Statement of Basis

Permit to Construct No. P-2008.0097
Project ID 61986

NxEdge Inc. of Boise
Boise, Idaho

Facility ID 001-00202

Final

March 16, 2018
Kelli Wetzel KW
Permit Writer

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

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
AEC	Advanced engineered coating
Btu	British thermal units
C&R	Cleaning and refurbishing
CAA	Clean Air Act
CAS No.	Chemical Abstracts Service registry number
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FP	Fluoropolymer process
GACT	Generally Available Control Technology
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge

PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
STS	Sputtered targets and services
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
U.S.C.	United States Code
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

NxEdge Inc. of Boise (NxEdge) fabricates, refurbishes, and provides coatings for metal products used in the semiconductor business and other related industries. The four major process areas within the NxEdge facility that are sources of air pollution are the following: fluoropolymer (FP) coating application via wet and powdered coating, sputtered targets and services (STS) application via plasma spray and wire arc spray, advanced engineered coating (AEC) application via plasma spray, and cleaning and refurbishing (C&R). All four of these process areas are sources of emissions.

The FP process consists of the WETPOWC spray application booths (four total), each equipped with overspray arrestors and exhaust fans, the ECOVEN1 0.6 MMBtu/hr natural gas-fired curing oven, the ECOVEN1 electrically-fired curing ovens (two total), and three media blasting cabinets, (FPT1, CRE1, CRT1), and air pollution control equipment associated with this process. Typically, one of the spray booths is used to apply wet coatings. The three remaining spray booths are used to apply dry powder coatings. The ovens are used to cure powder coated products. Fresh air is supplied to the FP area spray booths and the building's northwest manufacturing area. The combustion gases from the make-up air units are emitted through the FP spray booth exhaust and the northwest area exhaust. The FP process includes the following emissions units:

- Four coating spray application booths (emissions unit ID WETPOWC, controlled by integral filter units)
- One natural gas-fired curing oven and two electric curing ovens (emissions unit ID ECOVEN1, with no controls)
- FP spray booth make-up air unit (emissions unit ID NMAU1, uncontrolled) and
- Northwest manufacturing area make-up air unit (emissions unit ID WMAU1, uncontrolled)
- Three media blasting cabinet operations located in the FP area (emissions unit IDs FPT1, CRE1, CRT1, controlled by existing integrated cyclones and filter units.

The STS arc spray process coats small parts in the RD1 research and development spray room. The STS process includes the following emissions unit:

- The Research & Development (R&D) spray room (emissions unit ID RD1, controlled by the baghouse designated RDFARR1)

The AEC process coats metal parts using a robotic spray process. This process uses compressed air to transfer powder coating material from automated hoppers to a hot gas stream that then deposits it onto parts. The process consists of the SBU1, SBU2, SBU3, P4PLASMA/P4WIREARC, P5PLASMA/P5WIREARC, P6PLASMA/P6WIREARC, P7PLASMA/P7WIREARC, P8PLASMA/P8WIREARC, and P9PLASMA/P9WIREARC automated powder coating rooms, each equipped with the SBUHTR1, SBUHTR2, SBUHTR3, P4HTR, P5HTR, P6HTR, P7HTR, P8HTR, and P9HTR heated air supply systems, respectively; the SBUFARR1, SBUFARR2, and SBUFARR3, P4FARR, P5FARR, P6FARR, P7FARR, P8FARR, and P9FARR filter units, respectively; and a robotic plasma spray arm for powder coating parts. In addition, the AEC process includes five media blasting cabinets, MB1 – MB5, one spare media blasting cabinet, AOT1, and air pollution control equipment associated with this process. The AEC process includes the following emissions units:

- Three automated coating application spray booths (emissions unit IDs SBU1, SBU2, SBU3, controlled by baghouses designated SBUFARR1, SBUFARR2, SBUFARR3)
- Three spray booth air supply heaters (emissions unit IDs SBUHTR1, SBUHTR2, SBUHTR3, with no controls)
- Booth 4 plasma spray/wire arc applicator (emissions unit ID P4PLASMA, controlled by a cyclone and the baghouse designated P4FARR, make-up air unit P4HTR)
- Booth 5 plasma spray/wire arc applicator (emissions unit ID P5PLASMA, controlled by the baghouse designated P5FARR, make-up air unit P5HTR)

- Booth 6 plasma spray/wire arc applicator (emissions unit ID P6PLASMA, controlled by the baghouse designated P6FARR, make-up air unit P6HTR)
- Booth 7 plasma spray/wire arc applicator (emissions unit ID P7PLASMA, controlled by the baghouse designated P7FARR, make-up air unit P7HTR)
- Booth 8 plasma spray/wire arc applicator (emissions unit ID P8PLASMA, controlled by the baghouse designated P8FARR, make-up air unit P8`HTR)
- Booth 9 plasma spray/wire arc applicator (emissions unit ID P9PLASMA, controlled by the baghouse designated P9FARR, make-up air unit P9HTR)
- Six media blasting cabinet operations located in the AEC area (emissions unit IDs MB1 - MB5, and AOT1 (spare), controlled by filter units MAC1 – MAC3)

The cleaning and refurbishing (C&R) process includes the CAMBC suction/pressure media blasting cabinets (two total) and the APBR parts buffing room. The media blasters are used to prepare aluminum and stainless steel parts for coating. The two media blasters are equipped with reclaimer cyclones and filter units and vent into a common 6" exhaust duct that emits outside above the building roof vent to the atmosphere. The aluminum parts buffing room is used to hand-buff finished aluminum parts. Air from the room is drawn through a fan and exhausted through a roof vent. Polishing equipment is designed in house to polish parts to a specified roughness and is vented uncontrolled through a roof vent. The C&R process includes the following emissions units:

- Two media blasting cabinets (emissions unit ID CAMBC, controlled by an integral filter unit) and
- Buffing room air (emissions unit ID APBR, uncontrolled) and
- Polishing equipment (emissions unit APBR-P, uncontrolled).

Permitting History

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

November 9, 2017	P-2008.0097, modification was issued for six plasma and dual wire arc spray booths and new make-up air units for each both, five custom blasting cabinets, and polishing equipment. Permit status (A, but will become S upon issuance of this permit)
September 9, 2011	P-2008.0097, modification was issued to increase aluminum oxide media usage, increase annual powder coating usage, and add two make-up air units. Permit status (S)
September 18, 2008	P-2008.0097, modification was issued that renamed a few processes and added an additional process activity to the facility. Permit status (S)
May 5, 2006	P-050038, modification was issued that changed the facility name and responsible official and two permit conditions. Permit status (S)
July 22, 2005	P-040007, initial PTC. Permit status (S)

Application Scope

This PTC is for a minor modification at an existing minor facility.

The applicant has proposed to:

- Have a facility-wide aluminum oxide and silicon carbide material usage limit and natural gas usage limit;
- Add a new spray powder to the FP area;
- Permit four existing media blasting booths that were previously unpermitted.

Application Chronology

January 5, 2018	DEQ received an application and an application fee.
January 22 – February 6, 2018	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
February 5, 2018	DEQ determined that the application was complete.
February 21, 2018	DEQ made available the draft permit and statement of basis for peer and regional office review.
February 26, 2018	DEQ made available the draft permit and statement of basis for applicant review.
March 8, 2018	DEQ received the permit processing fee.
March 16, 2018	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 EMISSIONS UNIT AND CONTROL EQUIPMENT INFORMATION

Source ID No.	Sources	Control Equipment
HVLP wet coating application spray booth (part of the FP process) **/WETPOWC**	Supply Air Flow: 16,000 cfm (split among all four booths) Exhaust fan: Twin Cities model TB-30E4 Exhaust Air Flow: 10,000 cfm Exhaust fan rating: 2 hp	HVLP spray gun Paint booth integral filters Manufacturer: Paint Pockets Control Efficiency: 97%
Halar™ powder coating application booth (part of the FP process) **/WETPOWC**	Supply Air Flow: 16,000 cfm (split among all four booths) Exhaust fan: Greenheck model TCB-2-22 Exhaust Air Flow: 4,000 cfm Exhaust fan rating: 4 hp	Electrostatic powder application gun Paint booth integral filters Manufacturer: Paint Pockets Control Efficiency: 99%
Teflon™ powder coating application booth (part of the FP process) **/WETPOWC**	Supply Air Flow: 16,000 cfm (split among all four booths) Exhaust fan: Greenheck model TCB-2-18 Exhaust Air Flow: 3,500 cfm Exhaust fan rating: 4 hp	Electrostatic powder application gun Paint booth integral filters Manufacturer: Paint Pockets Control Efficiency: 99%
Halar™ and Teflon™ powder coating application booth (part of the FP process) **/WETPOWC**	Supply Air Flow: 16,000 cfm (split among all four booths) Exhaust fan: Greenheck model TCB-2-22 Exhaust Air Flow: 4,000 cfm Exhaust fan rating: 4 hp	Electrostatic powder application gun Paint booth integral filters Manufacturer: Paint Pockets Control Efficiency: 99.7%
Natural gas-fired curing oven (part of the FP process)/**ECOVEN1**	Manufacturer: Wisconsin Oven Corp. Model: EWN-612-8 Rated Heat input: 0.6 MMBtu/hr	None
Electric curing oven (part of the FP process)/**ECOVEN1**	N/A	None
Electric curing oven (part of the FP process)/**ECOVEN1**	N/A	None
One media blasting cabinet (part of the FP process)/**FPT1**	Manufacturer: Titan Abrasive Systems Model: Titan 4848RPD Cabinets	Integrated cyclone and filter unit Control Efficiency: 99%
One media blasting cabinet (part of the FP process)/**CRT1**	Manufacturer: Titan Abrasive Systems Model: Titan 4836RPD Cabinets	Integrated cyclone and filter unit Control Efficiency: 99%
One media blasting cabinet (part of the FP process)/**CRE1**	Manufacturer: Empire Abrasive Equipment Model: Empire PF3648	Integrated cyclone and filter unit Control Efficiency: 99%

Source ID No.	Sources	Control Equipment
Make-Up Air Unit/**NMAU1**	Manufacturer: Greenheck Model: DGX-125 Input Rate: 2.21 MMBtu/hr	None
Make-Up Air Unit/**WMAU1**	Manufacturer: Greenheck Model: TSU-220 Input Rate: 1.42 MMBtu/hr	None
Research & Development spray room (part of the STS process)/**RD1**	Manufacturer: NxEdge Model: N/A Max. Capacity: 70 lbs-powder/hr	Camil-Farr cyclone and a Farr model GS20 filter unit (**RDFARR1**) Control Efficiency: 99.99%
Automated coating application spray booth (part of the AEC process)/**SBU1**	N/A	Farr model GS16 filter unit (**SBUFARR1**) Control Efficiency: 99.99%
Automated coating application spray booth (part of the AEC process)/**SBU2**	N/A	Farr model GS16 filter unit (**SBUFARR2**) Control Efficiency: 99.99%
Spray booth air supply heater (part of the AEC process)/**SBUHTR1**	Manufacturer: CDI Model: VIDFB-215-09-650 Input Rate: 0.719 MMBtu/hr	None
Spray booth air supply heater (part of the AEC process)/**SBUHTR2**	Manufacturer: CDI Model: VIDFB-215-09-650 Input Rate: 0.719 MMBtu/hr	None
Automated coating application spray booth (part of the AEC process)/**SBU3**	N/A	Farr model GS16 filter unit (**SBUFARR3**) Control Efficiency: 99.99%
Spray booth air supply heater (part of the AEC process)/**SBUHTR3**	Manufacturer: CDI Model: VIDFB-215-09-650 Input Rate: 0.719 MMBtu/hr	None
Booth 4 automated plasma spray/wire arc (part of the AEC process) **P4PLASMA/ P4WIRARC**	Plasma Spray Booth: Manufacturer: Progressive Surface Model: 100 HE Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camil-Farr model GS24 filter unit (**P4FARR**) Control Efficiency: 99.99%
Booth 5 automated plasma spray/wire arc (part of the AEC process) **P5PLASMA/ P5WIREARC**	Plasma Spray Booth: Manufacturer: Progressive Surface Model: 100 HE Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camfill Farr model GS16 filter unit (**P5FARR**) Control Efficiency: 99.99%
Booth 6 automated plasma spray/wire arc (part of the AEC process) **P6PLASMA/ P6WIREARC**	Plasma Spray Booth: Manufacturer: Progressive Surface Model: 100 HE Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camfill Farr model GS16 filter unit (**P6FARR**) Control Efficiency: 99.99%
Booth 7 automated plasma spray/wire arc (part of the AEC process) **P7PLASMA/ P7WIREARC**	Plasma Spray Booth: Manufacturer: Oerlikon Metco Model: UniCoatPro Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camfill Farr model GS16 filter unit (**P7FARR**) Control Efficiency: 99.99%

