.)

Liquefied Natural Gas Engines (LNG)

Facility	Engine ID	Fuel Rate	Rate Units	Op. (hr)	Consumption (ft^3)
CFA	CFA-1611	1810	(ft3/hr)	4.8	8688
Total LNG Engine Fuel Consumptions (ft^3) =					**8,688**

Propane Engines (LPG)

Facility	Engine ID	Fuel Rate	Rate Units	Op. (hr)	Consumption (gal)
AMWTP	S1-GEN-1001	11	(gph)	23	253
CFA	GE-B28-601	8.4	(gph)	7.1	59.64
RWMC	S-GEN-T1401	1.93	(gph)	0	0
Total LPG Engine Fuel Consumption (gal) =					**312.6**

Annual Use by > 600 hp Engine

Facility	Engine ID	Fuel Rate	Rate Units	Op. (hr)	Consumption (gal)
AMWTP	BGEN-812-001	27.1	(gph)	16	433.6
AMWTP	BGEN-812-002	44.2	(gph)	3.7	163.54
AMWTP	WMF-734	39.4	(gph)	23.5	925.9
ATR	670-M-42	NA*	(gal)	0	0
ATR	670-M-43	NA*	(gal)	173.3	173.3
ATR	674-M-6	NA*	(gal)	1151.6	1151.6
ATR	786-M-1	123.1	(gph)	14	1723.4
INTEC	GEN-WCS-002	119.23	(gph)	19	2265.37
INTEC	GEN-WCS-004	119.23	(gph)	20	2384.6
INTEC	GEN-WCS-006	119.23	(gph)	19	2265.37
MFC	ANL-768-003	32	(gph)	7	224
NRF	NRF-686-016	69.7	(gph)	14.9	1038.53
NRF	NRF-686-017	69.7	(gph)	14.6	1017.62
NRF	NRF-686-018	69.7	(gph)	12.5	871.25
NRF	NRF-686-019	69.7	(gph)	13.8	961.86
SMC	GEN-HP-960	20	(gph)	57.8	1156
SMC	TAN 679-012	22.4	(gph)	6	134.4
Total > 600 hp Engine Fuel Consumption (gal) =					**16,890**

Annual Use by Boiler

No. 2 Diesel Boilers

Facility	Boiler ID	Annual Op. & Cons. (gal)
CFA	CFA 608-001	7,675
CFA	CFA 609-005	13,478
INTEC	CPP-606-061	531,100
INTEC	CPP-606-062	
INTEC	CPP-606-063	
INTEC	CPP-606-064	
NRF	Boiler No. 4	221,518
NRF	Boiler No. 5	154,084
SMC	TAN 679-067a	82,979
SMC	TAN 679-068	108,030
No. 2 Diesel Boiler Fuel Consumption (gal) =		**1,118,864**

Propane Boilers (LPG)

Facility	Boiler ID	Annual Op. & Cons. (gal)
AMWTP	WMF-676-004A	97,040
AMWTP	WMF-676-005B	
AMWTP	WMF-676-006C	
AMWTP	WMF-676-007	
LPG Boiler Fuel Consumption (gal) =		**97,040**

Table B-2; 2021 INL Boiler Summary

Month	Facility, Fuel Type, & Use (gallons)				
	CFA	ICP		NRF	SMC
	Distillate	Distillate	Propane	Distillate	Distillate
January	3,595	87,494	17,209	67,110	31,612
February	3,390	78,298	15,094	60,224	28,933
March	3,157	69,362	11,182	53,627	24,495
April	2,544	50,511	9,078	27,659	19,537
May	0	30,642	6,598	0	14,785
June	0	16,949	1,614	0	2,420
July	0	12,460	1,412	0	0
August	0	8,482	1,866	0	0
September	0	11,768	2,732	299	1,063
October	1,272	24,420	5,936	41,391	16,849
November	3,125	56,688	9,969	56,436	21,163
December	4,070	84,026	14,350	68,856	30,152
Total	21,153	531,100	97,040	375,602	191,009