Source ID No.	Sources	Control Equipment
Booth 8 automated plasma spray/wire arc (part of the AEC process) **P8PLASMA/ P8WIREARC**	Plasma Spray Booth: Manufacturer: Oerlikon Metco Model: UniCoatPro Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camfill Farr model GS16 filter unit (**P8FARR**) Control Efficiency: 99.99%
Booth 9 automated plasma spray/wire arc (part of the AEC process) **P9PLASMA/ P9WIREARC**	Plasma Spray Booth: Manufacturer: Oerlikon Metco Model: UniCoatPro Max Capacity: 5.3 lbs/hr Wire Arc: Manufacturer: Metallisation Model: ARC140/S350(16)-CL Max Capacity: 18.7 lbs/hr	Camfill Farr model GS16 filter unit (**P9FARR**) Control Efficiency: 99.99%
Six Make-Up Air Units (part of the AEC process) **P4HTR – P9HTR**	Manufacturer: Thermotek Air Model: T3-IBT-800-400-400-G18 Input Rate: 0.75 MMBtu/hr	None
Three media blasting cabinets, one is only used as a spare (part of the AEC process)/**MB1 & MB2, AOT1 (spare)**	Manufacturer: Titan Abrasive Systems Model: Titan 4848DS Cabinets	MAC filter unit w/ Farr model HMPTUF filters (16) (**MAC3**) Control Efficiency: 99%
One media blasting cabinet (part of the AEC process)/**MB3**	Manufacturer: Dayton (fan) and Titan Abrasive Systems (cabinet) Model: Dayton 5C532 fan and Titan 4836 RPD Cabinet	MAC model 4M2F16 filter unit (**MAC1**) Or MAC model 2M2F8 filter unit (**MAC2**) Control Efficiency: 99%
Two media blasting cabinets (part of the AEC process)/**MB4 & MB5**	Manufacturer: Dayton (fan) and Titan Abrasive Systems (sprayers/reclaimers) Model: Dayton 5C532 fan and house-made cabinet	MAC model 4M2F16 filter unit (**MAC1**) or MAC model 2M2F8 filter unit (**MAC2**) Control Efficiency: 99%
Two Media blasting cabinets (part of the C&R process)/**CAMBC**	Manufacturer: Empire Abrasive Equipment Model: Empire PF-3648 Rated Flow Rate: 800 cfm	Empire DCM-80A (**CAMBC**) Control Efficiency: 95%
Buffing equipment (part of the C&R process) **APBR**	Manufacturer: Custom made Max Capacity: 60 RPMs	None
Polishing equipment (part of the C&R process) **APBR-P**	Manufacturer: Custom made Max Capacity: 60 RPMs	None

Emissions Inventories

Potential to Emit

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

Using this definition of Potential to Emit an emission inventory was developed for the sources of emissions at the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutants, and HAPs were based on emission factors from AP-42, a site-wide natural gas limit of 821,000 therms per year, an aluminum oxide limit of 95,000 pounds per year, a silicon carbide limit of 287,500 pounds per year, a glass bead limit of 1,650 pounds per year, and process information specific to the facility for this proposed project.

Pre-Project Potential to Emit

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

The following table presents the pre-project potential to emit for all criteria pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
APBR-P	0.04	0.18	---	---	---	---	---	---	---	---
CAMBC	0.005	0.02	---	---	---	---	---	---	---	---
ECOVEN1	0.0056	0.024	0.004	0.019	0.074	0.322	0.066	0.288	0.84	0.318
NMAU1	0.017	0.068	0.0013	0.0054	0.22	0.89	0.18	0.75	0.012	0.068
MAC1	0.004	0.0403	---	---	---	---	---	---	---	---
MAC2	0.004	0.0403	---	---	---	---	---	---	---	---
MAC3	0.0006	0.0059	---	---	---	---	---	---	---	---
RDFARR1	0.0007	0.0029	---	---	---	---	---	---	---	---
WETPOWC	0.103	0.042	---	---	---	---	---	---	9.62	1.20
WMAU1	0.010	0.043	0.0008	0.0034	0.14	0.57	0.12	0.48	0.008	0.043
SBUFARR1	0.05	0.23	---	---	---	---	---	---	---	---
SBUFARR2	0.05	0.23	---	---	---	---	---	---	---	---
SBUFARR3	0.05	0.23	---	---	---	---	---	---	---	---
SBUHTR1	0.003	0.012	0.002	0.0009	0.034	0.15	0.030	0.13	0.002	0.0085
SBUHTR2	0.003	0.012	0.002	0.0009	0.034	0.15	0.030	0.13	0.002	0.0085
SBUHTR3	0.003	0.012	0.002	0.0009	0.034	0.15	0.030	0.13	0.002	0.0085
P4FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P5FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P6FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P7FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P8FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P9FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P4HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P5HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P6HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P7HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P8HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P9HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
Pre-Project Totals	**0.38**	**1.34**	**0.01**	**0.04**	**0.90**	**3.85**	**0.76**	**3.29**	**10.50**	**1.74**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Post Project Potential to Emit

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

The following table presents the post project Potential to Emit for criteria pollutants from all emissions units at the facility as submitted by the applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]
APBR-P	0.04	0.18	---	---	---	---	---	---	---	---
AOT1	0.00	0.00	---	---	---	---	---	---	---	---
CAMBC	0.005	0.02	---	---	---	---	---	---	---	---
CRE1	0.0026	0.0057	---	---	---	---	---	---	---	---
CRT1	0.0026	0.0057	---	---	---	---	---	---	---	---
FPT1	0.0008	0.0035	---	---	---	---	---	---	---	---
ECOVEN1	0.0048	0.020	0.0034	0.016	0.0629	0.272	0.056	0.247	0.714	0.270
NMAU1	0.014	0.058	0.0011	0.005	0.187	0.757	0.153	0.638	0.010	0.058
MAC1	0.004	0.040	---	---	---	---	---	---	---	---
MAC2	0.004	0.040	---	---	---	---	---	---	---	---
MAC3	0.0006	0.0059	---	---	---	---	---	---	---	---
RDFARR1	0.0007	0.0029	---	---	---	---	---	---	---	---
WETPOWC	0.103	0.042	---	---	---	---	---	---	9.62	1.20
WMAU1	0.0085	0.036	0.0007	0.003	0.119	0.485	0.102	0.408	0.0068	0.037
SBUFARR1	0.05	0.23	---	---	---	---	---	---	---	---
SBUFARR2	0.05	0.23	---	---	---	---	---	---	---	---
SBUFARR3	0.05	0.23	---	---	---	---	---	---	---	---
SBUHTR1	0.0013	0.02	0.0034	0.002	0.058	0.262	0.051	0.22	0.0034	0.014
SBUHTR2	0.0013	0.02	0.0034	0.002	0.058	0.262	0.051	0.22	0.0034	0.014
SBUHTR3	0.0013	0.02	0.0034	0.002	0.058	0.262	0.051	0.22	0.0034	0.014
P4FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P5FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P6FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P7FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P8FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P9FARR	0.0008	0.0033	---	---	---	---	---	---	---	---
P4HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P5HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P6HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P7HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P8HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
P9HTR	0.005	0.021	0.0004	0.0016	0.06	0.27	0.05	0.23	0.003	0.015
Post Project Totals	**0.38**	**1.36**	**0.02**	**0.04**	**0.90**	**3.92**	**0.76**	**3.33**	**10.38**	**1.70**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.

Change in Potential to Emit

The change in facility-wide potential to emit is used to determine if a public comment period may be required and to determine the processing fee per IDAPA 58.01.01.225. The following table presents the facility-wide change in the potential to emit for criteria pollutants.

Table 4 CHANGES IN POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS

Source	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Pre-Project Potential to Emit	0.38	1.34	0.01	0.04	0.90	3.85	0.76	3.29	10.50	1.74
Post Project Potential to Emit	0.38	1.36	0.02	0.04	0.90	3.92	0.76	3.33	10.38	1.70
Changes in Potential to Emit	**0.0**	**0.02**	**0.01**	**0.0**	**0.0**	**0.07**	**0.0**	**0.04**	**-0.12**	**-0.04**

Non-Carcinogenic TAP Emissions

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

Pre- and post-project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 5 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR NON-CARCINOGENIC TOXIC AIR POLLUTANTS

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Aluminum	1.04E-02	2.52E-02	1.48E-02	0.667	No
Barium	4.76E-05	4.76E-05	0.00E+00	0.033	No
Calcium Oxide	2.27E-06	2.21E-04	2.18E-04	0.13	No
Chromium	1.51E-05	1.51E-05	0.00E+00	0.033	No
Cobalt	9.09E-07	9.09E-07	0.00E+00	0.0033	No
Copper	9.19E-06	9.19E-06	0.00E+00	0.067	No
Dichlorobenzene	1.30E-05	1.30E-05	0.00E+00	20	No
Fluorides	4.38E-01	4.38E-01	0.00E+00	0.167	No
Fluorine	4.38E-01	4.38E-01	0.00E+00	0.133	No
Manganese	4.11E-06	4.11E-06	0.00E+00	0.333	No
Mercury	2.81E-06	2.81E-06	0.00E+00	0.001	No
Molybdenum	1.19E-05	1.19E-05	0.00E+00	0.667	No
Naphthalene	6.60E-06	6.60E-06	0.00E+00	3.33	No
Pentane	2.81E-02	2.81E-02	0.00E+00	118	No
Selenium	2.60E-07	2.60E-07	0.00E+00	0.013	No
Silicon Carbide	3.82E-02	8.86E-03	-2.93E-02	0.667	No
Toluene	3.68E-05	3.68E-05	0.00E+00	25	No
Yttrium	9.40E-03	9.40E-03	0.00E+00	0.067	No
Zinc	3.14E-04	3.14E-04	0.00E+00	0.667	No

None of the PTEs for non-carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any non-carcinogenic TAP because none of the 24-hour average non-carcinogenic screening ELs identified in IDAPA 58.01.01.585 were exceeded.

Carcinogenic TAP Emissions

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

Table 6 PRE- AND POST PROJECT POTENTIAL TO EMIT FOR CARCINOGENIC TOXIC AIR POLLUTANTS

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Arsenic	2.16E-06	2.16E-06	0.00E+00	1.5E-06	No
Benzene	2.27E-05	2.27E-05	0.00E+00	8.0E-04	No
Beryllium	1.30E-07	1.30E-07	0.00E+00	2.8E-05	No
Cadmium	1.19E-05	1.19E-05	0.00E+00	3.7E-06	No
Formaldehyde	8.11E-04	8.11E-04	0.00E+00	5.1E-04	No

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
3-Methylchloranthene	1.95E-08	1.95E-08	0.00E+00	2.5E-06	No
Nickel	2.27E-05	2.27E-05	0.00E+00	2.7E-05	No
PAH	1.38E-05	1.38E-05	0.00E+00	9.1E-05	No
POM	1.23E-07	1.23E-07	0.00E+00	2.0E-06	No

a) Polycyclic Organic Matter (POM) is considered as one TAP comprised of: benzo(a)anthracene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene, chrysene, indeno(1,2,3-cd)pyrene, benzo(a)pyrene. The total is compared to benzo(a)pyrene.

None of the PTEs for carcinogenic TAP were exceeded as a result of this project. Therefore, modeling is not required for any carcinogenic TAP because none of the annual average carcinogenic screening ELs identified in IDAPA 58.01.01.586 were exceeded.

Post Project HAP Emissions

The following table presents the post project potential to emit for HAP pollutants from all emissions units at the facility as submitted by the Applicant and verified by DEQ staff. See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 7 HAZARDOUS AIR POLLUTANTS EMISSIONS POTENTIAL TO EMIT SUMMARY

Hazardous Air Pollutants	PTE (T/yr)
Arsenic	8.1E-06
Benzene	8.5E-05
Beryllium	4.8E-07
Cadmium	4.4E-05
Chromium	5.6E-05
Cobalt	3.4E-06
Dichlorobenzene	4.8E-05
Formaldehyde	3.0E-03
Hexane	7.2E-02
Hexane Chloride	5.6E-02
Hexane Fluoride	2.1E+00
Lead	2.0E-05
Manganese	1.5E-05
MDI	6.7E-02
Mercury	1.0E-05
Methyl Isobutyl Ketone	3.2E-01
Naphthalene	2.5E-05
Nickel	8.5E-05
POM	4.6E-07
Selenium	9.7E-07
Toluene	1.4E-04
Xylene	1.2E-02
Totals	**2.64**

Ambient Air Quality Impact Analyses

Because facility-wide emission rates of criteria pollutants ($PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, VOC, and lead) were below the "below regulatory concern" (BRC) threshold levels of less than 10% of "significant" emission rates for criteria pollutants defined in IDAPA 58.01.01.006, and because no TAP exceeded EL, no ambient air quality impact analysis was required. The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. Refer to the Emission Inventories section for additional information concerning the emission inventories.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

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

Facility Classification

The AIRS/AFS facility classification codes are as follows:

For HAPs (Hazardous Air Pollutants) Only:

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

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

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

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

UNK = Class is unknown

For All Other Pollutants:

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

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

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

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

UNK = Class is unknown.

Table 8 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	256.9	1.36	**100**	SM
PM_{10}	256.9	1.36	**100**	SM
$PM_{2.5}$	198	1.36	**100**	SM
SO_2	0.04	0.04	**100**	B
NO_X	4.35	3.92	**100**	B
CO	3.68	3.33	**100**	B
VOC	1.77	1.70	**100**	B
HAP (single)	< 10	< 10	**10**	B
HAP (total)	< 25	< 25	**25**	B
Pb	2.18E-05	1.98E-05	**100**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 ..... Permit to Construct Required

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

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 ..... Tier II Operating Permit

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

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 ..... Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions 2.4, 3.4, 4.4, 5.5, and 6.3.

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

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

Post project facility-wide emissions from this facility do not have a potential to emit greater than 100 tons per year for PM_{10}, $PM_{2.5}$, SO_2, NO_X, CO, and VOC or 10 tons per year for any one HAP or 25 tons per year for all HAP combined as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, the facility is not a Tier I source in accordance with IDAPA 58.01.01.006 and the requirements of IDAPA 58.01.01.301 do not apply.

PSD Classification (40 CFR 52.21)

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

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

NSPS Applicability (40 CFR 60)

The facility is not subject to any NSPS requirements in 40 CFR Part 60.

NESHAP Applicability (40 CFR 61)

The facility is not subject to any NESHAP requirements in 40 CFR 61.

MACT/GACT Applicability (40 CFR 63)

The facility has proposed to operate as a minor source of hazardous air pollutant (HAP) emissions and is subject to the requirements of 40 CFR 63, Subpart WWWWWW–National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations. DEQ is not delegated this Subpart. Refer to the Title V Classification section for additional information.

40 CFR 63, Subpart WWWWWW ..... National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations

§ 63.11504 Am I subject to this subpart?

In accordance with §63.11504(a), this facility is subject to this subpart because the facility will be operated as an area source of HAP. The facility is a source of HAP that is not a major source of HAP, is not located at a major source, and is not part of a major source of HAP emissions. In addition, the facility will perform one or more activities listed in this section, including thermal spraying and dry mechanical polishing, and has emissions of one or more of the following metals: cadmium, chromium, lead, manganese, and nickel.

§ 63.11505 What parts of my plant does this subpart cover?

In accordance with §63.11505(a), this subpart applies to each thermal operation that applies one or more of the plating and polishing metal HAP and each dry mechanical polishing operation that emits one or more of the plating and polishing metal HAP. The specific operation at this facility that is subject to this subpart is the RD1 Research and Development Spray Room.

In accordance with §63.11505(b), this facility is an existing affected source because construction or reconstruction commenced on or before March 14, 2008.

In accordance with §63.11505(e), the facility is exempt from the obligation to obtain a permit under 40 CFR part 70 or 71 provided that a permit under 40 CFR 70.3(a) or 40 CFR 71.3(a) is not required for a reason other than becoming an area source subject to this subpart.

These requirements are included in permit condition 4.15.

§ 63.11506 What are my compliance dates?

In accordance with §63.11506(a), the facility must achieve compliance with the applicable provisions of the subpart no later than July 1, 2010.

§ 63.11507 What are my standards and management practices?

In accordance with §63.11507(e), the facility must operate a capture system that captures particulate matter emissions from the dry mechanical polishing process and transports the emissions to a cartridge, fabric, or high efficiency particulate air (HEPA) filter.

In accordance with §63.11507(e)(1), the facility must operate all capture and control devices according to the manufacturer's specifications and operating instructions.

In accordance with §63.11507(e)(2), the facility must keep the manufacturer's specifications and operating instructions at the facility at all times in a location where they can be easily accessed by the operators.

These requirements are included in permit condition 4.16.

§ 63.11508 What are my compliance requirements?

In accordance with §63.11508(a), the facility must submit a Notification of Compliance Status in accordance with §63.11509(b).

In accordance with §63.11508(b), the facility must be in compliance with the applicable management practices and equipment standards in this subpart at all times.

In accordance with §63.11508(c), the facility must demonstrate initial compliance by satisfying the requirements specified in paragraphs (c)(1) through (11). Paragraphs (c)(8) and (9) apply to the facility's dry mechanical polishing operation and existing permanent thermal spraying operation.

In accordance with §63.11508(c)(8)(i) through (iii), the facility must install a control system that is designed to capture PM emissions from the polishing operation and exhaust them to a cartridge, fabric, or HEPA filter. The facility must state in the Notification of Compliance Status that it has installed the control system according to the manufacturer's specifications and instructions. The facility must keep the manufacturer's operating instructions at the facility at all times in a location where they can be easily accessed by the operators.

In accordance with §63.11508(c)(9)(i) through (iii), the facility must install a control system that is designed to capture PM emissions from the thermal spraying operation and exhaust them to a water curtain, fabric filter, or HEPA filter. The facility must state in the Notification of Compliance Status that it has installed and are operating the control system according to the manufacturer's specifications and instructions. The facility must keep the manufacturer's operating instructions at the facility at all times in a location where they can be easily accessed by the operators.

In accordance with §63.11508(d)(1) and (2), the facility must demonstrate continuous compliance with the applicable management practices and equipment standards specified in the subpart. The facility must always operate and maintain all affected sources, including all air pollution control equipment. The facility must prepare an annual compliance certification according to the requirements specified in §63.11509(c) and keep it in a readily-accessible location for inspector review.

These requirements are included in permit condition 4.17.

§ 63.11509 What are my notification, reporting, and recordkeeping requirements?

In accordance with §63.11509(a), the facility must submit an Initial Notification not later than 120 calendar days after July 1, 2008 and include a description of the compliance method for each affected source.

In accordance with §63.11509(b), the facility must submit a Notification of Compliance Status before close of business on July 1, 2010. In accordance with paragraphs (b)(2)(i) through (iv), the Notification of Compliance Status must include a list of affected sources and the plating and polishing metal HAP used in, or emitted by, those sources, methods used to comply with the applicable management practices and equipment standards, a description of the capture and emission control systems used to comply with the applicable equipment standards, and a statement by the owner or operator of the affected sources as to whether the source is in compliance with the applicable standards or other requirements. If the facility makes a change to any items in paragraphs (b)(2)(i),(iii), and (iv) that does not result in a deviation, an amended Notification of Compliance Status should be submitted within 30 days of the change.

In accordance with §63.11509(c), the facility must prepare an annual certification of compliance report. This report does not need to be submitted unless a deviation from the requirements of this subpart has occurred during the reporting year. In accordance with paragraphs (c)(1) through (7) of this section, the annual certification of compliance report must state whether the facility has operated and maintained the control systems according to the manufacturer's specifications and instructions, must be prepared no later than January 31 of the year immediately following the reporting period, and must be kept in a readily-accessible location for inspector review.

In accordance with §63.11509(d), if a deviation from the compliance requirements specified occurred during the year, the facility must report the deviations, along with the corrective action taken, and submit this report to the delegated authority.

In accordance with §63.11509(e), the facility must keep records of the Initial Notification and Notification of Compliance Status that was submitted and all documentation supporting those notifications, records on the occurrence and duration of each startup, shutdown, or malfunction of process equipment, records of the occurrence and duration of each malfunction of the required air pollution control and monitoring equipment, records of all required maintenance performed on the air pollution control and monitoring equipment, and the records required to show continuous compliance with each applicable management practice and equipment standard as specified in §63.11508(d).

In accordance with §63.11509(f), the facility must keep each record for a minimum of 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. The facility must keep each record onsite for at least 2 years and then the records may be kept offsite for the remaining 3 years.

These requirements are included in permit condition 4.18.

§ 63.11510 What General Provision apply to this subpart?

In accordance with §63.11510, the facility must comply with the requirements of the General Provisions (40 CFR part 63, subpart A) according to Table 1 of this subpart.

These requirements are included in permit condition 4.20.

Permit Conditions Review

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

Table 1.1 has been revised to include four existing but previously unpermitted media blast cabinets.

Section 2 had been added to the permit to include facility wide limits for the abrasive blasting media and natural gas usage. All emission calculations are based on these limits.

Permit Conditions 2.1-2.4 were added to limit aluminum oxide, silicon carbide, and glass bead blasting media facility wide.

Permit Conditions 2.4 and 2.5 were added for monitoring and recordkeeping of the blasting media to demonstrate compliance with the usage limits.

Permit Condition 2.6 was added to establish a facility wide natural gas limit.

Permit Condition 2.7 was added to for monitoring and recordkeeping of the natural gas usage at the facility to demonstrate compliance with the natural gas limit.

Permit Condition 3.1 and Table 3.1 were revised to include three existing but previously unpermitted media blast cabinets and their controls.

Table 3.1 was revised to include PM_{10} emission limits for the three new media blasting cabinets.

Permit Condition 3.4 was revised to include the three new media blasting cabinets.

Permit Condition 3.8 was revised to include the filter units and cyclones on the new media blasting cabinets.