Table B-3; Mobile Equipment Operation Hours

TSA-RE Mobile Equipment Hours of Operation*		
Equip #	Month:	Jan
Q-020-008	hrs:	0
Q-120-002-A	hrs:	0.8
Q-120-002-B	hrs:	0.6
Q-046-003	hrs:	0.5
Q-120-010	hrs:	0
Q-042-002-B	hrs:	0
Q-042-002-C	hrs:	0
Q-042-002-D	hrs:	0
Q-042-003-B	hrs:	4.9
Q-180-102	hrs:	0
***Mobile equipment emissions were removed from PTC-2020.0045, and the requirement to include their emission was removed from Section 9 of PTC-2015.0023 via correspondence from Daniel Pitman dated February 24, 2020. These records have been included to provided consistency in the reporting required under PTC-2015.0023.*		

Appendix C

Updated Equipment List

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Table C-1; Idaho National Laboratory Engine Information

Facility	Engine ID	Type[a]	NSPS	Model Year	Installation Date	Max HP	Tier Cert	Ignition Type	Fuel Type[b]	Fuel Rate (gal/hr)[c]	Removed from Service	Included in Application [d]	In Service at Issuance [e]
AMWTP	BGEN-232-001	ESG	NA	2001	2002	380	NA	CI	Distillate	16.8	NA	Yes	Yes
AMWTP	BGEN-RCE-001	AC	Subpart IIII	2008	2014	115	3	CI	Distillate	4.9	NA	Yes	Yes
ATR	609-M-87	EAC	NA	1988	1998	250	N/A	CI	Distillate	13.1	NA	Yes	Yes
ATR	619-10	EFW	NA	-	1996	558	N/A	CI	Distillate	26	NA	Yes	Yes
ATR	633-M-1	EFW	Subpart IIII	2009	2012	315	3	CI	Distillate	16.1	NA	Yes	Yes
ATR	680-M-1	ESG	NA	1991	1991	250	N/A	CI	Distillate	11.1	NA	Yes	Yes
ATR	688-M-1	EFW	NA	1999	2000	368	N/A	CI	Distillate	20	NA	Yes	Yes
ATR	688-M-2	EFW	NA	1999	2000	368	N/A	CI	Distillate	20	NA	Yes	Yes
CFA	ARA-632	ESG	Subpart IIII	2015	2016	217	3	CI	Distillate	7.4	NA	Yes	Yes
CFA	B27-601	ESG	Subpart IIII	2015	2016	69	3	CI	Distillate	2.88	NA	Yes	Yes
CFA	B27-607/609	ESG	Subpart IIII	2017	2018	320	4F	CI	Distillate	14.9	NA	Yes	Yes
CFA	B8-601	ESG	Subpart IIII	2015	2016	69	3	CI	Distillate	2.88	NA	Yes	Yes
CFA	CFA-1603-001	EFW	NA	1994	1994	196	NA	CI	Distillate	10	NA	Yes	Yes
CFA	CFA-1603-002	EFW	NA	1994	1994	196	NA	CI	Distillate	10	NA	Yes	Yes
CFA	CFA-609-001	ESG	NA	1982	1987	166	NA	CI	Distillate	8.33	NA	Yes	Yes
CFA	CFA-609-002	ESG	Subpart IIII	2012	2016	99	3	CI	Distillate	4.3	NA	Yes	Yes
CFA	CFA-668-001	ESG	Subpart IIII	2010	2010	345	3	CI	Distillate	16.4	NA	Yes	Yes
CFA	PER-638-004	EFW	NA	1994	1994	196	NA	CI	Distillate	10	NA	Yes	Yes
CFA	TAN-601	ESG	Subpart IIII	2015	2017	69	3	CI	Distillate	3.44	NA	Yes	Yes
CFA	TAN-665-002	EFW	Subpart IIII	2018	2019	183	3	CI	Distillate	9.7	NA	Yes	Yes
CFA	TAN-687	ESG	NA	1988	1990	66	NA	CI	Distillate	3.26	NA	Yes	Yes
INTEC	COM-UTI-616	EAC	NA	1997	1997	460	NA	CI	Distillate	23.8	NA	Yes	Yes
INTEC	MOT-YDA-202	ESP	NA	1988	1989	87	NA	CI	Distillate	4.5	NA	Yes	Yes
INTEC	P-UTI-608	ESP	NA	1983	1984	340	NA	CI	Distillate	17.59	NA	Yes	Yes
INTEC	P-UTI-672	EFW	NA	1991	1991	370	NA	CI	Distillate	19.15	NA	Yes	Yes
INTEC	P-UTI-673	EFW	NA	1991	1991	370	NA	CI	Distillate	19.15	NA	Yes	Yes
INTEC	R13845	ESG	0	2002	2005	217	1	CI	Distillate	3.5	NA	No	Yes
INTEC	R13846	SG	0	2002	2005	217	1	CI	Distillate	3.5	NA	No	Yes
MFC	ANL-774-001	ESG	NA	1973	1973	166	NA	CI	Distillate	9	NA	Yes	Yes
MFC	ANL-1728	ESG	Subpart IIII	2011	2013	230	2	CI	Distillate	10.4	NA	Yes	Yes
MFC	ANL-1729	ESG	Subpart IIII	2016	2017	235	3	CI	Distillate	13.6	NA	Yes	Yes
MFC	ANL-1740	EFW	Subpart IIII	2015	2015	237	3	CI	Distillate	12	NA	Yes	Yes
MFC	ANL-701-009	ESG	NA	1997	1997	143	NA	CI	Distillate	9.4	NA	Yes	Yes
MFC	ANL-704-015	ESG	NA	1986	1986	86	NA	CI	Distillate	4	NA	Yes	Yes
MFC	ANL-707-002	EFW	NA	1990	1990	460	NA	CI	Distillate	21	NA	Yes	Yes
MFC	ANL-709-008	ESG	NA	1993	1993	475	NA	CI	Distillate	24	NA	Yes	Yes
MFC	ANL-709-016	ESG	NA	1993	1993	475	NA	CI	Distillate	24	NA	Yes	Yes
MFC	ANL-720-017	ESG	NA	1981	1981	173	NA	CI	Distillate	9	NA	Yes	Yes