Permit Condition 3.9 was added to ensure monitoring equipment was installed to measure the pressure differential across the cyclone and filter units.

Permit Condition 3.10 was added to ensure the pressure differential across the cyclone and filter units does not exceed 8" of water.

Permit Condition 3.11 was added to require an O&M manual for the newly permitted cyclone and filter units.

Permit Condition 3.14 was revised to include PM_{10} emission monitoring for the three new media blasting cabinets.

Old Permit Conditions 4.6 and 4.7 (aluminum oxide usage limit and silicon carbide usage limit) were moved and placed in Section 2 of the PTC as facility-wide limits.

Permit Condition 5.1 and Table 5.1 were revised to include an existing but previously unpermitted spare media blast cabinet.

Table 5.2 was revised to include an existing spare media blast cabinet.

Old Permit Condition 5.4 (blasting media usage limit for the CAMBC operation) was removed as facility-wide blasting usage is limited in Section 2 of the PTC.

Permit Condition 5.9 was revised to include the spare media blast cabinet.

Permit Condition 5.13 was revised to remove monitoring for silicon carbide emissions. Silicon carbide emissions and monitoring has been moved to section 2 of the PTC.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

APPENDIX A – EMISSIONS INVENTORIES

NxEdge Natural Gas Equipment Duty to Yearly Usage Comparison

Meter	139064
Account	21247130004
Address	7500 Mossy cup

ECOVEN plus two air handlers

Nov-16	3307 therms
Dec-16	6070 therms
Jan-17	11030 therms
Feb-17	9029 therms
Mar-17	7152 therms
Apr-17	3828 therms
May-17	4029 therms
Jun-17	1938 therms
Jul-17	1079 therms
Aug-17	655 therms
Sep-17	658 therms
Oct-17	2238 therms
Total	51,013 therms

ECOVEN 85% Reduced Duty

0.75 MMBtu/hr
=
7.5 therms/hr
x
7446 hrs/yr
=
55808 therms/yr

51013 < 55808

Verdict: 85% reduced oven only duty is greater than actual yearly usage of oven plus air handlers on meter 139064.

Total Therms for 1 Year
All Mossy Cup Meters

Nov-16	4566 therms
Dec-16	10186 therms
Jan-17	19837 therms
Feb-17	17896 therms
Mar-17	13578 therms
Apr-17	6539 therms
May-17	6467 therms
Jun-17	3090 therms
Jul-17	1193 therms
Aug-17	664 therms
Sep-17	668 therms
Oct-17	2937 therms
Total	87,621 therms

Site 85% Reduced Duty

11.034 MMBtu/hr
=
110.3 therms/hr
x
7446 hrs/yr
=
821042 therms/yr

87621 << 821042

Verdict: A year's worth of natural gas for the site was only 11% of the entire site's natural gas duty reduced by 85%.

Table 3-3: Blasting Emissions

Sample Calculation:

Controlled aluminum emissions from media blasting with aluminum oxide media (lbs/hr) =

15,000 lbs Al_2O_3/year ÷ 8760 hrs/year * 100% Al_2O_3 media content * 6 media cycles *
0.027 lb Al_2O_3 dust from 1 lb Al_2O_3 media emission factor * (100% - 99% abatement efficiency)

15000 / 8760 * 1 * 6 * 0.027 * (1 - 0.99) = 0.00277

Blast Room 108	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4848DS Blast Cabinets (2)	15,000	Aluminum Oxide	1344-28-1	100%	6	0.027	0.277	2430	99%	0.002774	24.30
		15,000	Calcium Oxide	1305-78-8	0.10%	6	0.027	0.00028	2.4	99%	0.000002774	0.02

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	MAC3 Controlled Emissions (lbs./hr.)
Aluminum	585 (24 hr)	0.667	0.277	2.8E-03	2.4E+01	2.8E-03
Calcium Oxide	585 (24 hr)	0.13	2.8E-04	2.8E-06	2.4E-02	2.8E-06

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	MAC3 Controlled Emissions (tons/yr)
PM	1.22	2.8E-03	1.2E-02	1.2E-02
PM_{10}	0.59	1.3E-03	5.9E-03	5.9E-03
$PM_{2.5}$	0.059	1.3E-04	5.9E-04	5.9E-04

Notes:
1. Based on NxEdge recent estimated annual use 7,300 lbs., increased 2X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per MAC specification sheets, control efficiencies are 99.7%, 99.8% and 99.99% for particles 0.5 microns in size and larger. For calculations, 99% used.

Blast Room 111	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4836RPD (1) Custom Auto (1)	124,000	Silcon Carbide	409-21-2	100%	10	0.027	3.82	33480	99%	0.038	334.8

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	MAC1 Controlled Emissions (lbs/hr)	MAC2 Controlled Emissions (lbs/hr)
Silicon Carbide	585 (24 hr)	0.667	3.82	0.038	334.8	1.9E-02	1.9E-02

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	MAC1 Controlled Emissions (tons/yr)	MAC2 Controlled Emissions (tons/yr)
PM	16.74	3.8E-02	1.7E-01	8.4E-02	8.4E-02
PM_{10}	8.06	1.8E-02	8.1E-02	4.0E-02	4.0E-02
$PM_{2.5}$	0.81	1.8E-03	8.1E-03	4.0E-03	4.0E-03

Notes:
1. Based on NxEdge recent estimated annual use 61,800 lbs., increased 2X.
2. NxEdge reuses silicaon carbide media for approximately 10 cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per MAC specification sheets, control efficiencies are 99.7%, 99.8% and 99.99% for particles 0.5 microns in size and larger. For calculations, 99% used.

C&R Blasting Room	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Empire PF3648 Blast Cabinets (2)	11,000	Aluminum Oxide	1344-28-1	100%	6	0.010	0.075	660	95%	0.00377	33.0
		8,000	Glass Bead	65997-17-3	100%	4	0.010	0.037	320	95%	0.00183	16.0

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	CAMBC Controlled Emissions (lbs./hr.)
Aluminum	585 (24 hr)	0.667	0.075	3.8E-03	3.3E+01	3.8E-03
Fibrous Glass Dust	585 (24 hr)	0.667	0.037	1.8E-03	1.6E+01	1.8E-03

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	CAMBC Controlled Emissions (tons/yr)

Table 3-3: Blasting Emissions

PM	0.49	5.6E-03	2.5E-02	2.5E-02
PM_{10}	0.49	5.6E-03	2.5E-02	2.5E-02

Notes:
1. Based on NxEdge recent estimated annual use 7,300 lbs., increased 2X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per Empire specification sheet, control efficiencies are 99% for particles 1 microns in size and larger. For calculations, 99% used. Filter exhausts out of the roof.

Table 3-3: Blasting Emissions

Sample Calculation:

Controlled aluminum emissions from media blasting with aluminum oxide media (lbs/hr) =

54,850 lbs Al_2O_3/year ÷ 8760 hrs/year * 100% Al_2O_3 media content * 6 media cycles *
0.027 lb Al_2O_3 dust from 1 lb Al_2O_3 media emission factor * (100% - 99% abatement efficiency)

54850 / 8760 * 1 * 6 * 0.027 * (1 - 0.99) = 0.01014

Blast Room 108	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4848DS Blast Cabinets (2)	54,850	Aluminum Oxide	1344-28-1	100%	6	0.027	1.014	8886	99%	0.01014	88.86
		54,850	Calcium Oxide	1305-78-8	0.10%	6	0.027	0.00101	8.9	99%	0.00001014	0.09

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	MAC3 Controlled Emissions (lbs./hr.)
Aluminum	585 (24 hr)	0.667	1.014	1.0E-02	8.9E+01	1.0E-02
Calcium Oxide	585 (24 hr)	0.13	1.0E-03	1.0E-05	8.9E-02	1.0E-05

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	MAC3 Controlled Emissions (tons/yr)
PM	4.44	1.0E-02	4.4E-02	4.4E-02
PM_{10}	2.14	4.9E-03	2.1E-02	2.1E-02
$PM_{2.5}$	0.214	4.9E-04	2.1E-03	2.1E-03

Notes:
1. Based on NxEdge recent estimated annual use 10,970 lbs., increased 5X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per MAC specification sheets, control efficiencies are 99.7%, 99.8% and 99.99% for particles 0.5 microns in size and larger. For calculations, 99% used.

Blast Room 111	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4836RPD (1) Custom Auto (2)	287,500	Silcon Carbide	409-21-2	100%	1	0.027	0.9	7763	99%	0.009	77.6

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	MAC1 Controlled Emissions (lbs/hr)	MAC2 Controlled Emissions (lbs/hr)
Silicon Carbide	585 (24 hr)	0.667	0.89	0.009	77.6	4.4E-03	4.4E-03

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	MAC1 Controlled Emissions (tons/yr)	MAC2 Controlled Emissions (tons/yr)
PM	3.88	8.9E-03	3.9E-02	1.9E-02	1.9E-02
PM_{10}	1.87	4.3E-03	1.9E-02	9.3E-03	9.3E-03
$PM_{2.5}$	0.19	4.3E-04	1.9E-03	9.3E-04	9.3E-04

Notes:
1. Based on NxEdge recent estimated annual use 57,500 lbs., increased 5X.
2. NxEdge does not reuse silicon carbide media before discarding to avoid contamination.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per MAC specification sheets, control efficiencies are 99.7%, 99.8% and 99.99% for particles 0.5 microns in size and larger. For calculations, 99% used.

Copper Blasting Room	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4836RPD Blast Cabinet Empire PF3648	29,350	Aluminum Oxide	1344-28-1	100%	6	0.027	0.543	4755	99%	0.0054	47.55
		29,350	Calcium Oxide	1305-78-8	0.10%	6	0.027	0.00054	4.8	99%	0.0000054	0.05

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	MAC3 Controlled Emissions (lbs./hr.)
Aluminum	585 (24 hr)	0.667	0.543	5.4E-03	4.8E+01	5.4E-03
Calcium Oxide	585 (24 hr)	0.13	5.4E-04	5.4E-06	4.8E-02	5.4E-06

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	MAC3 Controlled Emissions (tons/yr)

Table 3-3: Blasting Emissions

PM	2.38	5.4E-03	2.4E-02	2.4E-02
PM_{10}	1.14	2.6E-03	1.1E-02	1.1E-02
$PM_{2.5}$	0.114	2.6E-04	1.1E-03	1.1E-03

Notes:
1. Based on NxEdge recent estimated annual use 5,870 lbs., increased 5X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per Titan specification sheet, control efficiencies are 100% for particles 0.5 microns in size and larger. For calculations, 99% used. Filter exhausts into the building.

C&R Blasting Room	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Empire PF3648 Blast Cabinets (3)	1,925	Aluminum Oxide	1344-28-1	100%	6	0.027	0.036	312	99%	0.000356	3.12
		1,925	Calcium Oxide	1305-78-8	0.10%	6	0.027	0.00004	0.3	99%	0.0000004	0.003
		1,650	Glass Bead	65997-17-3	100%	4	0.027	0.020	178	99%	0.000203	1.78

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)	CAMBC Controlled Emissions (lbs./hr.)
Aluminum	585 (24 hr)	0.667	0.036	3.6E-04	3.1E+00	3.6E-04
Calcium Oxide	585 (24 hr)	0.13	2.0E-02	2.0E-04	1.8E+00	2.0E-04

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)	CAMBC Controlled Emissions (lbs./hr.)
PM	0.16	3.6E-04	1.6E-03	1.6E-03
PM_{10}	0.08	1.7E-04	7.5E-04	7.5E-04
$PM_{2.5}$	0.008	1.7E-05	7.5E-05	7.5E-05

Notes:
1. Based on NxEdge recent estimated Al2O3 annual use 385 lbs., increased 5X, and Glass annual use 550 lbs, increased 3X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding, glass media for 4 cycles.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per Empire specification sheet, control efficiencies are 99% for particles 1 microns in size and larger. For calculations, 99% used. Filter exhausts out of the roof.

FP Area Blaster	Equipment	Estimated Unrestricted New Media Usage[1]	Constituents	CAS Number	Constituent Concentration (max wt%)	Media Cycles[2]	Emission Factor (lbs./lb. media)[3]	Uncontrolled Emissions		Cabinet Control Equipment Efficiency (%)[4]	Controlled Emissions	
		lb/yr						lb/hr	lb/yr		lb/hr	lb/yr
	Titan 4848RPD Blast Cabinet	8,910	Aluminum Oxide	1344-28-1	100%	6	0.027	0.165	1443	99%	0.001648	14.43
		8,910	Calcium Oxide	1305-78-8	0.10%	6	0.027	0.00016	1.4	99%	0.000001648	0.01

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)
Aluminum	585 (24 hr)	0.667	0.165	1.6E-03	1.4E+01
Calcium Oxide	585 (24 hr)	0.13	1.6E-04	1.6E-06	1.4E-02

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)
PM	0.72	1.6E-03	7.2E-03
PM_{10}	0.35	7.9E-04	3.5E-03
$PM_{2.5}$	0.035	7.9E-05	3.5E-04

Notes:
1. Based on NxEdge recent estimated annual use 4,455 lbs., increased 2X.
2. NxEdge reuses aluminum oxide media for six cycles before discarding.
3. From AP-42 13.2.6 PM emission factor 27 lbs/1000 lbs.; PM10 emission factor 13 lbs/1000 lbs.; PM2.5 emission factor 1.3 lbs/1000 lbs.
4. Per Titan specification sheet, control efficiencies are 100% for particles 0.5 microns in size and larger. For calculations, 99% used. Filter exhausts into the building.

Table 3-4: Blasting Emissions

Pre-proposal Blasting Emissions Estimates

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)
Aluminum	585 (24 hr)	0.667	0.353	0.007	57.300
Calcium Oxide	585 (24 hr)	0.13	0.00028	0.0000028	0.024
Silicon Carbide	585 (24 hr)	0.667	3.82	0.038	334.8

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)
PM	18.45	0.047	0.20
PM_{10}	9.14	0.025	0.11
$PM_{2.5}$	0.86	0.0020	0.0086

Post-proposal Blasting Emissions Estimates

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)
Aluminum	585 (24 hr)	0.667	1.757	0.018	153.96
Calcium Oxide	585 (24 hr)	0.13	0.022	0.00022	1.93
Silicon Carbide	585 (24 hr)	0.667	0.89	0.009	77.6

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)
PM	11.58	0.026	0.12
PM_{10}	5.58	0.013	0.056
$PM_{2.5}$	0.56	0.0013	0.0056

Proposal Blasting Emissions Estimates Changes

TAP Emissions Summary	TAP Type (24 hr or Annual Avgd EL)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Controlled Emissions (lb/yr)
Aluminum	585 (24 hr)	0.667	1.40	0.0110	96.66
Calcium Oxide	585 (24 hr)	0.13	0.022	0.00022	1.91
Silicon Carbide	585 (24 hr)	0.667	-2.94	-0.029	-257.2

HAP Emissions Summary	Controlled Emissions (tons/yr)
No known HAPs emitted	

Criteria Pollutant Emissions Summary	Uncontrolled Emissions (tons/yr)	Controlled Emissions (lb/hr)	Controlled Emissions (tons/yr)
PM	-6.87	-0.020	-0.09
PM_{10}	-3.56	-0.013	-0.055
$PM_{2.5}$	-0.31	-0.00070	-0.0031

The negative values are due to the previous estimate using 10 recycles for SiC media whereas the new estimate uses 1X which matches current operational procedures.

Table 2-1: Combustion Emissions from Proposed MAU

Newly Permitted Sources	No. of units	Input Duty MMBtu/hr	MMBtu/hr		Emission Point	
P4-P9 heaters	6	0.75	4.5	MMBtu/hr		vertical discharge, velocity = rain cap
			4.5	**MMBtu/hr**		
Previously Permitted Sources						
North Air Handler	1	2.2118	2.2118	MMBtu/hr	EP3	Vertical discharge, velocity =4.9 m/s
West Air Handler	1	1.4155	1.4155	MMBtu/hr	EP17	vertical discharge, velocity = 15 m/s
Curing Oven	1	0.75	0.75	MMBtu/hr	EP9	capped discharge
SBU Heaters	3	0.719	2.156	MMBtu/hr	EP10/11/12	vertical discharge, velocity = 13 m/s
Total Duty			**6.534**	**MMBtu/hr**		

Modification Duty =

11.034 MMBtu/hr ÷ 1,020 MMBtu/MMscf = **1.08E-02 MMscf/hr**

Fuel Use:

0.260 MMscf/day

88.962 MMscf/year

Operating Assumptions:

24 hr/day

8,760 hr/yr [3] for previously permitted heaters

7,446 hr/yr [4] for P4-P9 heaters

Criteria Air Pollutants	Emission Factor[1]	Emissions	
	lb/MMscf	lb/hr	T/yr
NO_2	100	1.08	4.74
CO	84	0.91	3.98
PM_{10}	7.6	0.082	0.3601
$PM_{2.5}$	7.6	0.082	0.36
SO_2	0.6	6.49E-03	2.84E-02
VOC	5.5	5.95E-02	2.61E-01
Lead	0.0005	5.41E-06	2.37E-05
		3.89E-03	lb/month
Total Criteria Emissions (ton/yr) =			**9.37**

Greenhouse Gas Emissions
CO_2 = 1 X 10^{-3} * MMBTU Gas * 53.06 kg CO_2/MMBTU
CO_2 = 5128 Metric Tons/year
CH_4 = 1 X 10^{-3} * MMBTU Gas * 0.001 kg CH_4/MMBTU
CH_4 = 0.097 Metric Tons/year
N_2O = 1 X 10^{-3} * MMBTU Gas * 0.0001 kg N_2O/MMBTU
N_2O = 0.010 Metric Tons/year
Total CO_2e = CO_2 + (CH_4 * 25) * (N_2O * 298)
CO_2e = 5134 Metric Tons/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor[1]	Emissions	
	lb/MMscf	lb/hr[2]	T/yr
PAH HAPs			
2-Methylnaphthalene	2.40E-05	**2.60E-07**	1.1E-06
3-Methylchloranthrene	1.80E-06	**1.95E-08**	8.0E-08
Acenaphthene	1.80E-06	**1.95E-08**	8.0E-08
Acenaphthylene	1.80E-06	**1.95E-08**	8.0E-08
Anthracene	2.40E-06	**2.60E-08**	1.1E-07
Benzo(a)anthracene	1.80E-06	**1.95E-08**	8.0E-08
Benzo(a)pyrene	1.20E-06	**1.30E-08**	5.3E-08
Benzo(b)fluoranthene	1.80E-06	**1.95E-08**	8.0E-08
Benzo(g,h,i)perylene	1.20E-06	**1.30E-08**	5.3E-08
Benzo(k)fluoranthene	1.80E-06	**1.95E-08**	8.0E-08
Chrysene	1.80E-06	**1.95E-08**	8.0E-08
Dibenzo(a,h)anthracene	1.20E-06	**1.30E-08**	5.3E-08
Fluoranthene	3.00E-06	**3.25E-08**	1.3E-07
Fluorene	2.80E-06	**3.03E-08**	1.2E-07
Indeno(1,2,3-cd)pyrene	1.80E-06	**1.95E-08**	8.0E-08
Naphthalene	6.10E-04	6.60E-06	2.7E-05
Naphthalene	6.10E-04	**6.60E-06**	2.7E-05
Phenanathrene	1.70E-05	**1.84E-07**	7.6E-07
Pyrene	5.00E-06	**5.41E-08**	2.2E-07
Polycyclic Org. Matter (POM, 7-PAH Group)		**1.23E-07**	**5.1E-07**
Non-POM PAH		**1.38E-05**	**5.68E-05**
Non-PAH HAPs			
Benzene	2.10E-03	**2.27E-05**	9.3E-05
Dichlorobenzene	1.20E-03	1.30E-05	5.3E-05
Formaldehyde	7.50E-02	**8.11E-04**	3.3E-03

Table 2-1: Combustion Emissions from Proposed MAU

Hexane	1.80E+00	1.95E-02	8.0E-02
Toluene	3.40E-03	3.68E-05	1.5E-04
Non-HAP Organic Compounds			
7,12-Dimethylbenz(a)anthrac	1.60E-05	1.73E-07	7.1E-07
Butane	2.10E+00	2.27E-02	9.3E-02
Ethane	3.10E+00	3.35E-02	1.4E-01
Pentane	2.60E+00	2.81E-02	1.2E-01
Propane	1.60E+00	1.73E-02	7.1E-02
Metals (HAPs)			
Arsenic	2.00E-04	**2.16E-06**	8.9E-06
Barium	4.40E-03	4.76E-05	2.0E-04
Beryllium	1.20E-05	**1.30E-07**	5.3E-07
Cadmium	1.10E-03	**1.19E-05**	4.9E-05
Chromium	1.40E-03	1.51E-05	6.2E-05
Cobalt	8.40E-05	9.09E-07	3.7E-06
Copper	8.50E-04	9.19E-06	3.8E-05
Manganese	3.80E-04	4.11E-06	1.7E-05
Mercury	2.60E-04	2.81E-06	1.2E-05
Molybdenum	1.10E-03	1.19E-05	4.9E-05
Nickel	2.10E-03	**2.27E-05**	9.3E-05
Selenium	2.40E-05	2.60E-07	1.1E-06
Vanadium	2.30E-03	2.49E-05	1.0E-04
Zinc	2.90E-02	3.14E-04	1.3E-03
Total HAP Emissions (ton/yr) =			0.086

Notes:

1. Emission factors taken from AP-42, Section 1.4 *Natural Gas Combustion* (7/98)
2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.
3. Air heaters are used only during cold weather, so actual on-line rating is significantly less.
4. Air heaters are used only during cold weather, so existing permit allows 15% rating reduction (85% of 8760 hrs).