Facility	Engine ID	Type[a]	NSPS	Model Year	Installation Date	Max HP	Tier Cert	Ignition Type	Fuel Type[b]	Fuel Rate (gal/hr)[c]	Removed from Service	Included in Application [d]	In Service at Issuance [e]
MFC	ANL-720-018	ESG	NA	1980	1980	46	NA	CI	Distillate	2.8	NA	Yes	Yes
MFC	ANL-725	ESG	NA	1998	1998	46	NA	CI	Distillate	2.8	NA	Yes	Yes
MFC	ANL-733	EAC	Subpart IIII	2018	2019	65.1	4	CI	Distillate	4	NA	Yes	Yes
MFC	ANL-752A-001	ESG	NA	1989	1990	390	NA	CI	Distillate	20	NA	Yes	Yes
MFC	ANL-754-003	EFW	NA	1960	~1960	77	NA	CI	Distillate	4	NA	Yes	Yes
MFC	ANL-756	ESG	NA	2005	2006	450	NA	CI	Distillate	22.7	NA	Yes	Yes
MFC	ANL-765	ESG	Subpart IIII	2011	2019	18.1	4	CI	Distillate	1.08	NA	Yes	Yes
MFC	ANL-765A	ESG	Subpart IIII	2011	2019	18.1	4	CI	Distillate	1.08	NA	Yes	Yes
MFC	ANL-785-016	ESG	NA	1975	1975	110	NA	CI	Distillate	5	2021	Yes	No
MFC	ANL-785-017	ESG	NA	1950	~1950	525	NA	CI	Distillate	28	2021	Yes	No
MFC	785-SGN-003	ESG	Subpart IIII	2003	2021	300	3	CI	Distillate	22.7	NA	No	Yes
MFC	785-SGN-004	ESG	Subpart IIII	2003	2021	300	3	CI	Distillate	22.7	NA	No	Yes
MFC	ANL-787	ESG	Subpart IIII	2008	2013	286	3	CI	Distillate	11.6	NA	Yes	Yes
MFC	ANL-792A-002	ESG	NA	2003	2004	450	NA	CI	Distillate	21	NA	Yes	Yes
MFC	ANL-1743	ESG	Subpart IIII	2020	Pending	469	3	CI	Distillate	24.9	NA	No	No
MFC	ANL-1750	ESG	Subpart IIII	0	2021	0	4	CI	Distillate	7.2	NA	No	No
RWMC	BA-CMP-T1101	EAC	Subpart IIII	2007	2008 – CERCLA 2012 –non-CERCLA	28	2	CI	Distillate	1.45	NA	Yes	Yes
RWMC	FW-ENG-3901	EFW	NA	1980	1980	255	NA	CI	Distillate	13.2	NA	Yes	Yes
RWMC	FW-ENG-4301	EFW	Subpart IIII	2007	2007	140	3	CI	Distillate	7.24	NA	Yes	Yes
RWMC	HV-GEN-RE301	ESG	Subpart IIII	2007	2007	364	3	CI	Distillate	8.2	NA	Yes	Yes
RWMC	S-GEN-1	ESG	NA	2002	2002	398	NA	CI	Distillate	19	NA	Yes	Yes
RWMC	S-GEN-301	ESG	Subpart IIII	2011	2011	398	3	CI	Distillate	20.61	NA	Yes	Yes
RWMC	S-GEN-RE401	ESG	Subpart IIII	2008	2008	364	3	CI	Distillate	8.2	NA	Yes	Yes
RWMC	S-GEN-RE501	ESG	Subpart IIII	2010	2010 – CERCLA 2012 –non-CERCLA	157	3	CI	Distillate	8.12	NA	Yes	Yes
RWMC	S-GEN-RE701	ESG	Subpart IIII	2011	2011	364	3	CI	Distillate	8.2	NA	Yes	Yes
RWMC	S-GEN-RE801	ESG	Subpart IIII	2010	2010	364	3	CI	Distillate	8.2	NA	Yes	Yes
RWMC	S-GEN-RE901	ESG	Subpart IIII	2017	2017	324	3	CI	Distillate	15.5	NA	Yes	Yes
SMC	TAN 675-010	ESG	NA	1984	1984	598	NA	CI	Distillate	15.6	NA	Yes	Yes
SMC	GEN-1617-01	ESG	Subpart IIII	2021	Pending	79	3	CI	Distillate	5.05	NA	NO	No
SMC	GEN-691-01	ESG	Subpart IIII	2021	Pending	85	3	CI	Distillate	4.57	NA	NO	No
AMWTP	S1-GEN-1001	ESG	NA	2001	2002	225	NA	SI	Propane	11	NA	Yes	Yes
CFA	GE-B28-601	ESG	NA	1995	1996	61	NA	SI	Propane	8.4	NA	Yes	Yes
RWMC	S-GEN-T1401	ESG	Subpart JJJJ	2010	2010	15	2	SI	Propane	1.93	NA	Yes	Yes
CFA	CFA-1611	ESG	NA	1995	1996	220	NA	SI	LNG	1810	NA	Yes	Yes
AMWTP	BGEN-812-001	ESG	NA	2001	2002	755	NA	CI	Distillate	27.1	NA	Yes	Yes

Facility	Engine ID	Type[a]	NSPS	Model Year	Installation Date	Max HP	Tier Cert	Ignition Type	Fuel Type[b]	Fuel Rate (gal/hr)[c]	Removed from Service	Included in Application [d]	In Service at Issuance [e]
AMWTP	BGEN-812-002	ESG	NA	2002	2002	900	NA	CI	Distillate	44.2	NA	Yes	Yes
AMWTP	WMF-734	ESG	NA	1987	2001	745	NA	CI	Distillate	39.4	NA	Yes	Yes
ATR	670-M-42	ESG	NA	1963	1967	2118	N/A	CI	Distillate	NA*	NA	Yes	Yes
ATR	670-M-43	ESG	NA	1963	1967	2118	N/A	CI	Distillate	NA*	NA	Yes	Yes
ATR	674-M-6	ESG	NA	1984	1985	2132	N/A	CI	Distillate	NA*	NA	Yes	Yes
ATR	786-M-1	ESG	NA	2001	2005	2593	1	CI	Distillate	123.1	NA	Yes	Yes
INTEC	GEN-WCS-002	ESG	NA	2000	2000	2304	1	CI	Distillate	119.23	NA	Yes	Yes
INTEC	GEN-WCS-004	ESG	NA	2000	2000	2304	1	CI	Distillate	119.23	NA	Yes	Yes
INTEC	GEN-WCS-006	ESG	NA	2000	2000	2304	1	CI	Distillate	119.23	NA	Yes	Yes
MFC	ANL-768-003	ESG	NA	1950	~1950	741	NA	CI	Distillate	32	NA	Yes	Yes
NRF	NRF-686-016	ESG	NA	1990	1991	1443	NA	CI	Distillate	69.7	NA	Yes	Yes
NRF	NRF-686-017	ESG	NA	1990	1991	1443	NA	CI	Distillate	69.7	NA	Yes	Yes
NRF	NRF-686-018	ESG	NA	1990	1991	1443	NA	CI	Distillate	69.7	NA	Yes	Yes
NRF	NRF-686-019	ESG	NA	1990	1991	1443	NA	CI	Distillate	69.7	NA	Yes	Yes
SMC	GEN-HP-960	ESG	Subpart IIII	2018	2019	1514	2	CI	Distillate	20	NA	Yes	Yes
SMC	TAN 679-012	ESG	NA	1985	1986	890	NA	CI	Distillate	22.4	NA	Yes	Yes