Table 2-2: Combustion Emissions from Proposed MAU's

Permitted Sources	No. of units	Input Duty MMBtu/hr	MMBtu/hr		
North Air Handler	1	2.2118	2.2118 MMBtu/hr	EP3	Vertical discharge, velocity =4.9 m/s
West Air Handler	1	1.4155	1.4155 MMBtu/hr	EP17	vertical discharge, velocity = 15 m/s
Curing Oven	1	0.75	0.75 MMBtu/hr	EP9	capped discharge
SBU Heaters	3	0.719	2.156 MMBtu/hr	EP10/11/12	vertical discharge, velocity = 13 m/s
P4-P9 heaters	6	0.75	4.5 MMBtu/hr		vertical discharge, velocity = rain cap
Total Duty			**11.034 MMBtu/hr**		

Modification Duty =

11.034 MMBtu/hr ÷ 1,020 MMBtu/MMscf : **1.08E-02 MMscf/hr**

Fuel Use:

Operating Assumptions: **24** hr/day — 0.260 MMscf/day

Proposed hourly limit **7,446** hr/yr [3] for all heaters — 80.545 MMscf/year

Criteria Air Pollutants	Emission Factor[1]	Emissions	
	lb/MMscf	lb/hr	T/yr
NO_2	100	1.08	4.03
CO	84	0.91	3.38
PM_{10}	7.6	0.082	0.3061
$PM_{2.5}$	7.6	0.082	0.31
SO_2	0.6	6.49E-03	2.42E-02
VOC	5.5	5.95E-02	2.21E-01
Lead	0.0005	5.41E-06	2.01E-05
		3.89E-03	lb/month
Total Criteria Emissions (ton/yr) =			**7.96**

Greenhouse Gas Emissions
CO_2 = 1 X 10^{-3} * MMBTU Gas * 53.06 kg CO_2/MMBTU
CO_2 = 4359 Metric Tons/year
CH_4 = 1 X 10^{-3} * MMBTU Gas * 0.001 kg CH_4/MMBTU
CH_4 = 0.082 Metric Tons/year
N_2O = 1 X 10^{-3} * MMBTU Gas * 0.0001 kg N_2O/MMBTU
N_2O = 0.008 Metric Tons/year
Total CO_2e = CO_2 + (CH_4 * 25) * (N_2O * 298)
CO_2e = 4364 Metric Tons/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor[1]	Emissions	
	lb/MMscf	lb/hr[2]	T/yr
PAH HAPs			
2-Methylnaphthalene	2.40E-05	**2.60E-07**	9.7E-07
3-Methylchloranthrene	1.80E-06	**1.95E-08**	7.2E-08
Acenaphthene	1.80E-06	**1.95E-08**	7.2E-08
Acenaphthylene	1.80E-06	**1.95E-08**	7.2E-08
Anthracene	2.40E-06	**2.60E-08**	9.7E-08
Benzo(a)anthracene	1.80E-06	**1.95E-08**	7.2E-08
Benzo(a)pyrene	1.20E-06	**1.30E-08**	4.8E-08
Benzo(b)fluoranthene	1.80E-06	**1.95E-08**	7.2E-08
Benzo(g,h,i)perylene	1.20E-06	**1.30E-08**	4.8E-08
Benzo(k)fluoranthene	1.80E-06	**1.95E-08**	7.2E-08
Chrysene	1.80E-06	**1.95E-08**	7.2E-08
Dibenzo(a,h)anthracene	1.20E-06	**1.30E-08**	4.8E-08
Fluoranthene	3.00E-06	**3.25E-08**	1.2E-07
Fluorene	2.80E-06	**3.03E-08**	1.1E-07
Indeno(1,2,3-cd)pyrene	1.80E-06	**1.95E-08**	7.2E-08
Naphthalene	6.10E-04	6.60E-06	2.5E-05
Naphthalene	6.10E-04	**6.60E-06**	2.5E-05
Phenanathrene	1.70E-05	**1.84E-07**	6.8E-07
Pyrene	5.00E-06	**5.41E-08**	2.0E-07
Polycyclic Org. Matter (POM, 7-PAH Group)		**1.23E-07**	**4.6E-07**
Non-POM PAH		**1.38E-05**	**5.15E-05**
Non-PAH HAPs			
Benzene	2.10E-03	**2.27E-05**	8.5E-05
Dichlorobenzene	1.20E-03	1.30E-05	4.8E-05
Formaldehyde	7.50E-02	**8.11E-04**	3.0E-03
Hexane	1.80E+00	1.95E-02	7.2E-02
Toluene	3.40E-03	3.68E-05	1.4E-04
Non-HAP Organic Compounds			
7,12-Dimethylbenz(a)anthrac	1.60E-05	1.73E-07	6.4E-07
Butane	2.10E+00	2.27E-02	8.5E-02

Table 2-2: Combustion Emissions from Proposed MAU's

Ethane	3.10E+00	3.35E-02	1.2E-01
Pentane	2.60E+00	2.81E-02	1.0E-01
Propane	1.60E+00	1.73E-02	6.4E-02
Metals (HAPs)			
Arsenic	2.00E-04	**2.16E-06**	8.1E-06
Barium	4.40E-03	4.76E-05	1.8E-04
Beryllium	1.20E-05	**1.30E-07**	4.8E-07
Cadmium	1.10E-03	**1.19E-05**	4.4E-05
Chromium	1.40E-03	1.51E-05	5.6E-05
Cobalt	8.40E-05	9.09E-07	3.4E-06
Copper	8.50E-04	9.19E-06	3.4E-05
Manganese	3.80E-04	4.11E-06	1.5E-05
Mercury	2.60E-04	2.81E-06	1.0E-05
Molybdenum	1.10E-03	1.19E-05	4.4E-05
Nickel	2.10E-03	**2.27E-05**	8.5E-05
Selenium	2.40E-05	2.60E-07	9.7E-07
Vanadium	2.30E-03	2.49E-05	9.3E-05
Zinc	2.90E-02	3.14E-04	1.2E-03
Total HAP Emissions (ton/yr) =			0.078

Notes:

1. Emission factors taken from AP-42, Section 1.4 *Natural Gas Combustion* (7/98)
2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.
3. Air heaters are used only during cold weather, so proposing 15% rating reduction (85% of 8760 hrs) for all site heaters.

Table 3-5: Combustion Emissions from Natural Gas Under Proposed Hourly Limit

Permitted Sources	No. of units	Input Duty MMBtu/hr	MMBtu/hr			
North Air Handler	1	2.2118	2.2118	MMBtu/hr	EP3	Vertical discharge, velocity =4.9 m/s
West Air Handler	1	1.4155	1.4155	MMBtu/hr	EP17	vertical discharge, velocity = 15 m/s
Curing Oven	1	0.75	0.75	MMBtu/hr	EP9	capped discharge
SBU Heaters	3	0.719	2.156	MMBtu/hr	EP10/11/12	vertical discharge, velocity = 13 m/s
P4-P9 heaters	6	0.75	4.5	MMBtu/hr		vertical discharge, velocity = rain cap
Total Duty			**11.034**	**MMBtu/hr**		

Modification Duty =

11.03 MMBtu/hr ÷ 1,020 MMBtu/MMscf = **1.08E-02 MMscf/hr**

Operating Assumptions: **24** hr/day

Proposed hourly limit **7,446** hr/yr [3]

Fuel Use:

0.260 MMscf/day

80.545 MMscf/year

Hazardous & Toxic Air Pollutants (HAP & TAP)	Emission Factor[1]	Emissions Change		Modeling Threshold TAP Screening Emission Level	Modeling Required?
	lb/MMscf	lb/hr[2]	T/yr		
PAH HAPs					
2-Methylnaphthalene	2.40E-05	**0.00E+00**	-1.0E-07	9.1E-05 lb/hr	No
3-Methylchloranthrene	1.80E-06	**0.00E+00**	-7.6E-09	2.5E-06 lb/hr	No
Acenaphthene	1.80E-06	**0.00E+00**	-7.6E-09	9.1E-05 lb/hr	No
Acenaphthylene	1.80E-06	**0.00E+00**	-7.6E-09	9.1E-05 lb/hr	No
Anthracene	2.40E-06	**0.00E+00**	-1.0E-08	9.1E-05 lb/hr	No
Benzo(a)anthracene	1.80E-06	**0.00E+00**	-7.6E-09		See POM
Benzo(a)pyrene	1.20E-06	**0.00E+00**	-5.1E-09	2.0E-06 lb/hr	See POM
Benzo(b)fluoranthene	1.80E-06	**0.00E+00**	-7.6E-09		See POM
Benzo(g,h,i)perylene	1.20E-06	**0.00E+00**	-5.1E-09	9.1E-05 lb/hr	No
Benzo(k)fluoranthene	1.80E-06	**0.00E+00**	-7.6E-09		See POM
Chrysene	1.80E-06	**0.00E+00**	-7.6E-09		See POM
Dibenzo(a,h)anthracene	1.20E-06	**0.00E+00**	-5.1E-09		See POM
Fluoranthene	3.00E-06	**0.00E+00**	-1.3E-08	9.1E-05 lb/hr	No
Fluorene	2.80E-06	**0.00E+00**	-1.2E-08	9.1E-05 lb/hr	No
Indeno(1,2,3-cd)pyrene	1.80E-06	**0.00E+00**	-7.6E-09		See POM
Naphthalene	6.10E-04	0.00E+00	-2.6E-06	3.33 lb/hr	No
Naphthalene	6.10E-04	**0.00E+00**	-2.6E-06	9.1E-05 lb/hr	No
Phenanathrene	1.70E-05	**0.00E+00**	-7.2E-08	9.1E-05 lb/hr	No
Pyrene	5.00E-06	**0.00E+00**	-2.1E-08	9.1E-05 lb/hr	No
Polycyclic Org. Matter (POM, 7-PAH Group)		**0.00E+00**	**-4.8E-08**	2.0E-06 lb/hr	No
Non-POM PAH		**0.00E+00**	**-5.38E-06**		
Non-PAH HAPs					
Benzene	2.10E-03	**0.00E+00**	-8.8E-06	8.0E-04 lb/hr	No
Dichlorobenzene	1.20E-03	0.00E+00	-5.1E-06	20 lb/hr	No
Formaldehyde	7.50E-02	**0.00E+00**	-3.2E-04	5.1E-04 lb/hr	No
Hexane	1.80E+00	0.00E+00	-7.6E-03	12 lb/hr	No
Toluene	3.40E-03	0.00E+00	-1.4E-05	25 lb/hr	No
Non-HAP Organic Compounds					
7,12-Dimethylbenz(a)anthrac	1.60E-05	0.00E+00	-6.7E-08		
Butane	2.10E+00	0.00E+00	-8.8E-03		
Ethane	3.10E+00	0.00E+00	-1.3E-02		
Pentane	2.60E+00	0.00E+00	-1.1E-02	118 lb/hr	No
Propane	1.60E+00	0.00E+00	-6.7E-03		
Metals (HAPs)					
Arsenic	2.00E-04	**0.00E+00**	-8.4E-07	1.5E-06 lb/hr	No
Barium	4.40E-03	0.00E+00	-1.9E-05	0.033 lb/hr	No
Beryllium	1.20E-05	**0.00E+00**	-5.1E-08	2.8E-05 lb/hr	No
Cadmium	1.10E-03	**0.00E+00**	-4.6E-06	3.7E-06 lb/hr	No
Chromium	1.40E-03	0.00E+00	-5.9E-06	0.033 lb/hr	No
Cobalt	8.40E-05	0.00E+00	-3.5E-07	0.0033 lb/hr	No
Copper	8.50E-04	0.00E+00	-3.6E-06	0.013 lb/hr	No
Manganese	3.80E-04	0.00E+00	-1.6E-06	0.067 lb/hr	No
Mercury	2.60E-04	0.00E+00	-1.1E-06	0.003 lb/hr	No
Molybdenum	1.10E-03	0.00E+00	-4.6E-06	0.333 lb/hr	No
Nickel	2.10E-03	**0.00E+00**	-8.8E-06	2.7E-05 lb/hr	No
Selenium	2.40E-05	0.00E+00	-1.0E-07	0.013 lb/hr	No
Vanadium	2.30E-03	0.00E+00	-9.7E-06	0.003 lb/hr	No
Zinc	2.90E-02	0.00E+00	-1.2E-04	0.667 lb/hr	No
Total HAP Emissions (ton/yr) =			-0.008		

Criteria Air Pollutants	Emission Factor[1]	Emissions Change	
	lb/MMscf	lb/hr	T/yr
NO_2	100	0.00	-0.71
CO	84	0.00	-0.60
PM_{10}	7.6	0.000	-0.054
$PM_{2.5}$	7.6	0.000	-0.054
SO_2	0.6	0.000	-0.0043
VOC	5.5	0.000	-0.039
Lead	0.0005	0.00E+00	-3.6E-06
		0.00E+00	lb/month
Total Criteria Emissions Change (ton/yr) =			**-1.41**

Greenhouse Gas Emissions
CO_2 = 1 X 10^{-3} * MMBTU Gas * 53.06 kg CO_2/MMBTU
CO_2 = -769 Metric Tons/year
CH_4 = 1 X 10^{-3} * MMBTU Gas * 0.001 kg CH_4/MMBTU
CH_4 = -0.01 Metric Tons/year
N_2O = 1 X 10^{-3} * MMBTU Gas * 0.0001 kg N_2O/MMBTU
N_2O = -0.001 Metric Tons/year
Total CO_2e = CO_2 + (CH_4 * 25) * (N_2O * 298)
CO_2e = -770 Metric Tons/year

Notes:

1. Emission factors taken from AP-42, Section 1.4 *Natural Gas Combustion* (7/98)
2. TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.
3. Air heaters are used only during cold weather, so proposing 15% rating reduction (85% of 8760 hrs) for all site heaters.

Table 4-1a: Pre-Project Uncontrolled Potential to Emit (based on existing permit conditions)

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0	4.5	0	0	0	0	0	0
AECPP2	0	3.75	0	0	0	0	0	0
AOT1	0	0	0	0	0	0	0	0
APBR-P	0	0.18	0	0	0	0	0	0
CAMBC	0	0.5	0	0	0	0	0	0
CRE1	0	0	0	0	0	0	0	0
CRT1	0	0	0	0	0	0	0	0
ECOVEN1	0	0.024	0.019	0.32	0.29	0.318	1.6E-06	0
FPT1	0	0	0	0	0	0	0	0
NMAU1	0	0.068	0.0054	0.89	0.75	0.068	4.5E-06	0
PLFARR1RD	0	2	0	0	0	0	0	0
WETPOWC	0	1.4	0	0	0	1.20	0	0
WMAU1	0	0.042	0.0034	0.57	0.48	0.043	2.9E-06	0
MAC1	0.403	4.03	0	0	0	0	0	0
MAC2	0.403	4.03	0	0	0	0	0	0
MAC3	0.059	0.59	0	0	0	0	0	0
SBUFARR1	0	12.97	0	0	0	0	0	0
SBUFARR2	0	12.97	0	0	0	0	0	0
SBUFARR3	0	12.97	0	0	0	0	0	0
P4FARR	32.8312	32.83	0	0	0	0	0	0
P5FARR	32.8312	32.83	0	0	0	0	0	0
P6FARR	32.8312	32.83	0	0	0	0	0	0
P7FARR	32.8312	32.83	0	0	0	0	0	0
P8FARR	32.8312	32.83	0	0	0	0	0	0
P9FARR	32.8312	32.83	0	0	0	0	0	0
SBUHTR1 [2]	0	0.0117	0.0009	0.154	0.130	0.008	7.72E-07	334
SBUHTR2 [2]	0	0.0117	0.0009	0.154	0.130	0.008	7.72E-07	334
SBUHTR3 [2]	0	0.0117	0.0009	0.154	0.130	0.008	7.72E-07	334
P4HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
P5HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
P6HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
P7HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
P8HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
P9HTR	0.021	0.021	0.0016	0.274	0.230	0.015	1.37E-06	349
Total =	**198.0**	**256.9**	**0.04**	**3.89**	**3.29**	**1.74**	**1.95E-05**	**3097**

Table 4-1b: Post-Project Uncontrolled Potential to Emit (based on requested permit conditions)

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0	4.5	0	0	0	0	0	0
AECPP2	0	3.75	0	0	0	0	0	0
AOT1	0	0	0	0	0	0	0	0
APBR-P	0	0.18	0	0	0	0	0	0
CAMBC	0	0.5	0	0	0	0	0	0
CRE1	0.057	0.57	0	0	0	0	0	0
CRT1	0.057	0.57	0	0	0	0	0	0
ECOVEN1	0.020	0.020	0.016	0.27	0.25	0.27	1.36E-06	297
FPT1	0.035	0.35	0	0	0	0	0	0
NMAU1	0.058	0.058	0.005	0.76	0.64	0.058	3.83E-06	875
PLFARR1RD	0	2	0	0	0	0	0	0
WETPOWC	0	1.4	0	0	0	1.20	0	0
WMAU1	0.036	0.036	0.0029	0.48	0.41	0.037	2.5E-06	560
MAC1	0.403	4.03	0	0	0	0	0	0
MAC2	0.403	4.03	0	0	0	0	0	0
MAC3	0.059	0.59	0	0	0	0	0	0
SBUFARR1	0	12.97	0	0	0	0	0	0
SBUFARR2	0	12.97	0	0	0	0	0	0
SBUFARR3	0	12.97	0	0	0	0	0	0
P4FARR	32.83	32.83	0	0	0	0	0	0
P5FARR	32.83	32.83	0	0	0	0	0	0
P6FARR	32.83	32.83	0	0	0	0	0	0
P7FARR	32.83	32.83	0	0	0	0	0	0
P8FARR	32.83	32.83	0	0	0	0	0	0
P9FARR	32.83	32.83	0	0	0	0	0	0

SBUHTR1 [2]	0.020	0.020	0.00157	0.26	0.22	0.0144	1.3E-06	284
SBUHTR2 [2]	0.020	0.020	0.00157	0.26	0.22	0.0144	1.3E-06	284
SBUHTR3 [2]	0.020	0.020	0.00157	0.26	0.22	0.0144	1.3E-06	284
P4HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P5HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P6HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P7HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P8HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P9HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
Total =	**198.3**	**258.4**	**0.04**	**3.94**	**3.33**	**1.70**	**1.98E-05**	**4678**

Table 4-1c: Changes in Uncontrolled Potential to Emit

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
AECPP2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
AOT1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
APBR-P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CRE1	0.057	0.57	0.000	0.000	0.000	0.000	0.000	0
CRT1	0.057	0.57	0.000	0.000	0.000	0.000	0.000	0
ECOVEN1	0.020	0.00	-0.003	-0.048	-0.044	-0.048	0.000	297
FPT1	0.035	0.35	0.000	0.000	0.000	0.000	0.000	0
NMAU1	0.058	-0.010	-0.001	-0.134	-0.113	-0.010	0.000	875
PLFARR1RD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
WETPOWC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
WMAU1	0.036	-0.006	-0.001	-0.086	-0.072	-0.006	0.000	560
MAC1	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0
MAC2	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0
MAC3	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0
SBUFARR1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUFARR2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUFARR3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P4FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P5FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P6FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P7FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P8FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P9FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUHTR1	0.020	0.008	0.001	0.108	0.091	0.006	5.40E-07	-50
SBUHTR2	0.020	0.008	0.001	0.108	0.091	0.006	5.40E-07	-50
SBUHTR3	0.020	0.008	0.001	0.108	0.091	0.006	5.40E-07	-50
P4HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P5HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P6HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P7HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P8HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P9HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
Total =	**0.3**	**1.5**	**0.00**	**0.06**	**0.04**	**-0.05**	**2.7E-07**	**1581**

[1] There is no permit limit for $PM_{2.5}$ for most existing sources in previous permits, nor calculated emissions of $PM_{2.5}$ for those sources in the SOB's for those permits.

[2] The criteria emission values from the 3 SBUHTR's calculated for the previous permit were inadvertantly undercalculated by 2X.

Table 4-2a: Pre-Project Controlled Potential to Emit (based on existing permit conditions)

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0	0.015	0	0	0	0	0	0
AECPP2	0	0.0038	0	0	0	0	0	0
AOT1	0	0	0	0	0	0	0	0
APBR-P	0	0.18	0	0	0	0	0	0
CAMBC	0	0.02	0	0	0	0	0	0
CRE1	0	0	0	0	0	0	0	0
CRT1	0	0	0	0	0	0	0	0
ECOVEN1	0	0.024	0.019	0.32	0.29	0.318	1.6E-06	0
FPT1	0	0	0	0	0	0	0	0
NMAU1	0	0.068	0.0054	0.89	0.75	0.068	4.5E-06	0
PLFARR1RD	0	0.0029	0	0	0	0	0	0
WETPOWC	0	0.042	0	0	0	1.20	0	0
WMAU1	0	0.042	0.0034	0.57	0.48	0.043	2.9E-06	0
MAC1	0.0040	0.040	0	0	0	0	0	0
MAC2	0.0040	0.040	0	0	0	0	0	0
MAC3	0.00059	0.0059	0	0	0	0	0	0
SBUFARR1	0	0.23	0	0	0	0	0	0
SBUFARR2	0	0.23	0	0	0	0	0	0
SBUFARR3	0	0.23	0	0	0	0	0	0
P4FARR	0.0033	0.0033	0	0	0	0	0	0
P5FARR	0.0033	0.0033	0	0	0	0	0	0
P6FARR	0.0033	0.0033	0	0	0	0	0	0
P7FARR	0.0033	0.0033	0	0	0	0	0	0
P8FARR	0.0033	0.0033	0	0	0	0	0	0
P9FARR	0.0033	0.0033	0	0	0	0	0	0
SBUHTR1 [2]	0	0.012	0.00093	0.15	0.13	0.0085	7.7E-07	334
SBUHTR2 [2]	0	0.012	0.00093	0.15	0.13	0.0085	7.7E-07	334
SBUHTR3 [2]	0	0.012	0.00093	0.15	0.13	0.0085	7.7E-07	334
P4HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P5HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P6HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P7HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P8HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P9HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
Total =	**0.15**	**1.35**	**0.04**	**3.89**	**3.29**	**1.74**	**1.95E-05**	**3097**

Table 4-2b: Post-Project Controlled Potential to Emit (based on requested permit conditions)

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0	0.015	0	0	0	0	0	0
AECPP2	0	0.0038	0	0	0	0	0	0
AOT1	0	0	0	0	0	0	0	0
APBR-P	0	0.18	0	0	0	0	0	0
CAMBC	0	0.02	0	0	0	0	0	0
CRE1	5.7E-04	5.7E-03	0	0	0	0	0	0
CRT1	5.7E-04	5.7E-03	0	0	0	0	0	0
ECOVEN1	0.020	0.020	0.016	0.272	0.247	0.270	1.4E-06	297
FPT1	3.5E-04	3.5E-03	0	0	0	0	0	0
NMAU1	0.058	0.058	0.005	0.757	0.638	0.058	3.8E-06	875
PLFARR1RD	0	0.0029	0	0	0	0	0	0
WETPOWC	0	0.042	0	0	0	1.20	0	0
WMAU1	0.036	0.036	0.003	0.485	0.408	0.037	2.5E-06	560
MAC1	0.0040	0.040	0	0	0	0	0	0
MAC2	0.0040	0.040	0	0	0	0	0	0
MAC3	0.00059	0.0059	0	0	0	0	0	0
SBUFARR1	0	0.23	0	0	0	0	0	0
SBUFARR2	0	0.23	0	0	0	0	0	0
SBUFARR3	0	0.23	0	0	0	0	0	0
P4FARR	0.0033	0.0033	0	0	0	0	0	0
P5FARR	0.0033	0.0033	0	0	0	0	0	0
P6FARR	0.0033	0.0033	0	0	0	0	0	0
P7FARR	0.0033	0.0033	0	0	0	0	0	0
P8FARR	0.0033	0.0033	0	0	0	0	0	0
P9FARR	0.0033	0.0033	0	0	0	0	0	0