Notes:

a. Acronyms: ESG = Emergency Standby Generator, EFW = Emergency Fire Water Pump, EAC = Emergency Air Compressor, ESP = Emergency Standby Pump, AC = Air Compressor, G = Generator, FW = Fire Water Pump;
V = Vertical, H = Horizontal, W = Weekly, BW = Biweekly, M = Monthly, Q = Quarter, SA = Semi-annual, A = Annual.

b. Distillate = #1 or #2 Distillate Fuel Oil with 15 ppm maximum sulfur content (gal), LNG = Liquefied Natural Gas (ft^3), LPG = Propane (gal)

c. Maximum hourly fuel consumption rate

d. Indicates if the engine was included in the 2020 permit application.

e. Indicates if the engine was in service at the issuance of the 2020 permit (P-2020.0045).

*. The fuel rate listed is the actual average fuel rate for the Advanced Test Reactor Complex (ATR) ESG units 670-M-42, 670-M-43, and 674-M-6. These units do not have loads connected to them that are capable of using the maximum design fuel rates (106 gph, 106 gph, and 108.1 gph respectively).

Table C-2; Idaho National Laboratory Boiler Information

Facility	Use of Boiler (%)		Boiler ID	Rated Capacity (MMBtu/hr)	Installation Date	Control Device	Fuel Type	Full Load Consumption Rate (gal/hr)	Actual Consumption Rate (gal/hr)	NSPS Applicability	Date Removed from Service	Included in Application	In Service at Issuance
	Space Heat	Process											
AMWTP	100	0	WMF-676-004A	12.55	2002	O2 Trim	LPG	80	138.7	Dc	NA	Yes	Yes
AMWTP	100	0	WMF-676-005B	12.55	2002	O2 Trim	LPG	80	138.7	Dc	NA	Yes	Yes
AMWTP	100	0	WMF-676-006C	12.55	2002	O2 Trim	LPG	80	138.7	Dc	NA	Yes	Yes
AMWTP	100	0	WMF-676-007	0.5	2018	None	LPG	5.3	5.3	NA	NA	Yes	Yes
CFA	100	0	CFA 608-001	1.5	1985	O2 Trim	No.2 D	0.75	10.7	NA	NA	Yes	Yes
CFA	100	0	CFA 609-005	2.1	1987	O2 Trim	No.2 D	5.8	15	NA	NA	Yes	Yes
INTEC	48	52	CPP-606-061	36.4	2000	O2 Trim	No.2 D	32.3	216	Dc	NA	Yes	Yes
INTEC	48	52	CPP-606-062	36.4	2000	O2 Trim	No.2 D	32.3	216	Dc	NA	Yes	Yes
INTEC	48	52	CPP-606-063	36.4	2000	O2 Trim	No.2 D	32.3	216	Dc	NA	Yes	Yes
INTEC	48	52	CPP-606-064	36.4	2000	O2 Trim	No.2 D	32.3	216	Dc	NA	Yes	Yes
NRF	100	0	Boiler No. 4	29.3	2016	O2 Trim	No.2 D	209	209	Dc	NA	Yes	Yes
NRF	100	0	Boiler No. 5	29.3	2017	O2 Trim	No.2 D	209	209	Dc	NA	Yes	Yes
SMC	90	10	TAN 679-067a	25	1987	O2 Trim	No.2 D	35.4	167.5	NA	NA	Yes	Yes
SMC	90	10	TAN 679-068	25	1987	O2 Trim	No.2 D	41.4	167.5	NA	NA	Yes	Yes