SBUHTR1 [2]	0.020	0.020	0.002	0.262	0.220	0.014	1.3E-06	284
SBUHTR2 [2]	0.020	0.020	0.002	0.262	0.220	0.014	1.3E-06	284
SBUHTR3 [2]	0.020	0.020	0.002	0.262	0.220	0.014	1.3E-06	284
P4HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P5HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P6HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P7HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P8HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
P9HTR	0.021	0.021	0.0016	0.27	0.23	0.015	1.4E-06	349
Total =	**0.33**	**1.37**	**0.04**	**3.94**	**3.33**	**1.70**	**1.98E-05**	**4678**
BRC Limits	**1**	**1.5**	**4**	**4**	**10**	**4**	**0.6**	
Below BRC?	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	**YES**	

Table 4-2c: Changes in Controlled Potential to Emit

Emissions Unit	$PM_{2.5}$ [1]	PM_{10}	SO_2	NO_2	CO	VOC	Lead	CO_2e
	tons/yr							
AECPP1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
AECPP2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
AOT1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
APBR-P	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CAMBC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
CRE1	5.7E-04	5.7E-03	0.000	0.000	0.000	0.000	0.000	0
CRT1	5.7E-04	5.7E-03	0.000	0.000	0.000	0.000	0.000	0
ECOVEN1	0.020	-0.004	-0.003	-0.048	-0.044	-0.048	-2.4E-07	297
FPT1	3.5E-04	3.5E-03	0.000	0.000	0.000	0.000	0.000	0
NMAU1	0.058	-0.010	-0.001	-0.134	-0.113	-0.010	-6.8E-07	875
PLFARR1RD	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
WETPOWC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
WMAU1	0.036	-0.006	-0.001	-0.086	-0.072	-0.006	-4.4E-07	560
MAC1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
MAC2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
MAC3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUFARR1	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUFARR2	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUFARR3	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P4FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P5FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P6FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P7FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P8FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
P9FARR	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0
SBUHTR1	0.020	0.008	0.001	0.108	0.091	0.006	5.4E-07	-50
SBUHTR2	0.020	0.008	0.001	0.108	0.091	0.006	5.4E-07	-50
SBUHTR3	0.020	0.008	0.001	0.108	0.091	0.006	5.4E-07	-50
P4HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P5HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P6HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P7HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P8HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
P9HTR	0.000	0.000	0.0000	0.00	0.00	0.000	0.0E+00	0
Total =	**0.18**	**0.02**	**0.00**	**0.06**	**0.04**	**-0.05**	**2.70E-07**	**1581**

1. There is no permit limit for $PM_{2.5}$ for most existing sources in previous permits, nor calculated emissions of $PM_{2.5}$ for those sources in the SOB's for those permits.
2. The criteria emission values from the 3 SBUHTR's calculated for the previous permit were inadvertantly undercalculated by 2X.

Table 4-3: TAP Emission Summary

Proposed Project TAP Totals

Non-Carcinogenic Toxic Air Pollutant (24 hr Average)	Uncontrolled Hourly Emissions		Controlled Hourly Emissions		Uncontrolled Emission Change (lb/hr)	Controlled Emission Change (lb/hr)	Screening Emission Level (lb/hr)	Uncontrolled Exceeds Screening Emission Level?	Controlled Exceeds Screening Emission Level?
	Pre-Project (lb/hr)	Post Project (lb/hr)	Pre-Project (lb/hr)	Post Project (lb/hr)					
Al- Metal and Oxide	54	56	1.04E-02	2.52E-02	1.48E+00	1.48E-02	0.667	Yes	No
Barium	4.8E-05	4.76E-05	4.76E-05	4.76E-05	0.00E+00	0.00E+00	0.033	No	No
Calcium Oxide	2.8E-04	2.77E-04	2.77E-06	2.77E-06	0.00E+00	0.00E+00	0.13	No	No
Chromium	1.5E-05	1.51E-05	1.51E-05	1.51E-05	0.00E+00	0.00E+00	0.033	No	No
Cobalt	9.1E-07	9.09E-07	9.09E-07	9.09E-07	0.00E+00	0.00E+00	0.0033	No	No
Copper	9.2E-06	9.19E-06	9.19E-06	9.19E-06	0.00E+00	0.00E+00	0.067	No	No
Dichlorobenzene	1.3E-05	1.30E-05	1.30E-05	1.30E-05	0.00E+00	0.00E+00	20	No	No
Fluorides (HF) as F	0.438	0.438	4.38E-01	4.38E-01	0.00E+00	0.00E+00	0.167	No	No
Flourine (F_2)	0.438	0.438	4.38E-01	4.38E-01	0.00E+00	0.00E+00	0.133	No	No
Manganese	4.1E-06	4.11E-06	4.11E-06	4.11E-06	0.00E+00	0.00E+00	0.333	No	No
Mercury	2.8E-06	2.81E-06	2.81E-06	2.81E-06	0.00E+00	0.00E+00	0.001	No	No
Molybdenum	1.2E-05	1.19E-05	1.19E-05	1.19E-05	0.00E+00	0.00E+00	0.667	No	No
Naphthalene	6.6E-06	6.60E-06	6.60E-06	6.60E-06	0.00E+00	0.00E+00	3.33	No	No
Pentane	2.8E-02	2.81E-02	2.81E-02	2.81E-02	0.00E+00	0.00E+00	118	No	No
Selenium	2.6E-07	2.60E-07	2.60E-07	2.60E-07	0.00E+00	0.00E+00	0.013	No	No
Silicon Carbide	3.82	0.89	3.82E-02	8.86E-03	-2.94E+00	-2.94E-02	0.667	No	No
Toluene	3.7E-05	3.68E-05	3.68E-05	3.68E-05	0.00E+00	0.00E+00	25	No	No
Yttrium	21.0	2.10E+01	9.40E-03	9.40E-03	0.00E+00	0.00E+00	0.067	No	No
Zinc	3.1E-04	3.14E-04	3.14E-04	3.14E-04	0.00E+00	0.00E+00	0.667	No	No
Carcinogenic Toxic Air Pollutant (Annual Average)	**Uncontrolled Hourly Emissions**		**Controlled Hourly Emissions**		**Emission Change (lb/hr)**	**Emission Change (lb/hr)**	**Screening Emission Level (lb/hr)**	**Exceeds Screening Emission Level?**	**Exceeds Screening Emission Level?**
	Pre-Project (lb/hr)	**Post Project (lb/hr)**	**Pre-Project (lb/hr)**	**Post Project (lb/hr)**					
Arsenic	2.16E-06	2.16E-06	2.16E-06	2.16E-06	0.00E+00	0.00E+00	1.5E-06	No	No
Benzene	2.27E-05	2.27E-05	2.27E-05	2.27E-05	0.00E+00	0.00E+00	8.0E-04	No	No
Beryllium	1.30E-07	1.30E-07	1.30E-07	1.30E-07	0.00E+00	0.00E+00	2.8E-05	No	No
Cadmium	1.19E-05	1.19E-05	1.19E-05	1.19E-05	0.00E+00	0.00E+00	3.7E-06	No	No
Formaldehyde	8.11E-04	8.11E-04	8.11E-04	8.11E-04	0.00E+00	0.00E+00	5.1E-04	No	No
3-Methylchloranthene	1.95E-08	1.95E-08	1.95E-08	1.95E-08	0.00E+00	0.00E+00	2.5E-06	No	No
Nickel	2.27E-05	2.27E-05	2.27E-05	2.27E-05	0.00E+00	0.00E+00	2.7E-05	No	No
Non-POM PAH	1.38E-05	1.38E-05	1.38E-05	1.38E-05	0.00E+00	0.00E+00	9.1E-05	No	No
Polycyclic Organics: 7-PAH Group	1.23E-07	1.23E-07	1.23E-07	1.23E-07	0.00E+00	0.00E+00	2.0E-06	No	No

Table 4-4: HAP Emissions

Hazardous Air Pollutant	CAS	Potential to Emit (tons/yr)
Arsenic	7440-38-2	8.1E-06
Benzene	71-43-2	8.5E-05
Beryllium	7440-41-7	4.8E-07
Cadmium	7440-43-9	4.4E-05
Chromium	7440-47-3	5.6E-05
Cobalt	7440-48-4	3.4E-06
Dichlorobenzene	25321-22-6	4.8E-05
Formaldehyde	50-00-0	3.0E-03
Hexane	110-54-3	7.2E-02
Hydrogen Chloride	7647-01-0	5.6E-02
Hydrogen Fluoride	7664-39-3	2.1E+00
Lead	7439-92-1	2.0E-05
Manganese	7439-96-5	1.5E-05
MDI	101-68-8	6.7E-02
Mercury	7439-97-6	1.0E-05
Methyl Isobutyl Ketone	108-10-1	3.2E-01
Naphthalene	91-20-3	2.5E-05
Nickel	7440-02-0	8.5E-05
Polycyclic Organic Matter		4.6E-07
Selenium	7782-49-2	9.7E-07
Toluene	108-88-3	1.4E-04
Xylene	1330-20-7	1.2E-02
TOTAL =		**2.64**

APPENDIX B – FACILITY DRAFT COMMENTS

The following comments were received from the facility on March 14, 2018:

Facility Comment: Change Table 1 in the Statement of Basis to show the spray booth air supply heaters (SBUHTR1 – SBUHTR3) as the manufacturer is CDI, Model is VIDFB-215-09-650, and Input Rate of 0.719 MMBtu/hr.

DEQ Response: The requested change has been made.

Facility Comment: Change Table 1 in the Statement of Basis and Table 1.1 in the permit to include APBR as an emission source. This is an omission that has been in the last few permit iterations since 2008.

DEQ Response: The requested change has been made.

Facility Comment: Change Table 5 in the Statement of Basis to correct the calcium oxide pre and post emissions based on the submitted spreadsheet.

DEQ Response: The requested change has been made.

Facility Comment: Remove language in permit condition 1.1 that adds a new spray powder to the Fluoropolymer Process area. No new coating has been added.

DEQ Response: The requested change has been made.

Facility Comment: Add the manufacturer and model information in Table 1.1 of the permit as explained above in the first comment.

DEQ Response: The requested change has been made.

Facility Comment: The facility requests that the blasting PM10 emission limits specified in sections 3.3, 4.3, 5.3, 6.3, and the associated PM10 emission calculations and recordkeeping specified in sections 3.14, 4.12, and 6.10 be removed (sources FPT1, CRT1, CRE1, RD1, MB1, MB2, MB3, MB4, MB5, AOT1, and CAMBC). The blasting usage limits in section 2 ensure that PM10 emissions from blasting will be sufficiently low to comply with the NAAQS. The facility requests that the only limits governing the various blasting operations in the facility be the site-wide blasting media usage limits in section 2.

In fact, the facility would assert that no calculations of emissions should be necessary aside from the TAP MDI. The emission inventory demonstrates that material usage at or below the proposed limits will keep emissions within federally enforceable limits and material usage recordkeeping would be sufficient to ensure compliance with the NAAQS.

DEQ Response: The requested change in monitoring requirements has been made. The emission limit tables will remain in the permit but compliance is now demonstrated through compliance with facility wide material usage limits. Monitoring requirements for MDI will remain in permit condition 3.14.

APPENDIX C – PROCESSING FEE

PTC Processing Fee Calculation Worksheet

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

Company:	**NxEdge Inc. of Boise**
Address:	**7484 W Mossy Cup**
City:	**Boise**
State:	**ID**
Zip Code:	**83709**
Facility Contact:	**Nikolaos Xydas**
Title:	**Director of Engineering and Quality**
AIRS No.:	**001-00202**

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

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.1	0	0.1
SO_2	0.0	0	0.0
CO	0.0	0	0.0
PM10	0.0	0	0.0
VOC	0.0	0.04	0.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0.04	**0.1**
Fee Due	**$ 1,000.00**		

Comments: