Statement of Basis

Permit to Construct No. P-2011.0132
Project ID 62264

Rexburg Facility of Basic American Foods, a Division of Basic American, Inc.
Rexburg, Idaho

Facility ID 065-00008

Final

December 6, 2019
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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
AMU	air makeup unit
AP-42	EPA's Compilation of Air Emissions Factors
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BAF	Rexburg Facility of Basic American Foods, a Division of Basic American, Inc.
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
GHG	greenhouse gases
gph	gallons per hour
gpm	gallons per minute
gr	grains (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HHV	higher heating value
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per consecutive 12 calendar month period
ICE	internal combustion engines
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
iwg	inches of water gauge
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
MMV	MicroMist Venturi
MRU	Material Recovery Unit

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
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
$PM_{2.5}$	particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
POM	polycyclic organic matter
ppm	parts per million
ppmw	parts per million by weight
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
psig	pounds per square inch gauge
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
RICE	reciprocating internal combustion engines
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
T/day	tons per calendar day
T/hr	tons per hour
T/yr	tons per consecutive 12 calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
ULSD	ultra-low sulfur diesel
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

Rexburg Facility of Basic American Foods, a Division of Basic American, Inc. (BAF) produces a variety of dehydrated food products for both internal use and for external customers. Products include potato granules, formulated dehydrated food products, dehydrated whole and piece food products, and animal feed. BAF uses a variety of dehydration technologies to produce products to meet exacting customer specifications. The main sources of air emissions include boilers, dryers, dehydration lines, pneumatic material transfer, and packaging operations. Steam for plant operations is provided by boilers 1A and 2A with Boiler 2 and the Kipper & Sons boiler as the backup boilers.

Materials transport occurs both internally within a processing activity and externally to transfer materials between processes, to place them into or take them out of bulk storage, or to transport them to packaging and load-out activities. BAF uses air suspension systems to transport granules and most formulated products; these suspension processes include air slides and pneumatic bulk transfer operations. BAF also uses belt and bucket conveyors at various locations in its operations to transport raw materials, products in processing, and finished products. All bucket and belt conveyors are entirely contained within enclosed buildings. BAF also uses wet flumes to transport raw potatoes. Forklifts are used to transfer tote containers within the plant. Materials recovery units (primarily cyclones and baghouses) are integral to the operation of all unit processes in which granules or formulated products are suspended in air.

BAF operates packaging equipment to fill product containers with bulk product. Spices and flavoring may be added to the bulk product during the packaging process. Dust pickups located within the packaging area exhaust to the atmosphere through baghouses.

Raw materials are received on site by truck. Granules can be received by rail as well as by truck. All shipments are by rail or truck. Trucks are also used to move potatoes to and from the onsite cellars.

Plant process heating is provided by both direct firing with natural gas and indirect heating using steam supplied by facility boilers. Plant space heating is by natural gas.

Plant products are described as follows.

Dehydrated potato granules

Potato granules are individual potato cells prepared from raw potatoes by cooking, followed by gentle drying. Granules typically range from 50 to 120 microns in size. Most of the granules produced at the Rexburg Plant are used at the Rexburg Plant; occasionally granules are shipped to other BAF plants for use in products produced at those plants.

Dehydrated piece food products

BAF prepares dehydrated piece food products by dehydrating cooked and/or blanched foods. These foods can be either whole vegetables or vegetable pieces. Piece products range up to several inches in diameter.

Food processing byproducts

Sellable food fractions and off-specification materials that are not suitable for use in other products are produced as by-products of plant processes. BAF uses various materials classification processes to segregate, collect, and transport these byproducts. Food byproducts are transferred directly to load-out operations after collection without further processing beyond collection.

Air suspension unit processes are also used to classify materials and to remove unsuitable fractions from the production stream.

Food processing by-products are produced from food fractions that are not suitable for sale as primary products.

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), superseded (S), or terminated (T).

Issue Date	Project Number	Project	Status	History Explanation
July 30, 1980	n/a	Initial letter to construct (no PTC number assigned) the Kipper & Sons boiler.	S	Replaced by 4/30/81 letter.
April 30, 1981	n/a	Letter amended to revise test dates.	S	Replaced 7/30/80 letter. Replaced by 5/08/84 letter.
May 8, 1984	n/a	Letter amended to clarify coal/wood input limits.	S	Replaced 4/30/81 letter. Replaced by 065-00008 (12/11/02).
December 11, 2002	065-00008 (T1-9512-145-1)	Initial T1.	S	Initial T1. Replaced by T1-060513.
April 16, 2008	T1-060513	Renewal.	S	Replaced 065-00008. Replaced by T1-2008.0053.
June 10, 2008	T2-030515	Initial T2/PTC required by T1-060513.	S	Initial T2. Replaced by T2-2008.0109.
June 10, 2008	T1-2008.0053	Significant modification to incorporate T2-030515.	S	Replaced T1-2008.0053. Replaced by T1-2008.0053 Project 10/8/08.
October 8, 2008	T2-2008.0109	Revision to incorporate Kipper Boiler processing ranges, and PTC new/modified sources.	S	Replaced 5/08/84 letter and T2-030515. Replaced by P-2011.0132.
October 8, 2008	T1-2008.0110	Significant modification to incorporate T2-2008.0109.	S	Replaced T1-2008.0053. Replaced by T1-2008.0110 Project 60591.
January 19, 2011	T1-2008.0110 Project 60591	Administrative amendment to update Boiler 2 description.	S	Replaced T1-2008.0110. Replaced by T1-2010.0110 Project 61063.
June 1, 2012	P-2011.0132 Project 60943	Conversion of T2-2008.0109 to P-2011.0132.	S	Replaced T2-2008.0109. Replaced by P-2011.0132 Project 61459.
October 5, 2012	T1-2008.0110 Project 61063	Administrative amendment to incorporate P-2011.0132 Project 60943.	S	Replaced T1-2008.0110 Project 60591. Replaced by T1-2012.0066 Project 61126.
July 23, 2013	T1-2012.0066 Project 61126	Renewal.	S	Replaced T1-2008.0110 Project 61063. Replaced by T1-2008.0110 Project 61605.
October 7, 2015	P-2011.0132 Project 61459	PTC replacement potato dehydration production line.	S	Replaced P-2011.0132 Project 60943. Replaced by P-2011.0132 Project 62057.
May 31, 2016	T1-2012.0066 Project 61605	Administrative amendment to incorporate P-2011.0132 Project 61459.	S	Replaced T1-2008.0110 Project 61126. Replaced by T1-2018.0008 Project 61995.
May 11, 2018	P-2011.0132 Project 62057	DEQ-initiated revision for typographical correction.	S	Replaced P-2011.0132 Project 61459. Replaced by P-2011.0132 Project ID 62264.
July 18, 2018	T1-2018.0008 Project 61995	Renewal.	A	Replaced T1-2012.0066 Project 61605.
May 17, 2019	P-2011.0132 Project 62134	PTC modification to install a new dehydration line and replace two boilers and a belt dryer.	T (Will be terminated upon issuance of this permit	Replaced P-2011.0132 Project 62057.

Issue Date	Project Number	Project	Status	History Explanation
December 6, 2019	P-2011.0132 Project 62264	PTC modification to increase production of Process A, to install a new flake line and to replace a belt dryer in Process B, and to install two new boilers to replace Boiler 1, to make the other two existing boilers as backup boilers, and to limit annual steam production of Kipper boiler.	A	Modifying and replacing P-2011.0132 project 62057 issued on May 11, 2018 This PTC terminates P-2011.0132 project 62134 issued on May 17, 2019, as if P-2011.0132 project 62134 has never been issued. Refer to the explanations under Application Scope section for details.

Application Scope

This PTC is for a modification at an existing Tier I facility.

This permitting action is for the following changes at BAF:

- Install two new natural gas-fired boilers with low-NOx burners,
- Remove the option to fire coal in Kipper & Sons boiler, limit its annual steam usage, and use it as a backup or standby unit,
- Remove Boiler 1,
- Use the existing Boiler 2 largely as a backup or standby unit and only operate when Kipper & Sons boiler is not operating,
- Install a new potato flake production line in Process B, specifically, install four steam-heated flake drum dryers with two wet scrubbers each control emissions from two drum dryers,
- Replace an existing steam-heated belt dryer (associated with the existing stacks denoted 613/614, 615/616, and 638) in Process B with a natural gas-fired belt dryer being relocated from BAF Blackfoot facility in Idaho,
- Increase maximum daily production rate of Process A,
- Install seven new NG direct-fired air make-up units associated with the expansion, and
- Relocate Kipper & Sons boiler wood fuel storage pile

In October 19, 2018, BAF submitted a 15-day pre-permit construction application. The pre-permit construction was approved, and PTC No. P-2011.0132 project 62134 was issued on May 17, 2019.

Prior to the issuance of the May 17, 2019, permit, BAF requested to change the application scope (e.g., keeping the wood-fired Kipper & Sons boiler as a backup steam source instead of removing it completely.) Because the construction had begun under the 15-day pre-permit construction approval, to avoid compliance complications, DEQ went ahead with the issuance of the permit.

To address the above application scope change and to include additional changes, BAF has submitted this application to entirely replace the October 19, 2018, permit application and consequently to terminate the May 17, 2019, PTC which was issued based on the 2018 permit application.

As a result, this permitting action will be process as a modification to PTC No. P-2011.0132 project 62057 issued on May 11, 2018, and will terminate PTC No. P-2011.0132 project 62134 issued on May 17, 2019, as if PTC No. P-2011.0132 project 62134 has never been issued.

Application Chronology

July 11, 2019	DEQ received an application.
July 1, 2019	DEQ received an application fee
August 5 and 7, 2019	DEQ received additional information

August 8, 2019	DEQ determined that the application was complete.
September 25, 2019	DEQ made available the draft permit and statement of basis for peer and regional office review.
October 2, 2019	DEQ made available the draft permit and statement of basis for applicant review.
October 22 – November 21, 2019	DEQ provided a public comment period and EPA review on the proposed action.
November 6, 2019	DEQ received the permit processing fee.
November 27, 2019	DEQ provided a proposed permit for EPA 45-day review on the proposed action.
December 6, 2019	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
Boilers		
KIPPER	Kipper & Sons Boiler Manufacturer: Kipper & Sons Model: N/A S/N: 1300 Heat input rating: 90.0 MMBtu/hr Maximum steam production rate: 65,000 lb/hr Fuel: wood Date installed: 1981 Permitted annual steam production rate: 189,800,000 lb/yr	Multiclone and Wet Scrubber in series
BOILER2	Boiler 2 Manufacturer: Murray Model: MCF3-43 S/N: 10509 Heat input rating: 49.9 MMBtu/hr Maximum steam production rate: 40,000 lb/hr Fuels: natural gas Date installed: 2010	None
BLR1A	Boiler 1A Manufacturer: Indeck Keystone Model: KD3.0068 Type D Heat input rating: 98 MMBtu/hr Maximum steam production rate: 80,600 lb/hr Fuel: natural gas Date of construction: 2018	Low-NO_x burner
BLR2A	Boiler 2A Manufacturer: Indeck Keystone Model: KD3.0068 Type D Heat input rating: 98 MMBtu/hr Maximum steam production rate: 80,600 lb/hr Fuel: natural gas Date of construction: 2018	Low-NO_x burner
Process A		
7020	Cooler/Dryer 7020 (Cooler vent), 43,333 lb/hr	None
7101	Cooler/Dryer 7101 (Dryer, 6.5 MMBtu/hr, natural gas-fired), 21,667 lb/hr	None
7102	Cooler/Dryer 7102 (Dryer, 6.5 MMBtu/hr, natural gas-fired), 21,667lb/hr	None
7019	Cooler/Dryer 7019 (Dryer, 6.6 MMBtu/hr, steam and natural gas), 43,333 lb/hr	None
7001	Cooler/Dryer 7001 (Dryer, steam-heated), 5,417 lb/hr	None
7027	Cooler/Dryer 7027 (Cooler), 5,417 lb/hr	None

Source ID No.	Sources	Control Equipment
7006	Material Recovery Unit 7006, 43,333 lb/hr	None
Process B		
P4A, P4BCD	Proctor 4 Dryer (a belt dryer) 2,000 lb product/hr, natural gas-fired Stage A with one stack: 8.8 MMBtu/hr (Winnox 0200) Stage BCD with one stack: 8.8 MMBtu/hr (Winnox 0200) and 2.0 MMBtu/hr (Winnox 0100)	Low-NO_x burners
5034	Material Recovery Unit 5034	None
5037	Cooler/Dryer 5037 (Cooler/dryer vent, dryer is steam heated)	None
4000	Cooler/Dryer 4000 (Dryer, steam heated)	None
228	Cooler/Dryer 228 (Dryer, natural gas-fired, 16.1 MMBtu/hr that is 9.66 MMBtu/hr for the first exhaust and 6.44 MMBtu/hr for the second exhaust)	None
234	Cooler/Dryer 234 (Second exhaust from dryer 228)	None
707	Material Recovery Unit 707 (fabric filter)	None
725	Material Recovery Unit 725 (fabric filter)	None
8	Material Recovery Unit 8 (fabric filter)	None
5001	Material Recovery Unit 5001	None
5000	Material Recovery Unit 5000 (fabric filter)	None
432	Material Recovery Unit 432 (fabric filter)	None
322	Material Recovery Unit 322	None
572	Material Recovery Unit 572 (vent from material recovery cyclone in animal feed load-out system)	None
33	Vegetable Dryer M33 (Dryer, natural gas-fired, 2.7 MMBtu/hr)	None
44	Vegetable Dryer M44 (Dryer, natural gas-fired, 2.75 MMBtu/hr)	None
56	Vegetable Dryer M56 (Dryer, natural gas-fired, 1.6 MMBtu/hr)	None
62	Vegetable Dryer M62 (Dryer, natural gas-fired, 1.6 MMBtu/hr)	None
86	Vegetable Dryer M86 (Dryer, steam heated)	None
FLK_N	Flake Drum Dryer #1, steam-heated, 3,000 lb/hr	MicroMist Scrubber System Wet Scrubber
	Flake Drum Dryer #2, steam-heated, 3,000 lb/hr	
FLK_S	Flake Drum Dryer #3, steam-heated, 3,000 lb/hr	MicroMist Scrubber System Wet Scrubber
	Flake Drum Dryer #4, steam-heated, 3,000 lb/hr	
Flake AMU #1	Flake Air Makeup Unit #1, 4.86 MMBtu/hr	Low-NO_x burner
Flake AMU #2	Flake Air Makeup Unit #2, 4.86 MMBtu/hr	Low-NO_x burner
Flake Wet Process AMU#3	Flake Wet Process Air Makeup Unit #3, 2.86 MMBtu/hr	Low-NO_x burner
SLAB AMU#4	SLAB Air Makeup Unit #4, 1.29 MMBtu/hr	Low-NO_x burner
Potato Cleaning AMU#5	Potato Cleaning Air Makeup Unit #5, 0.72 MMBtu/hr	Low-NO_x burner
Boiler Room North AMU#6	Boiler Room Air Makeup Unit #6, 2.50 MMBtu/hr	Low-NO_x burner
Boiler Room North AMU#7	Boiler Room Air Makeup Unit #7, 2.50 MMBtu/hr	Low-NO_x burner
n/a	Plant Space Heaters (30.8 MMBtu/hr)	None
RX-OBI1	Reyco Unit (13.2 MMBtu/hr), installed in 2014	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 facility (see Appendix A) for this proposed project. Emissions estimates of criteria pollutant, HAP PTE were based on emission factors from AP-42, Section 1.4 (7/98), manufacturers and vendors guarantee, source testing or measurements performed at the facility or at other facilities with similar equipment, and process information specific to the facility for this proposed project. Space heaters are assumed using 50% of 8,760 hours per year.

Uncontrolled Potential to Emit

Using the definition of Potential to Emit, uncontrolled Potential to Emit is then defined 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 **not** be treated as part of its design **since** the limitation or the effect it would have on emissions **is not** state or federally enforceable.

The uncontrolled Potential to Emit is used to determine if a facility is a "Synthetic Minor" source of emissions. Synthetic Minor sources are facilities that have an uncontrolled Potential to Emit for regulated air pollutants or HAPs above the applicable Major Source threshold without permit limits. As the facility classification for Title V program was previously determined for permitting project, T2-2008.0109 dated October 8, 2008 (based upon T2-030515), the uncontrolled PTE will not be presented for this 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.

This is an existing facility. Therefore, post project emissions from the previous permitted project can be used for pre-project emissions for this project. The post project emissions calculated for permitting project, P-2011.0132 project 61457, dated October 7, 2015, will be presented as the pre-project PTE except for $PM_{10}/PM_{2.5}$ emissions from stacks 7019, 322, and 572 as discussed in the footnotes e) & f) of the following Table.

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

Emissions Unit	$PM_{10}/PM_{2.5}$		SO_2		NO_X		CO[c]		VOC		CO_2e[d]
	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]	T/yr[b]
Kipper & Sons Boiler	16.3	71.20	48.53	214.00	25.27	110.70	51.34	224.88	2.71	10.97	76,869
Boiler 1	0.39	1.70	0.12	0.54	5.10	22.33	4.28	18.76	0.28	1.23	27,331
Boiler 2	0.37	1.63	0.12	0.51	4.89	21.43	4.11	18.00	0.27	1.18	26,227
Cooler/Dryer 7020	0.41	1.82	0	0	0	0	0	0	0	0	0
Cooler/Dryer 7101	2.16	9.47	0.12	0.51	0.33	1.42	1.69	7.40	0.04	0.15	3,416
Cooler/Dryer 7102	2.16	9.47	0.12	0.51	0.33	1.42	1.69	7.40	0.04	0.15	3,416
Cooler/Dryer 7019 [e]	0.80	3.48	0.22	0.96	0.33	1.45	1.72	7.52	0.04	0.16	3,469
Cooler/Dryer 7001	0.23	1.03	0.03	0.11	0	0	0	0	0	0	0
Cooler/Dryer 7027	0.04	0.18	0	0	0	0	0	0	0	0	0
Material Recovery Unit 7006	0.12	0.54	0	0	0	0	0	0	0	0	0
Material Recovery Unit 5034	0.02	0.07	0	0	0	0	0	0	0	0	0
Cooler/Dryer 5037	1.29	5.66	1.87	8.19	0	0	0	0	0	0	0
Cooler/Dryer 4000	1.72	7.53	0.26	1.14	0	0	0	0	0	0	0
Cooler/Dryer 228	1.10	4.80	0.19	0.84	0.48	2.12	2.51	11.00	0.05	0.23	5,077
Cooler/Dryer 234	0.31	1.37	0.06	0.28	0.32	1.41	1.67	7.33	0.03	0.15	3,385
Cooler/Dryer 638	1.09	4.80	0.17	0.74	0	0	0	0	0	0	0
Emissions Unit	**$PM_{10}/PM_{2.5}$**		**SO_2**		**NO_X**		**CO[c]**		**VOC**		**CO_2e[d]**
	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]**	**T/yr[b]**
Cooler/Dryer 613/614	0.85	3.74	0.13	0.56	0	0	0	0	0	0	0
Cooler/Dryer 615/616	0.24	1.05	0.04	0.16	0	0	0	0	0	0	0
Material Recovery Unit 707	0.00	0.01	0	0	0	0	0	0	0	0	0
Material Recovery Unit 725	0.05	0.21	0	0	0	0	0	0	0	0	0
Material Recovery Unit 8	0.05	0.21	0	0	0	0	0	0	0	0	0

Material Recovery Unit 5001	0.24	1.07	0	0	0	0	0	0	0	0	0
Material Recovery Unit 5000	0.05	0.21	0	0	0	0	0	0	0	0	0
Material Recovery Unit 432	0.05	0.21	0	0	0	0	0	0	0	0	0
Material Recovery Unit 322[f]	0.00	0.00	0	0	0	0	0	0	0	0	0
Material Recovery Unit 572[f]	0.06	0.25	0	0	0	0	0	0	0	0	0
Vegetable Dryer M33	0.44	1.34	0.06	0.20	0.08	0.34	0.14	0.63	0.15	0.64	
Vegetable Dryer M44	0.27	0.83	0.04	0.12	0.08	0.35	0.15	0.64	0.15	0.65	
Vegetable Dryer M56	0.12	0.36	0.02	0.06	0.05	0.20	0.09	0.37	0.09	0.38	
Vegetable Dryer M62	0.02	0.07	0.01	0.04	0.05	0.20	0.09	0.37	0.09	0.38	
Vegetable Dryer M86	0.01	0.02	0.01	0.03	0	0	0	0	0	0	0
Heaters	0.23	0.50	0.07	0.16	1.54	3.37	8.01	17.54	0.17	0.36	16,188
Pre-project Totals	**31.19**	**134.83**	**52.19**	**229.66**	**38.85**	**166.74**	**77.49**	**249.00**	**4.11**	**16.63**	**99,000**

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.
c) CO emissions are required to be less than 249.00 T/yr.
d) Greenhouse gas emissions are required to be less than 99,000 Tyr.
e) As discussed in the application for this project, the $PM_{2.5}$ and PM_{10} PTE for stack 7019 was revised based on an updated emission factor developed after testing of a similar stack at the BAF Blackfoot Facility. The test report is provided in Appendix C of the application. This updated emission factor is used to calculate both pre-project and post-project PTE.
f) As discussed in the application for this project, the PTE for all particulate matter species for stacks 322 and 572 was revised to correct for an erroneous (high) operating rate used in issuance of PTC P-2011.0132, Project ID 61459, October 7, 2015. The adjustment reduces estimated emissions from these stacks.

Note: The highlighted emissions units in the table above will be removed as a result of this project.

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.

An emission inventory was developed for the facility (see Appendix A) associated with this proposed project. Emissions estimates of criteria pollutant, HAP PTE were based on emission factors from AP-42, Section 1.4 (7/98), manufacturers and vendors guarantees, source testing or measurements performed at the facility or at other facilities with similar equipment, and process information specific to the facility for this proposed project. Space heaters are assumed using 50% of 8,760 hours per year.

Table 3 POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS [a), b), c)]

Source Description	CO		NOx		SO_2		$PM_{2.5}$		PM_{10}		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Boiler 1A	7.37	32.01	1.89	8.05	0.06	0.25	0.73	3.20	0.73	3.20	0.54	2.34
Boiler 2A	7.37	32.01	1.89	8.05	0.06	0.25	0.73	3.20	0.73	3.20	0.54	2.34
Kipper Boiler	60.25	87.97	21.58	31.51	2.25	3.29	13.57	19.81	13.57	19.81	3.18	4.65
Boiler 2	4.11	18.00	4.89	21.43	0.12	0.51	0.37	1.63	0.37	1.63	0.27	1.18
Cooler/Dryer 7020	0.14	0.32	0.05	0.10	0.00	0.00	0.44	1.93	0.44	1.93	0.00	0.01
Cooler/Dryer 7101	2.17	8.46	0.49	1.79	0.13	0.54	2.35	10.27	2.35	10.27	0.05	0.17
Cooler/Dryer 7102	2.17	8.45	0.49	1.79	0.13	0.54	2.35	10.27	2.35	10.27	0.05	0.17
Cooler/Dryer 7019	2.06	8.28	0.45	1.72	0.23	1.02	0.89	3.92	0.90	3.92	0.04	0.17
Cooler/Dryer 7001	0.06	0.13	0.02	0.04	0.03	0.12	0.25	1.09	0.25	1.09	0.00	0.00
Cooler/Dryer 7027	0.05	0.10	0.02	0.03	0.00	0.00	0.04	0.19	0.04	0.19	0.00	0.00
Material Recovery Unit 7006	0.04	0.08	0.01	0.03	0.00	0.00	0.13	0.57	0.13	0.57	0.00	0.00
Material Recovery Unit 5034	0.02	0.04	0.01	0.01	0.00	0.00	0.02	0.07	0.02	0.07	0.00	0.00
Cooler/Dryer 5037	0.19	0.42	0.06	0.14	1.87	8.19	1.29	5.66	1.29	5.66	0.01	0.01
Cooler/Dryer 4000	0.50	1.10	0.16	0.36	0.26	1.14	1.72	7.53	1.72	7.53	0.01	0.03
Cooler/Dryer 228	2.81	11.65	0.58	2.33	0.19	0.84	1.10	4.80	1.10	4.80	0.06	0.25
Cooler/Dryer 234	2.11	8.29	0.46	1.72	0.06	0.28	0.31	1.37	0.31	1.37	0.04	0.18
Vegetable Dryer M33	0.26	0.90	0.12	0.43	0.06	0.20	0.44	1.34	0.44	1.34	0.15	0.65

Source Description	CO		NOx		SO_2		$PM_{2.5}$		PM_{10}		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Vegetable Dryer M44	0.18	0.70	0.09	0.37	0.04	0.12	0.27	0.83	0.27	0.83	0.15	0.65
Vegetable Dryer M56	0.13	0.47	0.06	0.23	0.02	0.06	0.12	0.36	0.12	0.36	0.09	0.38
Vegetable Dryer M62	0.15	0.49	0.07	0.24	0.01	0.04	0.02	0.07	0.02	0.07	0.09	0.38
Vegetable Dryer M86	0.12	0.26	0.04	0.09	0.01	0.03	0.01	0.02	0.01	0.02	0.00	0.01
Flake North (two flake drums)	0.33	0.72	0.27	0.59	0.00	0.01	0.45	0.46	0.45	1.99	0.03	0.06
Flake South (two flake drums)	0.33	0.72	0.27	0.59	0.00	0.01	0.45	0.46	0.45	1.99	0.03	0.06
Proctor 4 Belt Dryer A Stage [e]	1.94	7.76	0.38	1.41	0.01	0.02	0.42	1.82	0.42	1.82	0.06	0.23
Proctor 4 Belt Dryer BCD Stages [e]	2.16	8.72	0.38	1.41	0.01	0.03	1.73	7.56	1.73	7.56	0.06	0.26
Material Recovery Unit 707	0.02	0.05	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
Material Recovery Unit 725	0.02	0.04	0.01	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00
Material Recovery Unit 8	0.04	0.09	0.01	0.03	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00
Material Recovery Unit 5001	0.01	0.03	0.00	0.01	0.00	0.00	0.24	1.06	0.24	1.06	0.00	0.00
Material Recovery Unit 5000	0.01	0.03	0.00	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00
Material Recovery Unit 432	0.01	0.02	0.00	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00
Material Recovery Unit 322	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
Material Recovery Unit 572	0.01	0.03	0.00	0.01	0.00	0.00	0.06	0.25	0.06	0.25	0.00	0.00
Fugitive Sources that do not meet the definition of "fugitive emissions" in Air Rules												
Main	2.88	6.32	0.94	2.05	0.01	0.02	0.01	0.01	0.01	0.02	0.09	0.19
Old Boilerhouse	0.78	1.71	0.15	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04
New Boilerhouse	0.12	0.26	0.10	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.02
Flake	0.27	0.59	0.22	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.05
Receiving	0.46	1.01	0.18	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.04
Woodpile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	3.41	4.97
Post-Project Total Point Source Emissions[d]	**101.68**	**248.3**	**36.35**	**88.0**	**5.56**	**17.5**	**31.14**	**91.6**	**31.15**	**94.6**	**9.02**	**19.5**

a) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
b) Tons per consecutive 12-month period.
c) Emissions from air makeup units are allocated to the processes and are included in the emissions of the above stacks and buildings. Refer to Appendix A "Emissions Summary" page and Appendix A.2 of this SOB for more details.
d) Exclude the emissions from Boiler 2 as it shall not operate simultaneously with Kipper & Sons boiler. Exclude fugitive emissions.
e) Use CO EF of 0.182 lb/MMBtu from November 2011 source test report Table 7 instead of CO EF of 84 lb/MMscf or 0.08235 lb/MMBtu from AP-42.

Note: The highlighted emissions units in the table above will be installed as a result of this project.

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. With change in PTE, the facility is no longer a synthetic minor PSD source for CO but a PSD minor source.

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	31.19	134.83	52.19	229.66	38.85	166.74	77.49	249.00	4.11	16.63
Post Project Potential to Emit	31.15	94.6	5.56	17.5	36.35	88.0	101.68	248.3	5.2	13.0
Changes in Potential to Emit	**-0.04**	**-40.23**	**-46.63**	**-212.16**	**-2.50**	**-78.74**	**24.19**	**-0.70**	**1.09**	**-3.63**

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 for the emissions units involved in the project 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)	Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Dichlorobenzene	0.00E-03	4.52E-05	4.52E-05	2.00E+01	N
Hexane	0.00E-03	6.77E-02	6.77E-02	1.20E+01	N
Pentane	0.00E-03	3.48E-01	3.48E-01	1.18E+02	N
Toluene	0.00E-03	1.28E-04	1.28E-04	2.50E+01	N
Chromium	0.00E-03	5.26E-05	5.26E-05	3.30E-02	N
Cobalt	0.00E-03	3.16E-06	3.16E-06	3.30E-03	N
Manganese	0.00E-03	1.43E-05	1.43E-05	3.33E-01	N
Selenium	0.00E-03	9.02E-07	9.02E-07	1.30E-02	N
Nitrous Oxide	0.00E-03	2.94E-01	2.94E-01	6.00E+00	N

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 carcinogenic screening ELs identified in IDAPA 58.01.01.586 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.

Pre- and post-project, as well as the change in, carcinogenic TAP emissions for the new emissions units involved in the project are presented 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)
PAH (Idaho)		2.58E-05	2.58E-05	9.10E-05	N
POM[a] (Idaho)	0.00E-03	4.29E-07	4.29E-07	2.00E-06	N
Benzene	0.00E-03	7.90E-05	7.90E-05	8.00E-04	N
Formaldehyde	**0.00E-03**	**2.82E-03**	**2.82E-03**	**5.10E-04**	**Y**
Arsenic	**0.00E-03**	**7.52E-06**	**7.52E-06**	**1.50E-06**	**Y**
Beryllium	0.00E-03	4.53E-07	4.53E-07	2.80E-05	N
Cadmium	**0.00E-03**	**4.15E-05**	**4.15E-05**	**3.70E-06**	**Y**
Chromium(VI)	**0.00E-03**	**2.63E-06**	**2.63E-06**	**5.60E-07**	**Y**
Nickel	**0.00E-03**	**7.91E-05**	**7.91E-05**	**2.70E-05**	**Y**

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.

Some carcinogenic TAP emissions increases have exceeded their respective ELs as a result of this project. Modeling is required for Arsenic compounds, cadmium and compounds, chromium IV, formaldehyde, and nickel and compounds because 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 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 (lb/hr)	PTE (T/yr)
EPA total listed HAPs	0.25	1.095
Totals	**0.25**	**1.095**

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of PM_{10}, $PM_{2.5}$, NO_X, and CO from new emissions units of this project exceeded published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. In addition, TAP emissions from this project were above applicable screening emission levels (ELs) for arsenic compounds, cadmium and compounds, chromium VI, formaldehyde, and nickel and compounds. Refer to the Emissions Inventories section for additional information concerning the emission inventories.

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

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

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

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Madison 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 THAPs (Total 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
$PM_{10}/PM_{2.5}$	>100	<100	**100**	SM
SO_2	>100	<100	**100**	SM
NO_X	>100	<100	**100**	SM
CO	>100	>100	**100**	A
VOC	<100	<100	**100**	B
HAP (single)	<10	<10	**10**	B
HAP (Total)	<25	<25	**25**	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 proposed new emissions units involved in the project. 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.

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 have a potential to emit greater than 100 tons per year for CO as demonstrated previously in the Emissions Inventories Section of this analysis. Therefore, this facility is classified as a major facility, as defined in IDAPA 58.01.01.008.10.

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 two new natural gas-fired boilers (Boiler 1A and Boiler 2A) and the existing natural gas-fired boiler (Boiler 2) are subject to 40 CFR 60, Subpart Dc - Standards of Performance for Small Industrial-Commercial-Institutional Steam Generating Units because each unit for which construction, modification, or reconstruction is commenced after June 9, 1989 and that has a maximum design heat input capacity of 100 MMBtu/h or less, but greater than or equal to 10 MMBtu/hr.

The existing boiler (Boiler 2) is not being modified as a result of this project. Therefore, refer to the Statement of Basis for permit P-2011.0132, project 60943, dated June 1, 2012, for the compliance discussion of Subpart Dc.

Kipper & Sons Boiler was installed in 1981 and is not subject to 40 CFR 60 Subpart Dc. The removal of coal as a fuel is not a "modification" as defined in 40 CFR 60.

Detailed requirements of the subpart will be included in the Tier I operating permit.

NESHAP Applicability (40 CFR 61)

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

GACT/MACT Applicability (40 CFR 63)

Kipper & Sons boiler is subject to 40 CFR 63 Subpart JJJJJJ - National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources. The applicable requirements are

included in the existing Tier I operating permit.

Permit Conditions Review

This section describes only those permit conditions that have been added, revised, modified or deleted as a result of this permitting action. Old permit refers to PTC No. P-2011.0132 of project 62057, issued on May 11, 2018.

Permit Condition 1.1 describes the proposed project.

Permit Condition 1.3 states that this PTC modifies and replaces PTC No. P-2011.0132 project 62057, issued on May 11, 2018 and terminates PTC No. P-2011.0132 project 62134, issued on May 17, 2019, as if PTC No. P-2011.0132 project 62134 was not issued. (See Permit Scope section for additional information.)

Table 1.1 was updated to reflect the existing equipment being removed and the new equipment being installed as a result of this project.

Facility-Wide Conditions

Permit Condition 2.2 specifies the testing methods.

KIPPER BOILER

Revised Permit Condition 3.1

Revised Permit Condition 3.1 describe that the permittee has requested to eliminate the option of burning coal. Therefore the use of coal as a fuel to Kipper & Sons boiler shall be made inoperative. In addition, Kipper & Sons boiler will be used as a backup or standby boiler with an annual steam production limit of 189,800,000 pound per year.

Revised Permit Condition 3.3

Permit Condition 3.3 establishes emissions limits for Kipper & Sons boiler. These $PM_{2.5}$, PM_{10}, NOx, and CO emissions rates are based on burning wood only and are used in the modeling analysis. The short term $PM_{2.5}$, PM_{10}, and CO (1-hr and 8-hr) ambient impacts from this project are 65%, 18%, 16% and 34% of the respective significant impact levels. The annual $PM_{2.5}$ ambient impact of this project is negligible. The facility-wide 1-hr NO_2 ambient impact is 95% of the NAAQS when Kipper & Sons boiler is used as a backup boiler and is 71% of the NAAQS when Boiler 2 is used as a backup boiler. The facility-wide annual NO_2 ambient impact is 18% of the NAAQS. In addition The CO PTE is 248.3 T/yr with an annual steam production limit for Kipper & Sons boiler. Without the steam production limit, the CO PTE would be greater than major source threshold of 250 T/yr.

Based on the above information and to ensure compliance with the standards, the emissions limits for $PM_{2.5}/PM_{10}$, and NOx are established. The annual emissions limits for Kipper & Sons boiler are included because Kipper & Sons boiler takes annual steaming production limits to ensure compliance with the standards. Emissions of other criteria pollutants should be inherently limited due to these emissions limits. The PM_{10} emissions limits are updated to reflect that the option of burning coal in Kipper & Sons boiler is eliminated. The CO source test and monitoring in the existing permit are kept as they were.

Remove Old Permit Condition 3.4

Revised Permit Condition 3.4 is replaced with "reserved". As a result of removing the ability to burn coal, SO_2 limit to keep facility-wide SO_2 below 250 T/yr is no longer needed.

Revised Permit Condition 3.5

The content related to burning coal is removed.

Revised Permit Conditions 3.6 and 3.7

Permit Conditions 3.6 and 3.7 are revised to permit Kipper & Sons boiler to burn wood exclusively and to remove the boiler's ability to burn coal.

Revised Permit Condition 3.8

Permit Condition 3.8 has limited the annual steam production rate to ensure compliance with the annual emissions limits in Table 3.2 and to limit Kipper's CO emissions below 88 T/yr, as one of the several factors to keep facility-wide CO PTE < 250 T/yr.

Revised Permit Condition 3.9

Permit Condition 3.9 is revised to add $PM_{2.5}$ to the permit condition.

New Permit Condition 3.10

Permit Condition 3.10 regarding coal burning is replaced with the new content: Kipper & Sons boiler shall not be operating concurrently with Boiler 2. According to the modeling memo, to demonstrate compliance with the NAAQS, the Boiler 2 and Kippur boiler will only run exclusively.

Revised Permit Condition 3.15

Permit Condition 3.15 is revised to add annual steam production monitoring requirements. Any requirements related to burning coal are removed.

Replace old Permit Condition 3.16 with new content

Old Permit Condition 3.16 regarding coal is replaced with the new content. It reads as following:

"*3.16 Operation Requirement Monitoring*

The permittee shall keep records, such as Kipper boiler and Boiler 2 steaming production records containing date and time to demonstrate that the Kipper boiler does not operate concurrently with Boiler 2."

Permit Condition 3.28

Permit Condition 3.28 regarding CO source testing when burning wood-coal mixture is replace by NOx and CO source testing requirements when burning wood.

According to the modeling memo, the facility-wide 1-hr NO_2 ambient impact is 95% of the NAAQS when using Kipper & Sons boiler as a backup boiler. A one-time source test to demonstrate compliance with the NOx emissions limits is required because the EF used to estimate NOx emissions is based on a 1994 emissions evaluation report. The NOx EF could change after the boiler has been used for another 25 years since the source test.

A one-time source test to verify the CO EF is required because the EF used to estimate CO emissions is based on a 1994 emissions evaluation report and because even with operational limits, the CO PTE is 248.3 T/yr, which is very close to the major source threshold of 250 T/yr for PSD program. The operational limits are an annual steam production limit for Kipper & Sons boiler and the Kipper boilie and Boiler 2 not to operate simultaneously. Without these operational limits, the CO PTE would be greater than major source threshold of 250 T/yr. In addition, the CO EF could change after the boiler has been used for another 13 years since the 2006 source test.

Because Kipper & Sons boiler will be used as a backup or standby boiler, a five-year timeframe, or a DEQ approved test timeframe is given in the permit.

Permit Condition 3.29

A source test was performed on June 28, 2017. The measured PM_{10} emissions rate was 11.3 lb /hr at the average boiler steaming rate of 55,895 pounds per hour during the test. It would be 13.1 lb/hr if proportionate it to boiler's rated steam rate of 65,000 lb steam/hr. The proportionated emissions rate value is close to the PM_{10} emissions rate of 13.6 lb/hr estimated using the PM_{10} EF in the 1994 emissions evaluation report.

Because the boiler was tested in June 28, 2017, because the PM/PM_{10} emissions from Kipper & Sons boiler appear relatively stable; because Kipper & Sons boiler is subject to CAM requirements, and because the PM_{10} emissions rate in the revised permit is reduced from 16.3 lb/hr to 13.6 lb/hr; a 10-year timeframe is given in the permit. Because the emissions limits are the same for PM_{10} and $PM_{2.5}$, the permittee only need to perform PM_{10} source test to demonstrate compliance with the PM_{10} and $PM_{2.5}$ limits.

Remove Old Permit Condition 3.30

Permit Condition 3.30 regarding coal combustion is replaced by "reserved" as coal is no longer allowed to be burned in Kipper & Sons boiler.

BOILER 2, BOILER 1A, AND BOILER 2A

Revised Permit Conditions 4.1, 4.2, 4.4 – 4.6

Permit Conditions 4.1, 4.2, 4.4 – 4.6 are revised to reflect the removal of Boiler 1 and installation of new Boiler 1A and Boiler 2A.

New Permit Condition 4.3

Permit Condition 4.3 establishes emissions limits for the three natural gas-fired boilers. The table also lists the emissions from air makeup units (AMUs) allocated to the boiler stacks. These $PM_{2.5}$, PM_{10}, NOx, and CO emissions rates are used in the modeling analysis. The short term $PM_{2.5}$, PM_{10}, and CO (1-hr and 8-hr) ambient impacts from this project are 65%, 18%, 16% and 34% of the respective significant impact levels. The annual $PM_{2.5}$ ambient impact from this project is negligible. The facility-wide 1-hr NO_2 ambient impact is 95% of the NAAQS when Kipper & Sons boiler is used as a backup boiler and is 71% of the NAAQS when Boiler 2 is used as a backup boiler. The facility-wide annual NO_2 ambient impact is 18% of the NAAQS. In addition, the CO PTE is 248.3 T/yr with the operational limits. Without the operational limits, the CO PTE would be greater than major source threshold of 250 T/yr.

Based on the above information and to ensure compliance with the standards, the emissions limits for $PM_{2.5}$, PM_{10}, NOx, and CO (refer to Section 8 of the permit for CO limit) are established. Because it is assumed that the boilers will be operating 8,760 hr/yr, annual emissions limits are inherently limited by the hourly limits and therefore are not included. Emissions of other criteria pollutants should be inherently limited due to these emissions limits.

For allocation AMUs emissions, refer to Appendix A for more details.

Revised Permit Condition 4.6

"Total gas combusted by Boilers 1A and 2A" is added, and Boiler 1 is removed. Also see discussions under Revised Permit Condition 8.3 in this section.

New Permit Conditions 4.7 and 4.8

Boiler 1A and 1B are new boilers. NOx impacts from the new boilers are less than 15% of the total impact according to DEQ's modeler. Therefore, just a one-time perform source test to demonstrate compliance with the NOx emissions limit is required. The permittee is required to monitor and record the boiler steaming rate during each source test.

$PM_{2.5}$ and PM_{10}

The $PM_{2.5}$ and PM_{10} emissions are estimated using the EFs from AP-42 in the revised EI spreadsheet. The EFs from EPA"NG_process_gas_LPG_PM_factors" spreadsheet could underestimate the emissions and were not used in the revised EI spreadsheet submitted on 10/7/2019 through email.

CO and NOx:

Emission factors for CO and NOx are based on the vendor emissions guarantee, expressed as ppmvd @ 3% oxygen.

PROCESS A (DRYING PROCESS AND MATERIAL TRANSFER SYSTEMS)

Revised Permit Condition 5.1

"This permitting action increases production limits of Process A from 61 T/day to 65 T/day." is added to PC 5.1.

Revised Permit Condition 5.3

Emissions limits for PM_{10} are revised to reflect emissions increase for stacks 7101 and 7102 as a result of production increase and emissions decrease for Stack 7019 as a result of its EF update.

Because the facility-wide 1-hr NO_2 ambient impact is 95% of the NAAQS when Kipper & Sons boiler is used as a backup boiler and is 71% of the NAAQS when Boiler 2 is used as a backup boiler, Permit Condition 5.3 establishes NOx emissions limits to ensure compliance with the 1-hr NOx NAAQS. The short term $PM_{2.5}$ ambient impacts from this project is 65% of the significant impact levels, therefore a full ambient impact analysis was not performed. To ensure project ambient impact below the significant level, Permit Condition 5.3 establishes $PM_{2.5}$ emissions limits.

Revised Permit Condition 5.4

This permitting action allows Process A throughput limit increase from 61 per 24-hour work day to 65 tons per 24-hour work day.

PROCESS B (DRYING PROCESS AND MATERIAL TRANSFER SYSTEMS

Table 6.1 was updated to reflect the existing equipment being removed and the new equipment being installed as a result of this project.

Revised Table 6.1

The existing steam-heated dryer with emissions points of Cooler/Dryer 638, Cooler/Dryer 613/614 and Cooler/Dryer 615/616 will be replaced by a natural gas-fired Proctor 4 Belt Dryer relocated from BAF Blackfoot facility. Four new steam-heated flake drum dryers are proposed to be installed. Table 6.1 is revised to reflect these changes in Process B.

Revised Permit Condition 6.3 and revised Table 6.2

Permit Condition 6.3 is revised to reflect the aforementioned changes as a result of this project.

Because the facility-wide 1-hr NO_2 ambient impact is 95% of the NAAQS when Kipper & Sons boiler is used as a backup boiler and is 71% of the NAAQS when Boiler 2 is used as a backup boiler, Permit Condition 6.3 establishes NOx emissions limits to ensure compliance with the 1-hr NOx NAAQS. The short term $PM_{2.5}$ ambient impacts from this project is 65% of the significant impact levels, therefore a full ambient impact analysis was not performed. To ensure project ambient impact below the significant level, Permit Condition 6.3 establishes $PM_{2.5}$ emissions limits. It is assumed that PM_{10} emissions are the same as $PM_{2.5}$ emissions for Process B.

Table 6.2 is revised to reflect the addition of the new dryers and to include $PM_{2.5}/PM_{10}$ and NOx emissions rates used in the modeling, but only the emissions units with 1-hr NO_2 emissions rate equal to or greater than 0.2 lb/hr are listed in the table. For other emissions points with 1-hr NO_2 emissions rate less than 0.2 lb/hr, please refer to the modeling memo for details.

Apparently there is a mistake in Table 6.2 of the old permit: while the total PM_{10} potential to emit of the stack group 4000, 228, and 234 is 3.13 lb/hr, Table 6.2 in the old permit allows "the arithmetic average of the emission rates from the combined 3 stacks in the group shall not exceed the listed emission limit: 3.2 lb/hr". The table is revised and mistakes are corrected.

The table also lists the emissions from air makeup units (AMUs) allocated to the boiler stacks. For allocation AMUs emissions, refer to Appendix A for more details.

Revised Permit Condition 6.4

Permit Condition 6.4 is revised to add production limit for the new flaker line. The flake line has four steam heated-drum dryers, each has a production rate of 3,000 lb/hr. The 24-hr flake line production rate is calculated as: 4 x (3,000 lb/hr) / (2000 lb/T) * (24 hr/24-hr work day) = 144 T/24-hr work day

The total production rate is changed from 304 T/24-hr work day to 448 T/24-hr work day, the sum of the existing production rate of 304 T/24-hr and the new flake line production rate of 144 T/24-hr work day.

New Permit Condition 6.7

Permit Condition 6.7 requires two MicroMist Scrubber System scrubbers to be installed, and each controls emissions from two flake drum dryers as described in Table 6.1 of the permit.

New Permit Conditions 6.8 and 6.10

Permit Condition 6.8 in the draft permit is revised to add parameters and operating ranges taken from the scrubber proposal provided in the application and to address facility's comments. The inlet liquid flow rate of 328 gpm to MMV stage is provided by the vendor through email to BAF on 10/4/2019.

New Permit Condition 6.11

Proctor 4 Belt Dryer

NOx emissions from Proctor 4 belt dryer are estimated using the vendor's guarantee of 25 ppm @3% O_2, The emissions from the dryer is relatively low, a test for NOx is not required for NOx emissions from Proctor 4 belt dryer.

$PM_{2.5}$ emissions rates are assumed to be the same as PM_{10} emissions rates. The PM_{10} emissions rates are estimated using EFs developed from the 2008 source test performed at Rexburg facility and using the allocation formulas developed based on November 2011 source testing of a similar belt drying production line at BAF Blackfoot Facility. A one-time source test is required to verify the PM_{10} EFs used for the EI calculation and to demonstrate compliance with $PM_{10}/PM_{2.5}$ emissions limits for the two stacks of Proctor 4 belt dryer.

Steam-Heated Flake Drum Dryers

NOx emissions from the scrubbers stacks are emissions from AMUs allocated to the stacks. The dying process itself does not emit NOx as it is steam-heated.

$PM_{2.5}$ emissions rates are assumed to be the same as PM_{10} emissions rates. The PM_{10} emissions are estimated using the EF developed based on source testing conducted on June 20-21, 2011 on the flake drums at the Gem State Processing facility in Heyburn, ID and then by applying vendor guaranteed 75% control efficiency of the MicroMist Scrubber System that will be used to control PM emissions from the flake drum dryers. AFF one-time source test on one MicroMist Scrubber System scrubber stack is required to verify the EF used for the EI calculation for the flake drum dryers and to demonstrate compliance with the emissions limits for the flake production line.

New Permit Condition 6.12

Permit Condition 6.12 specifies what parameters need to be monitoring during the test.

PLANT SPACE HEATERS

Revised Permit Condition 7.1

Permit Condition 7.1 is revised to reflect the installation of new space heaters.

Revised Permit Condition 7.2

Permit Condition 7.2 states that space heaters emissions are allocated to the process stacks. In other words, stack emissions rates used in the modeling analysis are the sum of emissions from processes and emissions allocated to stacks from the emissions of AMUs. Refer to Appendix A and B for more details.

FACILITY-WIDE CO EMISSION LIMIT

Permit Condition 8.1

Because the facility CO PTE is 248.3 T/yr, if the facility installs an exemption source, such as a 5 MMBtu/hr natural gas-fired heater in the future, the facility's CO PTE will be greater than 250 T/yr.

The agency's concern is not knowing the facility's classification when an emissions unit that emits CO is installed. To address this concern, Section 8 is developed.

PUBLIC REVIEW

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.05.c. The proposed permit was provided to EPA and affected state (i.e., State of Wyoming and Fort Hall Indian Reservation) for concurrent review. During this time, comments were submitted by BAF in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

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

Because the proposed permit is revised in response to comments received from BAF during the public comment period, DEQ is required by IDAPA 58.01.01.209.05.c.iv to send the revised proposed permit to EPA for review.

APPENDIX A – EMISSIONS INVENTORIES

	A	B	C	D
1	**GENERAL INPUT PARAMETERS**			
2	**Parameter**	**Value**	**Units**	**Discussion**
3	**General Parameters**			
4	raw potato moisture content	80%	-	generic value
5	barometric pressure - standard conditions	14.7	psi	
6	baromtric pressure at Rexburg @ 20 C	12.33		
7	barometric pressure at Rexburg @ 306 °F	13.03	psi	
8	NG, HHV	1020	BTU/scf	
9	FW, NO2	46		
10	FW, CO	28		
11	*Stoichiometric NG combustion parameters*			
12	Fd, dry exhaust gas factor	8710	dscf/MMBtu	From Table 19-2, EPA Test Method 19
13	Fw, wet exhaust gas factor	10610	wscf/MMBtu	From Table 19-2, EPA Test Method 19
14	*AP-42 Natural Gas Combustion Emission factors*			
15	PM2.5	7.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu. All PM counted as
16	PM10	7.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu. All PM counted as PM10
17	NOx (uncontrolled)	100	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
18	SO_2	0.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
19	CO	84	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
20	VOC	5.5	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
21	Pb	0.0005	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
22	**Flake Operations and Emissions**			
23	Number of drums	4		
24	Operating rate per drum	3,000	lb actual/hr	
25	Maximum Steam Demand per drum	18,000	lb/hr	
26	*Flake Exhaust Data*			
27	exhaust rate	34000	acfm/drum	from "Drum Dryer Air Permit Flow Sheet 2018.08.25.pdf"
28	exhaust temperature	120	°F	
29	*Flake Process PM Emissions Data*			
30	Estimated PM emission rate, Gem flakers	0.730	lb/hr, bone dry solids	From Emissions Inventory in May 18, 2017 "Permit-to-Construct Modification Application" for Gem State Processing Heyburn. Emissions calculations based on June 20-21, 2011 stack test, as reported in application Emission Inventory..
31	operating rate, Gem State flakers, dry	2,250	lb dry/hr	From May 18, 2017 "Permit-to-Construct Modification Application" for Gem State Processing Heyburn
32	flake moisture content	7%		process knowledge
33	*Flake scrubber*			
34	Exhaust temp	115	°F	incoming air stream is saturated, so no evaporative cooling. Minimal temperature drop due to sensible heat losses.
35	stack diameter	60	inches	
36	PM2.5/PM10 removal efficiency	75%		vendor guarantee
37				
38	**AMU data**			
39	Flake North #1	4.86	MMBtuh	see AMU calcs workbook
40	Flake North #2	4.86	MMBtuh	see AMU calcs workbook
41	Flake South	2.86	MMBtuh	see AMU calcs workbook
42	Slab	1.29	MMBtuh	see AMU calcs workbook
43	Potato Cleaning	0.72	MMBtuh	see AMU calcs workbook
44	Boiler Room North	2.50	MMBtuh	see AMU calcs workbook
45	Boiler Room North	2.50	MMBtuh	see AMU calcs workbook
46	NOx emission	50	ppmv @ 3% O_2	from "Drum Dryer Air Permit Flow Sheet 2018.08.09.pdf"
47	NOx emission - Maxon NP-LE burner	100	ppmv @ 3% O2	burner cut sheet
48	CO emission	100	ppmv @ 3% O_2	from "Drum Dryer Air Permit Flow Sheet 2018.08.09.pdf"
49	**Boilers 1A and 2A**			
50	*Operating data*			
51	Heat input	98	MMBtuh	Indeck Keystone boiler data sheet - proposal qu24561. 7/23/2018
52	Max steam rate	80,600		Indeck Keystone boiler data sheet - proposal qu24561. 7/23/2018
53	excess air	15.00%		Indeck Keystone boiler data sheet - proposal qu24561. 7/23/2018
54	oxygen content in flue gas	2.97%		Indeck Keystone boiler data sheet - proposal qu24561. 7/23/2018
55	exhaust temperature	306	°F	Indeck boiler data sheet
56	MW of flue gas	27.83		based on stoichiomtric combustion of methane and 15% excess air
57	flue gas	87219	lb/hr	Indeck Keystone boiler data sheet - proposal qu24561. 7/23/2018
58	*Emissions data*			
59	NOx emissions	15	ppmvd @ 3% O2	Project includes 9 ppmvd ultra-low NOx burners. Burners can be tuned to 15 ppmvd to provide greater flame stability.
60	CO emissions	100	ppmvd @ 3% O2	boiler mfr guarantee
61	PM10 - primary	7.6	lb/MMscf	AP-42. Table 1.4-2
62	PM2.5 - primary	7.6	lb/MMscf	
63	**P4 Replacement Dryer data**			
64	*General operations data*			
65	production rate	2000	lb/hr	per discussion with JSK 5/29/2019
66	*Process PM Emissions*			
67	Process PM10 emission factor	1.0	lb/1000 lb produced	Same as measured emissions from Dec 2008 stack test of Rexburg Proctor #3. Also, 2007 stack test of Nonpareil Proctor 5A stage = 0.93 lb PM/ton. Process emission factor selected is twice that measured rate, rounded up.

	A	B	C	D
1	**GENERAL INPUT PARAMETERS**			
2	**Parameter**	**Value**	**Units**	**Discussion**
68	Filterable PM10 fraction	70%		December 2008 stack test results for Rexburg Proctor 3 (Stack 410/411)
69	Filterable PM10 emission factor	0.70	lb/1000 lb produced	
70	consdensable PM10 fraction	30%		December 2008 stack test results for Rexburg Proctor 3 (Stack 410/411)
71	Condensible PM10 emission factor	0.30	lb/1000 lb produced	
72	***Allocation of PM emissions across process***			
73	Cumulative Filterable PM	$\%D^{1.8}$	cumulative % of filterable PM emitted	from "Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised Emission Factors", pp. 7-14 (Coal Creek Environmental Associates, LLC, April 2012)
74	Cumulative condensible PM	1.17*%D	cumulative % of condensibe PM emitted for %D ≤ 85%	
75		1.0	cumulative % of condensibe PM emitted for %D > 85%	
76	***NOx Emission factors for process burners***			
77	Winnox 0200	25.0	ppmv at 3% oxygen	Winnox 0200 data sheet
78	Winnox 0100	10.0	ppmv at 3% oxygen	Winnox 0100 data sheet
79	***Dryer Stage data***			
80	Stage A			
81	inlet moisture	81.5%		same as stack CBB in Blackfoot Facility DREX-3 line
82	burner capacity (Winnox 0200)	8.8	MMBtuh	Rick Havlicak email to John Kirkpatrick, July 19, 2018. Burners assigned to stacks Stephen Nelson email to John Kirkpatrick, July 23, 2018.
83	Stages BCD			
84	burner capacity (Winnox 0200)	8.0	MMBtuh	Rick Havlicak email to John Kirkpatrick, July 19, 2018. Burners assigned to stacks Stephen Nelson email to John Kirkpatrick, July 23, 2018.
85	burner capacity (Winnox 0100)	2.0	MMBtuh	Rick Havlicak email to John Kirkpatrick, July 19, 2018. Burners assigned to stacks Stephen Nelson email to John Kirkpatrick, July 23, 2018.
86	inlet moisture	60.0%		same as stack CTQ in Blackfoot Facility DREX-3 line
87	exit moisture	6.5%		email Rick Havlicak to Stephen Nelson, July 23, 2018.
88	***Exhaust data***			
89	Stage A Exhaust			
90	flow	18,750	acfm	P_ID_FREV_7_23_2018.pdf
91	temp	145	°F	PFD 18101-PID-03-RB_PACKET_7_18_2018.pdf
92	diameter	35.8	inches	8/2/2018 e-mail from Rick Havlicak
93	Stage BCD-1 Exhaust			
94	flow	18,750	acfm	PFD 18101-PID-03-RB_PACKET_7_18_2018.pdf
95	temp	145	°F	PFD 18101-PID-03-RB_PACKET_7_18_2018.pdf
96	diameter	41.8	inches	8/2/2018 e-mail from Rick Havlicak
97	Stage D-2 Exhaust			
98	flow	2,000	acfm	email 7/19/2018 Rick Havlicak to John Kirkpatrick
99	temp	90	°F	PFD 18101-PID-03-RB_PACKET_7_18_2018.pdf
100	**Plant Space Heaters**			
101	***Standard burner units***			
102	installed capacity	30.8	MMBtuh	30.8 MMBtuh capacity noted in original inventory, pluse 2014 installation of 13.2 MMBtuh Reyco unit
103	NOx emission factor	0.05	lb NOx/MMBTU	Based on results of emission measurements of similar bar burners completed at the BAF Blackfoot Plant.
104	CO emission factor	0.26	lb CO/MMBtu	Based on results of emission measurements of similar bar burners completed at the BAF Blackfoot Plant. No difference between hourly and annual emission factors.
105	***RX-OBI1***			
106	capacity	13.2	MMBtuh	
107	NOx emission factor	0.082	lb NOx/MMBTU	Based on burner manufacturer estimated NOx emissions of 70 ppmvd @ 3% O2 for a burner with heat input of 1 MMBtu/ft. Converted to lb/MMBtu based on stoichiometric combustion of methane with excess air to provide 3% O2 in combusted air stream. All NOx expressed as NO2.
108	CO emission factor	0.071	lb CO/MMBtu	Based on burner manufacturer estimated CO emissions of 100 ppmvd @ 3% O2 for a burner with heat input of 1 MMBtu/ft. Converted to lb/MMBtu based on stoichiometric combustion of methane with excess air to provide 3% O2 in combusted air stream.
109	**Existing Equipment**			
110	***Kipper Boiler***			
111	Max steam rate	65,000	lb/hr	Permit T1-2018.0008, Table 1.1
112	Max Heat rate	90	MMBtuh	
113	NOX emissions from facility permiting statements	25.27	lb/hr	There is an unexplained discrepancy in the potential NOx emissions for the Kipper Boiler between Permit T2-030515 and PTC P-2011.0132. For this permit
114	of PTE	110.7	ton/yr	
115	PM10/PM2.5 PTE			
116	PM10/PM2.5 emissions - hourly	16	lb/hr	Enforceable emissions limit.
117	PM10/PM2.5 emissions - annual	71	ton/yr	Enforceable emissions limit.
118	***Kipper Boiler firing data (wood only)***			from'RX Emsn_Invty 2012 base 1.3 (Tier I)'
119	Steam generation, hourly	65,000	lb/hour	from'RX Emsn_Invty 2012 base 1.3 (Tier I)'
120	steam generation, annual, post-project	189,800,000	lb/yr	Based on 33% duty, annual average
121	steam enthalpy input	1,000	Btu/lb of steam	from'RX Emsn_Invty 2012 base 1.3 (Tier I)'
122	boiler efficiency	72.2%		from'RX Emsn_Invty 2012 base 1.3 (Tier I)'
123	heat content of wood	7000	Btu/lb	from'RX Emsn_Invty 2012 base 1.3 (Tier I)'
124				
125				

	A	B	C	D
1	**GENERAL INPUT PARAMETERS**			
2	**Parameter**	**Value**	**Units**	**Discussion**
126	*Boiler 1*			
127	Max steam rate	40,000	lb/hr	Permit T1-2018.0008, Table 1.1
128	Max heat rate	52	MMBtuh	
129				
130	*Boiler 2*			Permit T1-2018.0008, Table 1.1
131	Max steam rate	40,000	lb/hr	
132		49.9	MMBtuh	
133				
134	*Existing Belt Dryer*			
135	Max operating rate	2500	lb/hr	Based on production data during baseline period
136	steam demand	8.43	lb steam/lb product	9/20/2018 email from Neil Woodgerd, BAF, to Stephen Nelson. Based on steam usage to date in 2018.
137	PM emission limits			
138	Stack 613/614	1.09	lb/hr	The Belt dryer has an enforceable emissions limit of 2.2 lb/hr. This limit is
139	Stack 615/616	0.85	lb/hr	assigned to stacks as identified in the PTE emission inventory for Permit T2-
140	Stack 638	0.24	lb/hr	030515, which is the permit in which this emissions limit was first established.
141				
142	***Process Equipment Heat Rates***			
143	7101	6.5	MMBtuh	
144	7102	6.5	MMBtuh	
145	7019	6.6	MMBtuh	
146	228	9.66	MMBtuh	
147	234	6.44	MMBtuh	
148	33	2.7	MMBtuh	from existing facility emission inventory
149	44	2.75	MMBtuh	
150	56	1.6	MMBtuh	
151	62	1.6	MMBtuh	
152	Heaters	30.8	MMBtuh	
153	RX-OBI1	13.2	MMBtuh	
154				
155	**Process Weight Information**			
156	Process B Process Weight Preproject	76,000	lb/hr	from Dec 2014 PTC application for addition of new production line
157	Preproject Process B potential emissions	9.35	lb/hr	from emission inventory submitted for 2018 Tier I permit renewal (*"RX Emsn_Invty 2018 Tier I (180118).xlsm"*)
158	Potential emissions from stacks 613/614, 615/616, and 638	2.2	lb/hr	from emission inventory submitted for 2018 Tier I permit renewal (*"RX Emsn_Invty 2018 Tier I (180118).xlsm"*)

	A	B	C	D	E	F	G	H	I	J	K
1											
2	**Process A Emission Factors**										
3		**Process Emissions, lb/1000 lbs**			**Combustion Emissions, lb/MMBtu**						
4	**Stack**	**PM10**	**PM2.5**	**SO2**	**PM10**	**PM2.5**	**SO2**	**NOx**	**CO**	**VOC**	**Lead**
5	7020	0.0102	0.0102	-			-				
6	7101	0.1060	0.1060	0.0050	0.0075	0.0075	0.0024	0.0510	0.2600	0.0050	4.90E-07
7	7102	0.1060	0.1060	0.0050	0.0075	0.0075	0.0024	0.0510	0.2600	0.0050	4.90E-07
8	7019	0.0195	0.0195	0.0050	0.0075	0.0075	0.0024	0.0510	0.2600	0.0050	4.90E-07
9	7001	0.0460	0.0460	0.0050			-				
10	7027	0.0080	0.0080	-			-				
11	7006	0.0030	0.0030	-			-				
12	8	0.0016	0.0016	-							
13	5001	0.008	0.008	-							
14	5000	0.0016	0.0016	-							
15	432	0.0016	0.0016	-							
16	322	0.008	0.008	-							
17	572	0.0375	0.0375	-							

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
2	Current PTE - from Statement of Basis for PTC P-2011.0132, Project ID 61459, Oct. 7, 2015, except where noted														
3	Emissions Unit	source id	PM10		PM2.5		SO_2		NO_x		CO[c]		VOC		CO_2e[d]
4			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]	lb/hr[a]	T/yr[b]	T/yr[b]
5	Point Sources														
6	Kipper Boiler	Kipper	16.30	71.20	16.30	71.20	48.53	214.00	25.27	110.70	51.34	224.88	2.71	10.97	76869.00
7	Boiler 1	Boiler1	0.39	1.70	0.39	1.70	0.12	0.54	5.10	22.33	4.28	18.76	0.28	1.23	27331.00
8	Boiler 2	Boiler2	0.37	1.63	0.37	1.63	0.12	0.51	4.89	21.43	4.11	18.00	0.27	1.18	26227.00
9	7020	7020	0.41	1.82	0.41	1.82	0	0	0	0	0	0	0	0	0
10	7101	7101	2.16	9.47	2.16	9.47	0.12	0.51	0.33	1.42	1.69	7.40	0.04	0.15	3416.00
11	7102	7102	2.16	9.47	2.16	9.47	0.12	0.51	0.33	1.42	1.69	7.40	0.04	0.15	3416.00
12	7019	7019	0.80	3.48	0.80	3.48	0.22	0.96	0.33	1.45	1.72	7.52	0.04	0.16	3469.00
13	7001	7001	0.23	1.03	0.23	1.03	0.03	0.11	0	0	0	0	0	0	0
14	7027	7027	0.04	0.18	0.04	0.18	0	0	0	0	0	0	0	0	0
15	7006	7006	0.12	0.54	0.12	0.54	0	0	0	0	0	0	0	0	0
16	5034	5034	0.02	0.07	0.02	0.07	0	0	0	0	0	0	0	0	0
17	5037	5037	1.29	5.66	1.29	5.66	1.87	8.19	0	0	0	0	0	0	0
18	4000	4000	1.72	7.53	1.72	7.53	0.26	1.14	0	0	0	0	0	0	0
19	228	228	1.10	4.80	1.10	4.80	0.19	0.84	0.48	2.12	2.51	11.00	0.05	0.23	5077.00
20	234	234	0.31	1.37	0.31	1.37	0.06	0.28	0.32	1.41	1.67	7.33	0.03	0.15	3385.00
21	638	638	1.09	4.80	1.09	4.80	0.17	0.74	0	0	0	0	0	0	0
22	613/614	613_614	0.85	3.74	0.85	3.74	0.13	0.56	0	0	0	0	0	0	0
23	615/616	615_616	0.24	1.05	0.24	1.05	0.04	0.16	0	0	0	0	0	0	0
24	M33	M33	0.44	1.34	0.44	1.34	0.06	0.20	0.08	0.34	0.14	0.63	0.15	0.64	
25	M44	M44	0.27	0.83	0.27	0.83	0.04	0.12	0.08	0.35	0.15	0.64	0.15	0.65	
26	M56	M56	0.12	0.36	0.12	0.36	0.02	0.06	0.05	0.20	0.09	0.37	0.09	0.38	
27	M62	M62	0.02	0.07	0.02	0.07	0.01	0.04	0.05	0.20	0.09	0.37	0.09	0.38	
28	M86	M86	0.01	0.02	0.01	0.02	0.01	0.03	0	0	0	0	0	0	0
29	707	707	0	0.01	0	0.01	0	0	0	0	0	0	0	0	0
30	725	725	0.05	0.21	0.05	0.21	0	0	0	0	0	0	0	0	0
31	8	8	0.05	0.21	0.05	0.21	0	0	0	0	0	0	0	0	0
32	5001	5001	0.24	1.05	0.24	1.05	0	0	0	0	0	0	0	0	0
33	5000	5000	0.05	0.21	0.05	0.21	0	0	0	0	0	0	0	0	0
34	432	432	0.05	0.21	0.05	0.21	0	0	0	0	0	0	0	0	0
35	322	322	0.00	0.00	0.00	0.00	0	0	0	0	0	0	0	0	0
36	572	572	0.06	0.25	0.06	0.25	0	0	0	0	0	0	0	0	0
37	RX-OB11	-	0.10	0.22	0.10	0.22	0.03	0.07	1.08	2.36	0.94	2.05	0.07	0.31	
38	HEATERS	HEATERS	0.23	0.50	0.23	0.50	0.07	0.16	1.54	3.37	8.01	17.54	0.17	0.36	16188.00
39	**Totals**		**31.27**	**135.03**	**31.27**	**135.03**	**52.22**	**229.73**	**39.93**	**169.10**	**78.43**	**323.89**	**4.18**	**16.94**	**165378.00**
40															
41	Woodpile		0.01	0.03	0.00	0.00	0	0	0	0	0	0	3.41	14.92	
42															
43	Notes														
44	RX-OB11 and woodpile annual PTE from Statement of Basis for Permit No. T1-2018.0008, Project ID 61995. Hourly PTE from facility emission inventory.														
45	PM PTE for stack 7019 revised based on updated emission factor developed after testing of a similar stack at the BAF Blackfoot Facility.														
46	PM PTE for stacks 322 and 572 revised based on erroneous (high) operating rate used in prior permitting actions.														

	A	B	C	D
1	**CALCULATED VARIABLES - Boiler 1A and Boiler 2A Emissions**			
2	**Parameter**	**Value**	**Units**	**Basis**
3	Flue gas calculations			
4	Heat Input	98	MMBtuh	
5	Fd, dry exhaust gas factor	8710	dscf/MMBtu	From Table 19-2, EPA Test Method 19
6	Fw, wet exhaust gas factor	10610	wscf/MMBtu	From Table 19-2, EPA Test Method 19
7	Stoichiometric air flow	17330	wscfm	boiler heat rate*Fw
8	HHV, natural gas	1020	Btu/scf	
14				
15	Boiler NOx emission factor			
16	PPM, stack gas concentration	15	ppmvd NOx @3% O2	vendor guarantee
17	FW, formula weight	46		NOx as NO2
18	E, emissions	0.00000179	lb/dscf	=PPM*FW/(385.1*10^6)
19	Fa, Fd adjusted to 3% O2	10170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
20	heat rate emission factor	0.018	lb/MMBtu	=E*Fa
21	fuel rate emission factor	18.59	lb/MMscf NG	
22				
23	Boiler SO_2 emission factor			
24	fuel rate emission factor	0.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
25	heat rate emission factor	0.00059	lb/MMBtu	
26				
27	Boiler CO emission factor			
28	PPM, stack gas concentration	100	ppmvd @ 3% O2	boiler mfr guarantee
29	FW, formula weight	28		
30	E, emissions	0.00000727	lb/dscf	=PPM*FW/(385.1*10^6)
31	Fa, Fd adjusted to 3% O2	10170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
32	EFh, heat rate emission factor	0.074	lb/MMBtu	=E*Fa
33	EFf, fuel rate based emission factor	75.42	lb/MMscf NG	
34				
35	Boiler PM25 emission factor			
36	fuel rate emission factor	7.6	lb/MMscf	AP-42. Table 1.4-2
37	heat rate emission factor	0.00745	lb/MMBtu	lb/MMscf ÷ HHV NG
38				
39	Boiler PM10 emission factor			
40	fuel rate emission factor	7.6	lb/MMscf	AP-42. Table 1.4-2
41	heat rate emission factor	0.00745	lb/MMBtu	lb/MMscf ÷ HHV NG
42				
43	Boiler VOC emission factor			
44	fuel rate emission factor	5.5	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
45	heat rate emission factor	0.00539	lb/MMBtu	lb/MMscf ÷ HHV NG
46				
47	Boiler Pb emission factor			
48	fuel rate emission factor	5.00E-04	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
49	heat rate emission factor	4.90E-07	lb/MMBtu	lb/MMscf ÷ HHV NG

	A	B	C
1	**Constitutent**	**Emission Factor, lb/MMBtu**	**Reference**
2	SO2	0.025	From AP-42, Sec. 1.6 (9/03) for wood combustion.
3	NOx	0.240	Based on 0.332 lb NOx/000 lbs steam reported in 1994 Source Emission Evaluation Report. Converted to lb/MMBtu of fuel combusted based on 1000 Btu heat ouput per lb of steam and 72.2% boiler efficiency.
4	CO	0.669	Based on 0.927 lb CO/000 lbs steam reported in 1994 Source Emission Evaluation Report. Converted to lb/MMBtu of fuel combusted based on 1000 Btu heat ouput per lb of steam and 72.2% boiler efficiency.
5	PM	0.154	Based on 0.213 lb PM/0000 lbs steam (scrubbed emission) reported in 1994 Source Emission Evaluation Report. Converted to lb/MMBtu of fuel combusted based on 1000 Btu heat ouput per lb of steam and 72.2% boiler efficiency.
6	PM10	0.151	Based on AP-42, Sec. 1.6 (9/03), 98 percent of total TSP emitted is PM10 (for wood-fired boiler using multiclones and wet scrubber)
7	PM2.5	0.151	From AP-42, Sec. 1.6 (9/03), Table 1.6-5, PM10 and PM2.5 emissions are the same.
8	VOC	0.035	Based on 0.049 lb VOC/000 lbs steam reported in 1994 Source Emission Evaluation Report. Converted to lb/MMBtu of fuel combusted based on 1000 Btu heat ouput per lb of steam and 72.2% boiler efficiency.
9	Lead	4.80E-05	AP-42, Table 1.6-4 (9/03 update)
10	Acenaphthene	9.10E-07	AP-42, Table 1.6-3 (9/03 update)
11	Acenaphthylene	5.00E-06	AP-42, Table 1.6-3 (9/03 update)
12	Acetaldehyde	8.30E-04	AP-42, Table 1.6-3 (9/03 update)
13	Acetone	1.90E-04	AP-42, Table 1.6-3 (9/03 update)
14	Acetophenone	3.20E-09	AP-42, Table 1.6-3 (9/03 update)
15	Acrolein	4.00E-03	AP-42, Table 1.6-3 (9/03 update)
16	Anthracene	3.00E-06	AP-42, Table 1.6-3 (9/03 update)
17	Benzaldehyde	8.50E-07	AP-42, Table 1.6-3 (9/03 update)
18	Benzene	4.20E-03	AP-42, Table 1.6-3 (9/03 update)
19	Benzo(a)anthracene	6.50E-08	AP-42, Table 1.6-3 (9/03 update)
20	Benzo(a)pyrene	2.60E-06	AP-42, Table 1.6-3 (9/03 update)
21	Benzo(b)fluoranthene	1.00E-07	AP-42, Table 1.6-3 (9/03 update)
22	Benzo(e)pyrene	2.60E-09	AP-42, Table 1.6-3 (9/03 update)
23	Benzo(g,h,i)perylene	9.30E-08	AP-42, Table 1.6-3 (9/03 update)
24	Benzo(j,k)fluoranthene	1.60E-07	AP-42, Table 1.6-3 (9/03 update)
25	Benzo(k)fluoranthene	3.60E-08	AP-42, Table 1.6-3 (9/03 update)
26	Benzoic acid	4.70E-08	AP-42, Table 1.6-3 (9/03 update)
27	bis(2-Ethylhexyl)phthalate	4.70E-08	AP-42, Table 1.6-3 (9/03 update)
28	Bromomethane	1.50E-05	AP-42, Table 1.6-3 (9/03 update)
29	2-Butanone (MEK)	5.40E-06	AP-42, Table 1.6-3 (9/03 update)
30	Carbazole	1.80E-06	AP-42, Table 1.6-3 (9/03 update)
31	Carbon tetrachloride	4.50E-05	AP-42, Table 1.6-3 (9/03 update)
32	Chlorine	7.90E-04	AP-42, Table 1.6-3 (9/03 update)
33	Chlorobenzene	3.30E-05	AP-42, Table 1.6-3 (9/03 update)
34	Chloroform	2.80E-05	AP-42, Table 1.6-3 (9/03 update)
35	Chloromethane	2.30E-05	AP-42, Table 1.6-3 (9/03 update)
36	2-Chloronaphthalene	2.40E-09	AP-42, Table 1.6-3 (9/03 update)
37	2-Chlorophenol	2.40E-08	AP-42, Table 1.6-3 (9/03 update)
38	Chrysene	3.80E-08	AP-42, Table 1.6-3 (9/03 update)
39	Crotonaldehyde	9.90E-06	AP-42, Table 1.6-3 (9/03 update)
40	Decachlorobiphenyl	2.70E-10	AP-42, Table 1.6-3 (9/03 update)
41	Dibenzo(a,h)anthracene	9.10E-09	AP-42, Table 1.6-3 (9/03 update)
42	1,2-Dibromoethene	5.50E-05	AP-42, Table 1.6-3 (9/03 update)
43	Dichlorobiphenyl	7.40E-10	AP-42, Table 1.6-3 (9/03 update)
44	1,2-Dichloroethane	2.90E-05	AP-42, Table 1.6-3 (9/03 update)
45	Dichloromethane	2.90E-04	AP-42, Table 1.6-3 (9/03 update)
46	1,2-Dichloropropane	3.30E-05	AP-42, Table 1.6-3 (9/03 update)
47	2,4-Dinitrophenol	1.80E-07	AP-42, Table 1.6-3 (9/03 update)

	A	B	C
1	**Constitutent**	**Emission Factor, lb/MMBtu**	**Reference**
48	Ethylbenzene	3.10E-05	AP-42, Table 1.6-3 (9/03 update)
49	Fluoranthene	1.60E-06	AP-42, Table 1.6-3 (9/03 update)
50	Fluorene	3.40E-06	AP-42, Table 1.6-3 (9/03 update)
51	Formaldehyde	4.40E-03	AP-42, Table 1.6-3 (9/03 update)
52	Heptachlorobiphenyl	6.60E-11	AP-42, Table 1.6-3 (9/03 update)
53	Hexachlorobiphenyl	5.50E-10	AP-42, Table 1.6-3 (9/03 update)
54	Hexanal	7.00E-06	AP-42, Table 1.6-3 (9/03 update)
55	Hexane	0.00E+00	no emission factor listed in AP-42
56	Heptachlorodibenzo-p-dioxins	2.00E-09	AP-42, Table 1.6-3 (9/03 update)
57	Heptachlorodibenzo-p-furans	2.40E-10	AP-42, Table 1.6-3 (9/03 update)
58	Hexachlorodibenzo-p-dioxins	1.60E-06	AP-42, Table 1.6-3 (9/03 update)
59	Hexachlorodibenzo-p-furans	2.80E-10	AP-42, Table 1.6-3 (9/03 update)
60	HCl	1.90E-02	AP-42, Table 1.6-3 (9/03 update)
61	Indeno(1,2,3,c,d)pyrene	8.70E-08	AP-42, Table 1.6-3 (9/03 update)
62	Isobutyraldehyde	1.20E-05	AP-42, Table 1.6-3 (9/03 update)
63	Methane	2.10E-02	AP-42, Table 1.6-3 (9/03 update)
64	2-Methylnaphthalene	1.60E-07	AP-42, Table 1.6-3 (9/03 update)
65	Monochlorobiphenyl	2.20E-10	AP-42, Table 1.6-3 (9/03 update)
66	Naphthalene	9.70E-05	AP-42, Table 1.6-3 (9/03 update)
67	2-Nitrophenol	2.40E-07	AP-42, Table 1.6-3 (9/03 update)
68	4-Nitrophenol	1.10E-07	AP-42, Table 1.6-3 (9/03 update)
69	Octachlorodibenzo-p-dioxins	6.60E-08	AP-42, Table 1.6-3 (9/03 update)
70	Octachlorodibenzo-p-furans	8.80E-11	AP-42, Table 1.6-3 (9/03 update)
71	Pentachlorodibenzo-p-dioxins	1.50E-09	AP-42, Table 1.6-3 (9/03 update)
72	Pentachlorodibenzo-p-furans	4.20E-10	AP-42, Table 1.6-3 (9/03 update)
73	Pentachlorobiphenyl	1.20E-09	AP-42, Table 1.6-3 (9/03 update)
74	Pentachlorophenol	5.10E-08	AP-42, Table 1.6-3 (9/03 update)
75	Perylene	5.20E-10	AP-42, Table 1.6-3 (9/03 update)
76	Phenanthrene	7.00E-06	AP-42, Table 1.6-3 (9/03 update)
77	Phenol	5.10E-05	AP-42, Table 1.6-3 (9/03 update)
78	Phosphorus	2.70E-05	AP-42, Table 1.6-4 (9/03 update)
79	Propanal	3.20E-06	AP-42, Table 1.6-3 (9/03 update)
80	Propionaldehyde	6.10E-05	AP-42, Table 1.6-3 (9/03 update)
81	Pyrene	3.70E-06	AP-42, Table 1.6-3 (9/03 update)
82	Styrene	1.90E-03	AP-42, Table 1.6-3 (9/03 update)
83	2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	AP-42, Table 1.6-3 (9/03 update)
84	Tetrachlorodibenzo-p-dioxins	4.70E-10	AP-42, Table 1.6-3 (9/03 update)
85	2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11	AP-42, Table 1.6-3 (9/03 update)
86	Tetrachlorodibenzo-p-furans	7.50E-10	AP-42, Table 1.6-3 (9/03 update)
87	Tetrachlorobiphenyl	2.50E-09	AP-42, Table 1.6-3 (9/03 update)
88	Tetrachloroethene	3.80E-05	AP-42, Table 1.6-3 (9/03 update)
89	o-Tolualdehyde	7.20E-06	AP-42, Table 1.6-3 (9/03 update)
90	p-Tolualdehyde	1.10E-05	AP-42, Table 1.6-3 (9/03 update)
91	Toluene	9.20E-04	AP-42, Table 1.6-3 (9/03 update)
92	Trichlorobiphenyl	2.60E-09	AP-42, Table 1.6-3 (9/03 update)
93	1,1,1-Trichloroethane	3.10E-05	AP-42, Table 1.6-3 (9/03 update)
94	Trichloroethene	3.00E-05	AP-42, Table 1.6-3 (9/03 update)
95	Trichlorofluoromethane	4.00E-05	AP-42, Table 1.6-3 (9/03 update)
96	2,4,6-Trichlorophenol	2.20E-08	AP-42, Table 1.6-3 (9/03 update)
97	Vinyl Chloride	1.80E-05	AP-42, Table 1.6-3 (9/03 update)
98	o-Xylene	2.50E-05	AP-42, Table 1.6-3 (9/03 update)
99	Antimony	7.90E-06	AP-42, Table 1.6-4 (9/03 update)
100	Arsenic	2.20E-05	AP-42, Table 1.6-4 (9/03 update)
101	Barium	1.70E-04	AP-42, Table 1.6-4 (9/03 update)
102	Beryllium	1.10E-06	AP-42, Table 1.6-4 (9/03 update)
103	Cadmium	4.10E-06	AP-42, Table 1.6-4 (9/03 update)
104	Chromium, total	2.10E-05	AP-42, Table 1.6-4 (9/03 update)

	A	B	C
1	**Constitutent**	**Emission Factor, lb/MMBtu**	**Reference**
105	Chromium, hexavalent	3.50E-06	AP-42, Table 1.6-4 (9/03 update)
106	Cobalt	6.50E-06	AP-42, Table 1.6-4 (9/03 update)
107	Copper	4.90E-05	AP-42, Table 1.6-4 (9/03 update)
108	Iron	9.90E-04	AP-42, Table 1.6-4 (9/03 update)
109	Lead	4.80E-05	AP-42, Table 1.6-4 (9/03 update)
110	Manganese	1.60E-03	AP-42, Table 1.6-4 (9/03 update)
111	Mercury	3.50E-06	AP-42, Table 1.6-4 (9/03 update)
112	Molybdenum	2.10E-06	AP-42, Table 1.6-4 (9/03 update)
113	Nickel	3.30E-05	AP-42, Table 1.6-4 (9/03 update)
114	Potassium	3.90E-02	AP-42, Table 1.6-4 (9/03 update)
115	Selenium	2.80E-06	AP-42, Table 1.6-4 (9/03 update)
116	Silver	1.70E-03	AP-42, Table 1.6-4 (9/03 update)
117	Sodium	3.60E-04	AP-42, Table 1.6-4 (9/03 update)
118	Strontium	1.00E-05	AP-42, Table 1.6-4 (9/03 update)
119	Tin	2.30E-05	AP-42, Table 1.6-4 (9/03 update)
120	Titanium	2.00E-05	AP-42, Table 1.6-4 (9/03 update)
121	Vanadium	9.80E-07	AP-42, Table 1.6-4 (9/03 update)
122	Yttrium	3.00E-07	AP-42, Table 1.6-4 (9/03 update)
123	Zinc	4.20E-04	AP-42, Table 1.6-4 (9/03 update)
124			
125			
126	TOC	0.039	AP-42, Table 1.6-3 (9/03 update)
127	VOC	0.017	AP-42, Table 1.6-3 (9/03 update)
128	N2O	0.013	AP-42, Table 1.6-3 (9/03 update)
129	HAP	3.87E-02	
130	POM	1.25E-04	
131	PCBs	7.93E-09	
132	DBFs	1.78E-09	

	A	B	C	D	E	F
1						
2						
3						
4	**Toxic and Hazardous Air Pollutant Emission Factors - NG Burners***					
5	**Air Pollutant**	**lb/MMBTU**	**Emission Factor Reference**	**EPA Hazardous Air Pollutant?**	**Idaho Toxic Air Pollutant?**	
6	POM Components					
7	Acenaphthene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
8	Acenaphthylene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
9	Anthracene	2.35E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
10	Benz(a)anthracene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
11	Benzo(a)pyrene	1.18E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
12	Benzo(b)fluoranthene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
13	Benzo(g,h,i)perylene	1.18E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
14	Benzo(k)fluoroanthene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
15	Chrysene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
16	Dibenzo(a,h)anthracene	1.18E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
17	7,12-Dimethylbenz(a)anthracene	1.57E-08	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
18	Fluoranthene	2.94E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
19	Fluorene	2.75E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
20	Indeno(1,2,3-cd)pyrene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (7-PAH Group)	
21	2-Methylnaphthalene	2.35E-08	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
22	3-Methylchloroanthene	1.76E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
23	Naphthalene	5.98E-07	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
24	Phenanthrene	1.67E-08	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
25	Pyrene	4.90E-09	AP-42, Table 1.4-3	Yes	Yes (General PAH)	
26	*PAH (Idaho)*	*6.73E-07*	*Summation of individual ID PAH components*	*Yes (EPA POM component)*	*C*	
27	*POM (Idaho)*	*1.12E-08*	*Summation of ID POM 7-PAH components*	*Yes (EPA POM component)*	*C*	
28	*POM (EPA)*	*6.85E-07*	*Sum of individual POM componnents*	*Yes*	-	
29	Benzene	2.06E-06	AP-42, Table 1.4-3	Yes	C	
30	Dichlorobenzene	1.18E-06	AP-42, Table 1.4-3	Yes	NC	
31	Formaldehyde	7.35E-05	AP-42, Table 1.4-3	Yes	C	
32	Hexane	1.76E-03	AP-42, Table 1.4-3	Yes	NC	
33	Pentane	2.55E-03	AP-42, Table 1.4-3	No	NC	
34	Toluene	3.33E-06	AP-42, Table 1.4-3	Yes	NC	
35	Arsenic	1.96E-07	AP-42, Table 1.4-4	Yes	C	
36	Beryllium	1.18E-08	AP-42, Table 1.4-4	Yes	C	
37	Cadmium	1.08E-06	AP-42, Table 1.4-4	Yes	C	
38	Chromium	1.37E-06	AP-42, Table 1.4-4	Yes	NC	
39	Chromium(VI)	6.85E-08	5% of chromium assumed to be Chromium(VI)‡	Yes (included in chromium)	C	
40	Cobalt	8.24E-08	AP-42, Table 1.4-4	Yes	NC	
41	Manganese	3.73E-07	AP-42, Table 1.4-4	Yes	NC	
42	Mercury	2.55E-07	AP-42, Table 1.4-4	Yes	No	
43	Nickel	2.06E-06	AP-42, Table 1.4-4	Yes	C	
44	Selenium	2.35E-08	AP-42, Table 1.4-4	Yes	NC	
45	Nitrous Oxide	2.16E-03	AP-42, Table 1.4-2	No	NC	
46	EPA Total HAPs	1.85E-03	Summation of individual EPA HAP components	Yes	No	
47	Largest Individual HAP	1.76E-03	Hexane	Yes	Yes	
48						
49	‡ See "AB 2588 Combustion Emission Factors", Ventura County APCD, May 17, 2001.					
50						
51	Based on 1020 BTU/scf natural gas heat content					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1	**Changes in Potential To Emit for Criteria Air Pollutants**															
2	Emission Point		**CO**		**NOx**		**SO_2**		**PM2.5**		**PM10**		**VOC**		**Lead**	
3		Source ID	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
4	Post-Project PTE															
5	*Point Sources*															
6	Boiler 1A	BLR1A	7.37	32.01	1.89	8.05	0.06	0.25	0.74	3.23	0.74	3.23	0.54	2.34	4.8E-05	2.1E-04
7	Boiler 2A	BLR2A	7.37	32.01	1.89	8.05	0.06	0.25	0.74	3.23	0.74	3.23	0.54	2.34	4.8E-05	2.1E-04
8	Kipper Boiler	KIPPER	60.25	87.97	21.58	31.51	2.25	3.29	13.57	19.81	13.57	19.81	3.18	4.65	4.3E-03	6.3E-03
9	Boiler 2	BOILER2	4.11	18.00	4.89	21.43	0.12	0.51	0.37	1.63	0.37	1.63	0.27	1.18	2.4E-05	1.1E-04
10	7020	7020	0.14	0.32	0.05	0.10	0.00	0.00	0.45	1.94	0.45	1.94	0.00	0.01	2.0E-07	4.4E-07
11	7101	7101	2.17	8.46	0.49	1.79	0.13	0.54	2.36	10.31	2.36	10.31	0.05	0.17	3.8E-06	1.5E-05
12	7102	7102	2.17	8.45	0.49	1.79	0.13	0.54	2.36	10.31	2.36	10.31	0.05	0.17	3.8E-06	1.5E-05
13	7019	7019	2.06	8.28	0.45	1.72	0.23	1.02	0.91	3.95	0.91	3.95	0.04	0.17	3.7E-06	1.5E-05
14	7001	7001	0.06	0.13	0.02	0.04	0.03	0.12	0.25	1.10	0.25	1.10	0.00	0.00	8.1E-08	1.8E-07
15	7027	7027	0.05	0.10	0.02	0.03	0.00	0.00	0.05	0.19	0.05	0.19	0.00	0.00	6.4E-08	1.4E-07
16	7006	7006	0.04	0.08	0.01	0.03	0.00	0.00	0.13	0.57	0.13	0.57	0.00	0.00	5.2E-08	1.1E-07
17	5034	5034	0.02	0.04	0.01	0.01	0.00	0.00	0.02	0.07	0.02	0.07	0.00	0.00	2.7E-08	5.9E-08
18	5037	5037	0.19	0.42	0.06	0.14	1.87	8.19	1.30	5.68	1.30	5.68	0.01	0.01	2.6E-07	5.7E-07
19	4000	4000	0.50	1.10	0.16	0.36	0.26	1.14	1.74	7.57	1.74	7.57	0.01	0.03	6.9E-07	1.5E-06
20	228	228	2.81	11.65	0.58	2.33	0.19	0.84	1.11	4.83	1.11	4.83	0.06	0.25	5.1E-06	2.2E-05
21	234	234	2.11	8.29	0.46	1.72	0.06	0.28	0.33	1.41	0.33	1.41	0.04	0.18	3.8E-06	1.5E-05
22	M33	M33	0.26	0.90	0.12	0.43	0.06	0.20	0.44	1.35	0.44	1.35	0.15	0.65	1.7E-07	3.8E-07
23	M44	M44	0.18	0.70	0.09	0.37	0.04	0.12	0.27	0.83	0.27	0.83	0.15	0.65	3.7E-08	8.2E-08
24	M56	M56	0.13	0.47	0.06	0.23	0.02	0.06	0.12	0.36	0.12	0.36	0.09	0.38	6.0E-08	1.3E-07
25	M62	M62	0.15	0.49	0.07	0.24	0.01	0.04	0.02	0.07	0.02	0.07	0.09	0.38	7.6E-08	1.7E-07
26	M86	M86	0.12	0.26	0.04	0.09	0.01	0.03	0.01	0.03	0.01	0.03	0.00	0.01	1.7E-07	3.6E-07
27	Flake North	FLK_N	0.33	0.72	0.27	0.59	0.00	0.01	0.49	0.53	0.49	2.06	0.03	0.06	1.2E-06	2.6E-06
28	Flake South	FLK_S	0.33	0.72	0.27	0.59	0.00	0.01	0.49	0.53	0.49	2.06	0.03	0.06	1.2E-06	2.6E-06
29	P4A	P4A	1.94	7.76	0.38	1.41	0.01	0.02	0.43	1.84	0.43	1.84	0.06	0.23	4.7E-07	1.0E-06
30	P4BCD	P4BCD	2.16	8.72	0.38	1.41	0.01	0.03	1.74	7.59	1.74	7.59	0.06	0.26	4.7E-07	1.0E-06
31	707	707	0.02	0.05	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	3.1E-08	6.8E-08
32	725	725	0.02	0.04	0.01	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	2.2E-08	4.8E-08
33	8	8	0.04	0.09	0.01	0.03	0.00	0.00	0.05	0.22	0.05	0.22	0.00	0.00	5.8E-08	1.3E-07
34	5001	5001	0.01	0.03	0.00	0.01	0.00	0.00	0.24	1.06	0.24	1.06	0.00	0.00	1.7E-08	3.8E-08
35	5000	5000	0.01	0.03	0.00	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	1.7E-08	3.8E-08
36	432	432	0.01	0.02	0.00	0.01	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	1.3E-08	2.9E-08
37	322	322	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	1.0E-08	2.2E-08
38	572	572	0.01	0.03	0.00	0.01	0.00	0.00	0.06	0.25	0.06	0.25	0.00	0.00	1.9E-08	4.2E-08
39	*Fugitive Sources that do not meet the definition of "fugitive emissions" in Air Rules.*															
40	Main	AM_MAIN	2.88	6.32	0.94	2.05	0.01	0.02	0.11	0.24	0.11	0.24	0.09	0.19	4.0E-06	8.7E-06
41	Old Boilerhouse	AM_BLROLD	0.78	1.71	0.15	0.33	0.00	0.00	0.02	0.05	0.02	0.05	0.02	0.04	8.0E-07	1.7E-06
42	New Boilerhouse	AM_BLRNEW	0.12	0.26	0.10	0.21	0.00	0.00	0.01	0.03	0.01	0.03	0.01	0.02	4.3E-07	9.3E-07
43	Flake	AM_FLAKE	0.27	0.59	0.22	0.49	0.00	0.00	0.03	0.06	0.03	0.06	0.02	0.05	9.7E-07	2.1E-06
44	Receiving	AM_RCVG	0.46	1.01	0.18	0.40	0.00	0.00	0.02	0.05	0.02	0.05	0.02	0.04	8.5E-07	1.9E-06
45	Woodpile	WOOD_NEW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	3.41	4.97	0.0E+00	0.0E+00
46	*or New/Modified Units:*		*101.68*	*248.3*	*36.35*	*88.0*	*5.56*	*17.5*	*31.14*	*91.6*	*31.15*	*94.6*	*9.02*	*19.5*	*4.5E-03*	*6.9E-03*
47																

	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE
1	Direct Process/Combustion Emissions													
2	CO		NOx		SO_2		PM2.5		PM10		VOC		Lead	
3	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
4														
5														
6	7.25	31.74	1.79	7.82	0.06	0.25	0.73	3.20	0.73	3.20	0.53	2.31	4.8E-05	2.1E-04
7	7.25	31.74	1.79	7.82	0.06	0.25	0.73	3.20	0.73	3.20	0.53	2.31	4.8E-05	2.1E-04
8	60.25	87.97	21.58	31.51	2.25	3.29	13.57	19.81	13.57	19.81	3.18	4.65	4.3E-03	6.3E-03
9	4.11	18.00	4.89	21.43	0.12	0.51	0.37	1.63	0.37	1.63	0.27	1.18	2.4E-05	1.1E-04
10	0.00	0.00	0.00	0.00	0.00	0.00	0.44	1.93	0.44	1.93	0.00	0.00	0.0E+00	0.0E+00
11	1.69	7.40	0.33	1.45	0.12	0.54	2.35	10.27	2.35	10.27	0.03	0.14	3.2E-06	1.4E-05
12	1.69	7.40	0.33	1.45	0.12	0.54	2.35	10.27	2.35	10.27	0.03	0.14	3.2E-06	1.4E-05
13	1.72	7.52	0.34	1.47	0.23	1.02	0.89	3.92	0.89	3.92	0.03	0.14	3.2E-06	1.4E-05
14	0.00	0.00	0.00	0.00	0.03	0.12	0.25	1.09	0.25	1.09	0.00	0.00	0.0E+00	0.0E+00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.19	0.04	0.19	0.00	0.00	0.0E+00	0.0E+00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.57	0.13	0.57	0.00	0.00	0.0E+00	0.0E+00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.07	0.02	0.07	0.00	0.00	0.0E+00	0.0E+00
18	0.00	0.00	0.00	0.00	1.87	8.19	1.29	5.66	1.29	5.66	0.00	0.00	0.0E+00	0.0E+00
19	0.00	0.00	0.00	0.00	0.26	1.14	1.72	7.53	1.72	7.53	0.00	0.00	0.0E+00	0.0E+00
20	2.51	11.00	0.48	2.12	0.19	0.84	1.10	4.80	1.10	4.80	0.05	0.23	4.7E-06	2.1E-05
21	1.67	7.33	0.32	1.41	0.06	0.28	0.31	1.37	0.31	1.37	0.03	0.15	3.2E-06	1.4E-05
22	0.14	0.63	0.08	0.34	0.06	0.20	0.44	1.34	0.44	1.34	0.15	0.64	0.0E+00	0.0E+00
23	0.15	0.64	0.08	0.35	0.04	0.12	0.27	0.83	0.27	0.83	0.15	0.65	0.0E+00	0.0E+00
24	0.09	0.37	0.05	0.20	0.02	0.06	0.12	0.36	0.12	0.36	0.09	0.38	0.0E+00	0.0E+00
25	0.09	0.37	0.05	0.20	0.01	0.04	0.02	0.07	0.02	0.07	0.09	0.38	0.0E+00	0.0E+00
26	0.00	0.00	0.00	0.00	0.01	0.03	0.01	0.02	0.01	0.02	0.00	0.00	0.0E+00	0.0E+00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.45	1.98	0.00	0.00	0.0E+00	0.0E+00
28	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.45	0.45	1.98	0.00	0.00	0.0E+00	0.0E+00
29	1.60	7.02	0.27	1.17	0.01	0.02	0.41	1.82	0.41	1.82	0.05	0.21	0.0E+00	0.0E+00
30	1.82	7.97	0.27	1.17	0.01	0.03	1.73	7.56	1.73	7.56	0.05	0.24	0.0E+00	0.0E+00
31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.0E+00	0.0E+00
32	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	0.0E+00	0.0E+00
33	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	0.0E+00	0.0E+00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.24	1.06	0.24	1.06	0.00	0.00	0.0E+00	0.0E+00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	0.0E+00	0.0E+00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.21	0.05	0.21	0.00	0.00	0.0E+00	0.0E+00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.0E+00	0.0E+00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.25	0.06	0.25	0.00	0.00	0.0E+00	0.0E+00
39														
40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00
44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.0E+00	0.0E+00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	3.41	4.97	0.0E+00	0.0E+00
46														
47														

	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT
1							**Allocated AMU Combustion emissions**							
2														
3	**CO**		**NOx**		**SO_2**		**PM2.5**		**PM10**		**VOC**		**Lead**	
4	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
5														
6	0.126	0.275	0.103	0.226	0.001	0.002	0.013	0.028	0.013	0.028	0.010	0.021	4.5E-07	9.9E-07
7	0.126	0.275	0.103	0.226	0.001	0.002	0.013	0.028	0.013	0.028	0.010	0.021	4.5E-07	9.9E-07
8	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.0E+00
9	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.0E+00
10	0.145	0.317	0.047	0.103	0.000	0.001	0.006	0.012	0.006	0.012	0.004	0.009	2.0E-07	4.4E-07
11	0.481	1.053	0.156	0.342	0.001	0.003	0.019	0.041	0.019	0.041	0.014	0.031	6.6E-07	1.4E-06
12	0.477	1.044	0.155	0.339	0.001	0.003	0.018	0.040	0.018	0.040	0.014	0.031	6.6E-07	1.4E-06
13	0.348	0.763	0.113	0.248	0.001	0.002	0.013	0.029	0.013	0.029	0.010	0.022	4.8E-07	1.1E-06
14	0.059	0.129	0.019	0.042	0.000	0.000	0.002	0.005	0.002	0.005	0.002	0.004	8.1E-08	1.8E-07
15	0.046	0.101	0.015	0.033	0.000	0.000	0.002	0.004	0.002	0.004	0.001	0.003	6.4E-08	1.4E-07
16	0.038	0.083	0.012	0.027	0.000	0.000	0.001	0.003	0.001	0.003	0.001	0.002	5.2E-08	1.1E-07
17	0.020	0.043	0.006	0.014	0.000	0.000	0.001	0.002	0.001	0.002	0.001	0.001	2.7E-08	5.9E-08
18	0.190	0.417	0.062	0.135	0.001	0.001	0.007	0.016	0.007	0.016	0.006	0.012	2.6E-07	5.7E-07
19	0.504	1.103	0.164	0.358	0.002	0.003	0.019	0.043	0.019	0.043	0.015	0.033	6.9E-07	1.5E-06
20	0.296	0.649	0.096	0.211	0.001	0.002	0.011	0.025	0.011	0.025	0.009	0.019	4.1E-07	8.9E-07
21	0.440	0.963	0.143	0.312	0.001	0.003	0.017	0.037	0.017	0.037	0.013	0.028	6.1E-07	1.3E-06
22	0.125	0.273	0.041	0.089	0.000	0.001	0.005	0.011	0.005	0.011	0.004	0.008	1.7E-07	3.8E-07
23	0.027	0.059	0.009	0.019	0.000	0.000	0.001	0.002	0.001	0.002	0.001	0.002	3.7E-08	8.2E-08
24	0.044	0.096	0.014	0.031	0.000	0.000	0.002	0.004	0.002	0.004	0.001	0.003	6.0E-08	1.3E-07
25	0.055	0.121	0.018	0.039	0.000	0.000	0.002	0.005	0.002	0.005	0.002	0.004	7.6E-08	1.7E-07
26	0.120	0.264	0.039	0.086	0.000	0.001	0.005	0.010	0.005	0.010	0.004	0.008	1.7E-07	3.6E-07
27	0.330	0.723	0.271	0.594	0.003	0.006	0.033	0.073	0.033	0.073	0.025	0.056	1.2E-06	2.6E-06
28	0.330	0.723	0.271	0.594	0.003	0.006	0.033	0.073	0.033	0.073	0.025	0.056	1.2E-06	2.6E-06
29	0.342	0.749	0.111	0.243	0.001	0.002	0.013	0.029	0.013	0.029	0.010	0.022	4.7E-07	1.0E-06
30	0.342	0.749	0.111	0.243	0.001	0.002	0.013	0.029	0.013	0.029	0.010	0.022	4.7E-07	1.0E-06
31	0.022	0.049	0.007	0.016	0.000	0.000	0.001	0.002	0.001	0.002	0.001	0.001	3.1E-08	6.8E-08
32	0.016	0.035	0.005	0.011	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.001	2.2E-08	4.8E-08
33	0.042	0.092	0.014	0.030	0.000	0.000	0.002	0.004	0.002	0.004	0.001	0.003	5.8E-08	1.3E-07
34	0.012	0.027	0.004	0.009	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	1.7E-08	3.8E-08
35	0.013	0.028	0.004	0.009	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	1.7E-08	3.8E-08
36	0.010	0.021	0.003	0.007	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.001	1.3E-08	2.9E-08
37	0.007	0.016	0.002	0.005	0.000	0.000	0.000	0.001	0.000	0.001	0.000	0.000	1.0E-08	2.2E-08
38	0.014	0.030	0.005	0.010	0.000	0.000	0.001	0.001	0.001	0.001	0.000	0.001	1.9E-08	4.2E-08
39														
40	2.885	6.317	0.936	2.051	0.009	0.019	0.111	0.244	0.111	0.244	0.085	0.186	4.0E-06	8.7E-06
41	0.780	1.708	0.150	0.329	0.002	0.004	0.022	0.049	0.022	0.049	0.017	0.037	8.0E-07	1.7E-06
42	0.119	0.260	0.098	0.214	0.001	0.002	0.012	0.026	0.012	0.026	0.009	0.020	4.3E-07	9.3E-07
43	0.270	0.592	0.222	0.486	0.002	0.005	0.027	0.060	0.027	0.060	0.021	0.046	9.7E-07	2.1E-06
44	0.460	1.007	0.182	0.398	0.002	0.004	0.024	0.052	0.024	0.052	0.018	0.040	8.5E-07	1.9E-06
45														
46														
47														

	A	B	C	D	E	F
4	**Table 2**					
5	**Potential Criteria Air Pollutant Emissions from Boilers**					
6	**Pollutant**	**Emission Factor, lb/MMBtu**	**Operating Rate, MMBtu**		**Emission Rate***	
7			**Hourly**	**Annual**	**Hourly, lb/hr**	**ton/yr**
8	CO	0.074	98.0	858,480	7.25	31.74
9	NOx	0.018	98.0	858,480	1.79	7.82
10	SO2	0.00059	98.0	858,480	0.06	0.25
11	PM2.5	0.00745	98.0	858,480	0.73	3.20
12	PM10	0.00745	98.0	858,480	0.73	3.20
13	VOC	0.00539	98.0	858,480	0.53	2.31
14	Pb	4.90E-07	98.0	858,480	4.80E-05	2.10E-04
15	* Emissions rates are for each boiler.					

	A	B	C	D
1	**Flake Emission Factors**			
2	**Parameter**	**Value**	**Units**	**Basis**
3	Uncontrolled PM2.5/PM10			
4	Estimated PM emission rate, Gem flakers	0.73	lb/hr, bone dry solids	From Emissions Inventory in May 18, 2017 "Permit-to-Construct Modification Application" for Gem State Processing Heyburn. Emissions calculations based on June 20-21, 2011 stack test, as reported in application Emission Inventory..
5	operating rate, Gem State flakers, dry	2250	lb dry/hr	From May 18, 2017 "Permit-to-Construct Modification Application" for Gem State Processing Heyburn
6	flake moisture content	0.07		process knowledge
7	operating rate, Gem State flakers, actual	2,419	lb actual/hr	Based on 7% moisture content in finished product
8				
9	PM emission factor, actual product	0.302	lb/1000 lbs	Emission rate divided by actual operating rate.

	A	B	C	D	E	F	G	H	I	J	K	L
4	**Potential Criteria Air Pollutant Emissions from Flake Production***											
5	**Pollutant**	**Activity**	**Emission Factor**		**Operating Rate**			**Uncontrolled Emissions**		**Control**	**Controlled Emissions**	
6			**Value**	**Units**	**Hourly**	**Annual**	**Units**	**lb/hr**	**ton/yr**	**Efficiency**	**lb/hr**	**ton/yr**
7	PM2.5	Dehydration†	0.302	lb/1000 lbs	12	105,120	1000 lbs	3.62	15.9	75%	0.91	4.0
8	PM10	Dehydration†	0.302	lb/1000 lbs	12	105,120	1000 lbs	3.62	15.9	75%	0.91	4.0
9	* Total for Flaker Production. Emissions from each stack are 50% of total emissions.											
10	† Based on 12,000 lb/hr production (4 drums @ 3000 lb/hr per drum).											
11												
12												

	A	B	C	D
1	**CALCULATED PARAMETERS - BELT DRYER EMISSION FACTORS**			
2	**Parameter**	**Value**	**Units**	**Basis**
3				
4	**Dehydration PM Emission Factors**			
5	Stage A Exhaust			
6	inlet moisture	81.5%		
7	outlet moisture	60.0%		
8	% of drying occurring in stage	28.7%		
9	cumulative % of drying completed at start of stage	0.0%		
10	cumulative % of drying completed at end of stage	28.7%		
11	*Filterable PM $_{10}$*			
12	cumulative % of filt PM_{10} emitted at start of stage	0.0%		
13	cumulative % of filt PM_{10} emitted by end of stage	10.6%		
14	Filterable PM_{10} increment in stage	10.6%		
15	Filterable PM_{10} emission factor for stage	0.074	lb/1000 lb	
16	*Condensible PM10*			
17	cumulative % of cndnsbl PM_{10} emitted at start of stage	0.0%		
18	cumulative % of cndnsbl PM_{10} emitted by end of stage	33.5%		
19	cndnsbl PM_{10} increment in stage	33.5%		
20	cndnsbl PM_{10} emission factor for stage	0.101	lb/1000 lb	
21	Total PM10 emissions for Stage A Exhaust	0.174	lb/1000 lb	
22	Stage BCD Exhaust			
23	inlet moisture	60.0%		
24	outlet moisture	6.5%		
25	% of drying occurring in stage	71.3%		
26	cumulative % of drying completed at start of stage	28.7%		
27	cumulative % of drying completed at end of stage	100.0%		
28	Filterable PM10			
29	cumulative % of filt PM_{10} emitted at start of stage	10.6%		
30	cumulative % of filt PM_{10} emitted by end of stage	100.0%		
31	Filterable PM10 increment in stage	89.4%		
32	Filterable PM10 emission factor for stage	0.626	lb/1000 lb	
33	Condensible PM10			
34	cumulative % of cndnsbl PM_{10} emitted at start of stage	33.5%		
35	cumulative % of cndnsbl PM_{10} emitted by end of stage	100.0%		
36	cndnsbl PM10 increment in stage	66.5%		
37	cndnsbl PM10 emission factor for stage	0.199	lb/1000 lb	
38	Total PM10 emissions for Stage BCD Exhaust	0.826	lb/1000 lb	
39	**Combustion Emission Factors**			

	A	B	C	D
1	**CALCULATED PARAMETERS - BELT DRYER EMISSION FACTORS**			
2	**Parameter**	**Value**	**Units**	**Basis**
40	*NOx Emissions Winnox 0200*			
41	PPM, stack gas concentration	25	ppmv at 3% oxygen	vendor guarantee
42	FW, formula weight	46	-	NOx as NO2
43	E, emissions	0.00000299	lb/dscf	=PPM*FW/(385.1*10^6)
44	Fa, Fd adjusted to 3% O2	10,170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
45	heat rate emission factor	0.030	lb/MMBtu	=E*Fa
46	fuel rate emission factor	30.98	lb/MMscf NG	
47	Winnox 0100 emissions			
48	PPM, stack gas concentration	10	ppmv at 3% oxygen	vendor guarantee
49	FW, formula weight	46	-	NOx as NO2
50	E, emissions	0.00000119	lb/dscf	=PPM*FW/(385.1*10^6)
51	Fa, Fd adjusted to 3% O2	10,170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
52	heat rate emission factor	0.012	lb/MMBtu	=E*Fa
53	fuel rate emission factor	12.39	lb/MMscf NG	
54	*CO Emissions*			
55	fuel rate emission factor	84	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
56	heat rate emission factor	0.18200	lb/MMBtu	lb/MMscf ÷ HHV NG
57	*PM2.5 Emissions*			Use CO EF of 0.182 lb/MMBtu from November 2011 source test report Table 7 instead of CO EF of 84 lb/MMscf or 0.08235 lb/MMBtu from AP-42.
58	fuel rate emission factor	7.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu. All PM counted as PM2.5
59	heat rate emission factor	0.00745	lb/MMBtu	lb/MMscf ÷ HHV NG
60	*PM10 Emissions*			
61	fuel rate emission factor	7.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu. All PM counted as PM10
62	heat rate emission factor	0.00745	lb/MMBtu	lb/MMscf ÷ HHV NG
63	SO_2 Emissions			
64	fuel rate emission factor	0.6	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
65	heat rate emission factor	0.00059	lb/MMBtu	lb/MMscf ÷ HHV NG
66	*VOC Emissions*			
67	fuel rate emission factor	5.5	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
68	heat rate emission factor	0.00539	lb/MMBtu	lb/MMscf ÷ HHV NG
69	*Pb Emissions*			
70	fuel rate emission factor	0.0005	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
71	heat rate emission factor	4.90E-07	lb/MMBtu	lb/MMscf ÷ HHV NG

	A	B	C	D	E	F	G	H	I	J
4	**Potential Criteria Air Pollutant Emissions from P4 Dehydration**									
5	**Dryer**	**Pollutant**	**Activity**	**Emission Factor**		**Operating Rate**			**Potential Emissions**	
6	**Stage**			**Value**	**Units**	**Hourly**	**Annual**	**Units**	**Hourly, lb/hr**	**ton/yr**
7		CO	NG combustion	0.182	lb/MMBtu	8.8	77,088	MMBtu	1.602	7.015
8		NOx	NG combustion†	0.030	lb/MMBtu	8.8	77,088	MMBtu	0.267	1.171
9		SO2	NG combustion	0.0006	lb/MMBtu	8.8	77,088	MMBtu	0.005	0.023
10		PM2.5	Dehydration*	0.174	lb/1000 lb	2.0	17,520	1000 lbs	0.349	1.528
11			NG combustion	0.0075	lb/MMBtu	8.8	77,088	MMBtu	0.066	0.287
12	Stage A							*Total PM2.5*	0.415	1.816
13		PM10	Dehydration*	0.174	lb/1000 lb	2.0	17,520	1000 lbs	0.349	1.528
14			NG combustion	0.0075	lb/MMBtu	8.8	77,088	MMBtu	0.066	0.287
15								*Total PM10*	0.415	1.816
16		VOC	NG combustion	0.0054	lb/MMBtu	8.8	77,088	MMBtu	0.047	0.208
17		Pb	NG combustion	4.90E-07	lb/MMBtu	8.8	77,088	MMBtu	4.31E-06	1.89E-05
18		CO	NG combustion	0.182	lb/MMBtu	10	87,600	MMBtu	1.820	7.972
19		NOx	NG combustion†	0.030	lb/MMBtu	8	70,080	MMBtu	0.243	1.064
20			NG combustion‡	0.012	lb/MMBtu	2	17,520	MMBtu	0.024	0.106
21								*Total NOx*	0.267	1.171
22		SO2	NG combustion	0.0006	lb/MMBtu	10	87,600	MMBtu	0.006	0.026
23		PM2.5	Dehydration*	0.826	lb/1000 lb	2.0	17,520	1000 lbs	1.651	7.232
24	Stage B		NG combustion	0.0075	lb/MMBtu	10	87,600	MMBtu	0.075	0.326
25								*Total PM2.5*	1.726	7.558
26		PM10	Dehydration*	0.826	lb/1000 lb	2.0	17,520	1000 lbs	1.651	7.232
27			NG combustion	0.0075	lb/MMBtu	10	87,600	MMBtu	0.075	0.326
28								*Total PM10*	1.726	7.558
29		VOC	NG combustion	0.0054	lb/MMBtu	10	87,600	MMBtu	0.054	0.236
30		Pb	NG combustion	4.90E-07	lb/MMBtu	10	87,600	MMBtu	4.90E-06	2.15E-05
31	† Winnox 0200 burner									
32	‡ Winnox 0100 burner									
33										

	A	B	C	D	E	F
5	**Potential Criteria Air Pollutant Emissions from Kipper Boiler Post-Project**					
6	**Pollutant**	**Emission Factor*, lb/MMBtu**	**Operating Rate, MMBtu**		**Emission Rate***	
7			**Hourly**	**Annual**	**Hourly, lb/hr**	**ton/yr**
8	CO	0.669	90.0	262,800	60.25	87.97
9	NOx	0.240	90.0	262,800	21.58	31.51
10	SO2	0.025	90.0	262,800	2.25	3.29
11	PM2.5	0.151	90.0	262,800	13.57	19.81
12	PM10	0.151	90.0	262,800	13.57	19.81
13	VOC	0.035	90.0	262,800	3.18	4.65
14	Pb	4.80E-05	90.0	262,800	4.32E-03	6.31E-03
15	* Based on wood-only firing					

	A	B	C
1	**POTENTIAL INCREASE IN KIPPER BOILER EMISSIONS DUE TO PROCESS A PRODUCTION INCREASE**		
2	**Constitutent**	**Emission Factor, lb/MMBtu**	**Emissions, lb/hr @ 1.052 MMBtuh**
3	SO2	0.025	0.026307739
4	NOx	0.240	0.252
5	CO	0.669	0.705
6	PM	0.154	0.162
7	PM10	0.151	0.159
8	PM2.5	0.151	0.159
9	VOC	0.035	0.037
10	Lead	4.80E-05	5.05E-05
11	Acenaphthene	9.10E-07	9.58E-07
12	Acenaphthylene	5.00E-06	5.26E-06
13	Acetaldehyde	8.30E-04	8.73E-04
14	Acetone	1.90E-04	2.00E-04
15	Acetophenone	3.20E-09	3.37E-09
16	Acrolein	4.00E-03	4.21E-03
17	Anthracene	3.00E-06	3.16E-06
18	Benzaldehyde	8.50E-07	8.94E-07
19	Benzene	4.20E-03	4.42E-03
20	Benzo(a)anthracene	6.50E-08	6.84E-08
21	Benzo(a)pyrene	2.60E-06	2.74E-06
22	Benzo(b)fluoranthene	1.00E-07	1.05E-07
23	Benzo(e)pyrene	2.60E-09	2.74E-09
24	Benzo(g,h,i)perylene	9.30E-08	9.79E-08
25	Benzo(j,k)fluoranthene	1.60E-07	1.68E-07
26	Benzo(k)fluoranthene	3.60E-08	3.79E-08
27	Benzoic acid	4.70E-08	4.95E-08
28	bis(2-Ethylhexyl)phthalate	4.70E-08	4.95E-08
29	Bromomethane	1.50E-05	1.58E-05
30	2-Butanone (MEK)	5.40E-06	5.68E-06
31	Carbazole	1.80E-06	1.89E-06
32	Carbon tetrachloride	4.50E-05	4.74E-05
33	Chlorine	7.90E-04	8.31E-04
34	Chlorobenzene	3.30E-05	3.47E-05
35	Chloroform	2.80E-05	2.95E-05
36	Chloromethane	2.30E-05	2.42E-05
37	2-Chloronaphthalene	2.40E-09	2.53E-09
38	2-Chlorophenol	2.40E-08	2.53E-08

	A	B	C
2	**Constitutent**	**Emission Factor, lb/MMBtu**	**Emissions, lb/hr @ 1.052 MMBtuh**
39	Chrysene	3.80E-08	4.00E-08
40	Crotonaldehyde	9.90E-06	1.04E-05
41	Decachlorobiphenyl	2.70E-10	2.84E-10
42	Dibenzo(a,h)anthracene	9.10E-09	9.58E-09
43	1,2-Dibromoethene	5.50E-05	5.79E-05
44	Dichlorobiphenyl	7.40E-10	7.79E-10
45	1,2-Dichloroethane	2.90E-05	3.05E-05
46	Dichloromethane	2.90E-04	3.05E-04
47	1,2-Dichloropropane	3.30E-05	3.47E-05
48	2,4-Dinitrophenol	1.80E-07	1.89E-07
49	Ethylbenzene	3.10E-05	3.26E-05
50	Fluoranthene	1.60E-06	1.68E-06
51	Fluorene	3.40E-06	3.58E-06
52	Formaldehyde	4.40E-03	4.63E-03
53	Heptachlorobiphenyl	6.60E-11	6.95E-11
54	Hexachlorobiphenyl	5.50E-10	5.79E-10
55	Hexanal	7.00E-06	7.37E-06
56	Hexane	0.00E+00	0.00E+00
57	Heptachlorodibenzo-p-dioxins	2.00E-09	2.10E-09
58	Heptachlorodibenzo-p-furans	2.40E-10	2.53E-10
59	Hexachlorodibenzo-p-dioxins	1.60E-06	1.68E-06
60	Hexachlorodibenzo-p-furans	2.80E-10	2.95E-10
61	HCl	1.90E-02	2.00E-02
62	Indeno(1,2,3,c,d)pyrene	8.70E-08	9.16E-08
63	Isobutyraldehyde	1.20E-05	1.26E-05
64	Methane	2.10E-02	2.21E-02
65	2-Methylnaphthalene	1.60E-07	1.68E-07
66	Monochlorobiphenyl	2.20E-10	2.32E-10
67	Naphthalene	9.70E-05	1.02E-04
68	2-Nitrophenol	2.40E-07	2.53E-07
69	4-Nitrophenol	1.10E-07	1.16E-07
70	Octachlorodibenzo-p-dioxins	6.60E-08	6.95E-08
71	Octachlorodibenzo-p-furans	8.80E-11	9.26E-11
72	Pentachlorodibenzo-p-dioxins	1.50E-09	1.58E-09
73	Pentachlorodibenzo-p-furans	4.20E-10	4.42E-10
74	Pentachlorobiphenyl	1.20E-09	1.26E-09
75	Pentachlorophenol	5.10E-08	5.37E-08
76	Perylene	5.20E-10	5.47E-10
77	Phenanthrene	7.00E-06	7.37E-06

	A	B	C
2	**Constitutent**	**Emission Factor, lb/MMBtu**	**Emissions, lb/hr @ 1.052 MMBtuh**
78	Phenol	5.10E-05	5.37E-05
79	Phosphorus	2.70E-05	2.84E-05
80	Propanal	3.20E-06	3.37E-06
81	Propionaldehyde	6.10E-05	6.42E-05
82	Pyrene	3.70E-06	3.89E-06
83	Styrene	1.90E-03	2.00E-03
84	2,3,7,8-Tetrachlorodibenzo-p-dioxins	8.60E-12	9.05E-12
85	Tetrachlorodibenzo-p-dioxins	4.70E-10	4.95E-10
86	2,3,7,8-Tetrachlorodibenzo-p-furans	9.00E-11	9.47E-11
87	Tetrachlorodibenzo-p-furans	7.50E-10	7.89E-10
88	Tetrachlorobiphenyl	2.50E-09	2.63E-09
89	Tetrachloroethene	3.80E-05	4.00E-05
90	o-Tolualdehyde	7.20E-06	7.58E-06
91	p-Tolualdehyde	1.10E-05	1.16E-05
92	Toluene	9.20E-04	9.68E-04
93	Trichlorobiphenyl	2.60E-09	2.74E-09
94	1,1,1-Trichloroethane	3.10E-05	3.26E-05
95	Trichloroethene	3.00E-05	3.16E-05
96	Trichlorofluoromethane	4.00E-05	4.21E-05
97	2,4,6-Trichlorophenol	2.20E-08	2.32E-08
98	Vinyl Chloride	1.80E-05	1.89E-05
99	o-Xylene	2.50E-05	2.63E-05
100	Antimony	7.90E-06	8.31E-06
101	Arsenic	2.20E-05	2.32E-05
102	Barium	1.70E-04	1.79E-04
103	Beryllium	1.10E-06	1.16E-06
104	Cadmium	4.10E-06	4.31E-06
105	Chromium, total	2.10E-05	2.21E-05
106	Chromium, hexavalent	3.50E-06	3.68E-06
107	Cobalt	6.50E-06	6.84E-06
108	Copper	4.90E-05	5.16E-05
109	Iron	9.90E-04	1.04E-03
110	Lead	4.80E-05	5.05E-05
111	Manganese	1.60E-03	1.68E-03
112	Mercury	3.50E-06	3.68E-06
113	Molybdenum	2.10E-06	2.21E-06
114	Nickel	3.30E-05	3.47E-05

	A	B	C
2	**Constitutent**	**Emission Factor, lb/MMBtu**	**Emissions, lb/hr @ 1.052 MMBtuh**
115	Potassium	3.90E-02	4.10E-02
116	Selenium	2.80E-06	2.95E-06
117	Silver	1.70E-03	1.79E-03
118	Sodium	3.60E-04	3.79E-04
119	Strontium	1.00E-05	1.05E-05
120	Tin	2.30E-05	2.42E-05
121	Titanium	2.00E-05	2.10E-05
122	Vanadium	9.80E-07	1.03E-06
123	Yttrium	3.00E-07	3.16E-07
124	Zinc	4.20E-04	4.42E-04

	A	B	C
1	**WOODPILE EMISSION CALCULATIONS**		
2	**Parameter**	**Value**	**Units**
3	PM10 emission factor	0.00114	lb/ton of wood handled
4	PM2.5 emission factor	0.00017	lb/ton of wood handled
5	VOC emission factor	0.53	lb/ton of wood handled
6	heat content of wood	7,000	Btu/lb
7	heat input from wood		
8	hourly	90	MMBtuh
9	annual	262,800	MMBtu/yr
10	tons of wood handled		
11	hourly	6.43	tons/hr
12	annual	18,771	ton/yr
13	PM10 emissions		
14	hourly	0.007	lb/hr
15	annual	0.011	ton/yr
16	PM2.5 emissions		
17	hourly	0.0011	lb/hr
18	annual	0.0016	ton/yr
19	VOC emissions		
20	hourly	3.41	lb/hr
21	annual	4.97	ton/yr
22			
23	Existing woodpile emissions		
24	PM10 emissions		
25	hourly	0.007	lb/hr
26	annual	0.032	ton/yr
27	PM2.5 emissions		
28	hourly	0.0011	lb/hr
29	annual	0.005	ton/yr
30	VOC emissions		
31	hourly	3.41	lb/hr
32	annual	14.92	ton/yr
33			
34			
35			
36			
37			

	A	E	F	G	H	I	J	K	L
3	**TAP EMISSIONS**								
4				**Boilers 1A and 2A @ 98 MMBtu each boiler.**		**Replacement Belt Dryer @ 18.8 MMBtuh**		**New Air Make-up Units @ 19.59 MMBtuh**	
5	**Air Pollutant**	**SEL, lb/hr**	**Emission Factor, lb/MMBtu**	**Emission Rate, lb/hr***	**% of SEL**	**Emission Rate, lb/hr***	**% of SEL**	**Emission Rate, lb/hr***	**% of SEL**
6	PAH (Idaho)	9.10E-05	6.73E-07	6.60E-05	NA†	1.27E-05	14%	1.32E-05	14%
7	POM (Idaho)	2.00E-06	1.12E-08	1.10E-06	NA†	2.10E-07	11%	2.19E-07	11%
8	Benzene	8.00E-04	2.06E-06	2.02E-04	NA†	3.87E-05	5%	4.03E-05	5%
9	Dichlorobenzene	2.00E+01	1.18E-06	1.15E-04	NA†	2.21E-05	0%	2.30E-05	0%
10	Formaldehyde	5.10E-04	7.35E-05	7.21E-03	NA†	1.38E-03	271%	1.44E-03	282%
11	Hexane	1.20E+01	1.76E-03	1.73E-01	NA†	3.32E-02	0%	3.46E-02	0%
12	Pentane	1.18E+02	2.55E-03	2.50E-01	0.2%	4.79E-02	0%	4.99E-02	0%
13	Toluene	2.50E+01	3.33E-06	3.27E-04	NA†	6.27E-05	0%	6.53E-05	0%
14	Arsenic	1.50E-06	1.96E-07	1.92E-05	NA†	3.68E-06	246%	3.84E-06	256%
15	Beryllium	2.80E-05	1.18E-08	1.16E-06	NA†	2.22E-07	1%	2.31E-07	1%
16	Cadmium	3.70E-06	1.08E-06	1.06E-04	NA†	2.03E-05	549%	2.12E-05	572%
17	Chromium	3.30E-02	1.37E-06	1.34E-04	NA†	2.58E-05	0%	2.68E-05	0%
18	Chromium(VI)	5.60E-07	6.85E-08	6.71E-06	NA†	1.29E-06	230%	1.34E-06	240%
19	Cobalt	3.30E-03	8.24E-08	8.08E-06	NA†	1.55E-06	0%	1.61E-06	0%
20	Manganese	3.33E-01	3.73E-07	3.66E-05	NA†	7.01E-06	0%	7.31E-06	0%
21	Nickel	2.70E-05	2.06E-06	2.02E-04	NA†	3.87E-05	143%	4.03E-05	149%
22	Selenium	1.30E-02	2.35E-08	2.30E-06	NA†	4.42E-07	0%	4.60E-07	0%
23	Nitrous Oxide	6.00E+00	2.16E-03	2.11E-01	3.5%	4.05E-02	1%	4.22E-02	1%
24	**EPA Total HAPs**	-	1.85E-03	1.81E-01		3.48E-02		3.63E-02	
25	* Emissions data are per boiler.								
26	† TAP analysis not needed because ambient impacts of TAP addressed in 40 CFR 63, Subparts JJJJJJ.								
27									

	A	B	C	D
1				
2	**Parameter**	**Value**	**Units**	**Discussion**
3	Dryer heat supply requirement	4.8	MMBtu/ton produced	see inputs
4	Granules production increase	3.800	ton/day	see inputs
5	Potential Increase in NG Usage			
6	Increased dryer heat required for production increase	0.76	MMBtu/hr	
7		6,658	MMBtu/yr	
8	Potential Increase in Kipper Boiler Firing			
9	Heat provided by steam	1,000	Btu/lb of steam	
10	Kipper Boiler efficiency	72.2%	Btu steam/Btu fuel	
11	Kipper fuel input per lb of steam	1,385	Btu fuel/lb of steam	
12	Added steam required by production increase	760	lb steam/hr	
13		6,657,600	lb steam/yr	
14	Increased Kipper Boiler firing required by production increase	1.052	MMBtu/hr	
15		9,218	MMBtu/yr	

	A	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1			Annual TAP Emissions, lb/hr															
2	Release Point	Source ID	Formaldehyde			Arsenic			Cadmium			Chromium(VI)			Nickel			
3			Process	AMU	Total	Process	AMU	Total	Process	AMU	Total	Process	AMU	Total	Process	AMU	Total	
4	Boiler 1A*	BLR1A	-	6.2E-05	6.2E-05	-	1.7E-07	1.7E-07	-	9.2E-07	9.2E-07	-	5.8E-08	5.8E-08	-	1.7E-06	1.7E-06	
5	Boiler 2A*	BLR2A	-	6.2E-05	6.2E-05	-	1.7E-07	1.7E-07	-	9.2E-07	9.2E-07	-	5.8E-08	5.8E-08	-	1.7E-06	1.7E-06	
6	P4A†	P4A	6.5E-04	-	6.5E-04	1.7E-06	-	1.7E-06	9.5E-06	-	9.5E-06	6.0E-07	-	6.0E-07	1.8E-05	-	1.8E-05	
7	P4BCD†	P4BCD	7.4E-04	-	7.4E-04	2.0E-06	-	2.0E-06	1.1E-05	-	1.1E-05	6.9E-07	-	6.9E-07	2.1E-05	-	2.1E-05	
8	Flake North‡	FLK_N	-	1.6E-04	1.6E-04	-	4.4E-07	4.4E-07	-	2.4E-06	2.4E-06	-	1.5E-07	1.5E-07	-	4.6E-06	4.6E-06	
9	Flake South‡	FLK_S	-	1.6E-04	1.6E-04	-	4.4E-07	4.4E-07	-	2.4E-06	2.4E-06	-	1.5E-07	1.5E-07	-	4.6E-06	4.6E-06	
10	New Boilerhouse	AM_BLRNEW	-	5.9E-05	5.9E-05	-	1.6E-07	1.6E-07	-	8.7E-07	8.7E-07	-	5.5E-08	5.5E-08	-	1.7E-06	1.7E-06	
11	Flake	AM_FLAKE	-	1.3E-04	1.3E-04	-	3.6E-07	3.6E-07	-	2.0E-06	2.0E-06	-	1.3E-07	1.3E-07	-	3.8E-06	3.8E-06	
12	Receiving	AM_RECG	-	1.2E-04	1.2E-04	-	3.1E-07	3.1E-07	-	1.7E-06	1.7E-06	-	1.1E-07	1.1E-07	-	3.3E-06	3.3E-06	
13	Notes: * Boiler emissions of TAPs in this table are addressed separetely under 40 CFR 62, Subpart JJJJJJ. See discussion in Section 2.1.4. † No emissions from new or modified AMUs exhaust via this release point. ‡ The Flake operations do not include any fuel combustion. The only TAP emissions from this starck are from Flake building AMUs.																	

	T	U	V	W	X	Y	Z
1			**TAPs for paste into BEEST. Emission rates multiplied**				
2			**by 10^6**				
3			HCOH	As	Cd	Cr+6	Ni
4		Boiler 1A	62.40	0.166	0.915	0.058	1.747
5		Boiler 2A	62.40	0.166	0.915	0.058	1.747
6		P4A	647.06	1.725	9.504	0.603	18.128
7		P4BCD	735.29	1.960	10.800	0.685	20.600
8		Flake North	164.13	0.438	2.407	0.153	4.596
9		Flake South	164.13	0.438	2.407	0.153	4.596
10		New Boilerhouse	59.02	0.157	0.866	0.055	1.653
11		Flake	134.39	0.358	1.971	0.125	3.763
12		Receiving	117.72	0.314	1.727	0.110	3.296
13							

project emissions increase

Process	Stack	Process Emissions: Unit Process Throughput Increase* ton/day	lb/hr	ton/yr	PM10 Emission Factor, lb/1000 lbs	PM10 Emissions Increase lb/hr	PM10 Emissions Increase ton/yr	PM2.5 Emission Factor, lb/1000 lbs	PM2.5 Emissions Increase lb/hr	PM2.5 Emissions Increase ton/yr	SO_2 Emission Factor, lb/1000 lbs	SO_2 Emissions Increase lb/hr	SO_2 Emissions Increase ton/yr	Combustion Emissions - Process Burners: Burner Capacity, MMBtu/h	Combustion Rate Increase, MMBtu Hourly	Combustion Rate Increase, MMBtu Annual	PM10 Emission Factor, lb/MMBtu	PM10 Emissions Increase lb/hr	PM10 Emissions Increase ton/yr	PM2.5 Emission Factor, lb/MMBtu	PM2.5 Emissions Increase lb/hr	PM2.5 Emissions Increase ton/yr	SO2 Emission Factor, lb/MMBtu	SO2 Emissions Increase lb/hr	SO2 Emissions Increase ton/yr	NOx Emission Factor, lb/MMBtu	NOx Emissions Increase lb/hr	NOx Emissions Increase ton/yr	CO Emission Factor, lb/MMBtu	CO Emissions Increase lb/hr	CO Emissions Increase ton/yr	VOC Emission Factor, lb/MMBtu	VOC Emissions Increase lb/hr	VOC Emissions Increase ton/yr
Process A	7020	30	2,533	11,096	0.010	0.026	0.11	0.010	0.026	0.11	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7101	15	1,267	5,548	0.106	0.134	0.59	0.106	0.134	0.59	0.005	0.006	0.03	6.5	0.25	2,208	0.007	0.002	0.01	0.007	0.002	0.01	0.002	0.001	0.00	0.051	0.013	0.06	0.260	0.066	0.29	0.005	0.001	0.01
	7102	15	1,267	5,548	0.106	0.134	0.59	0.106	0.134	0.59	0.005	0.006	0.03	6.5	0.25	2,208	0.007	0.002	0.01	0.007	0.002	0.01	0.002	0.001	0.00	0.051	0.013	0.06	0.260	0.066	0.29	0.005	0.001	0.01
	7019	30	2,533	11,096	0.020	0.049	0.22	0.020	0.049	0.22	0.005	0.013	0.06	6.6	0.26	2,242	0.007	0.002	0.01	0.007	0.002	0.01	0.002	0.001	0.00	0.051	0.013	0.06	0.260	0.067	0.29	0.005	0.001	0.01
	7001	4	317	1,387	0.046	0.015	0.06	0.046	0.015	0.06	0.009	0.002	0.01		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7027	4	317	1,387	0.008	0.003	0.01	0.008	0.003	0.01	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7006	30	2,533	11,096	0.003	0.008	0.03	0.003	0.008	0.03	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Process B	8	4	317	1,387	0.002	0.001	0.00	0.002	0.001	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5001	4	317	1,387	0.008	0.003	0.01	0.008	0.003	0.01	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5000	4	317	1,387	0.002	0.001	0.00	0.002	0.001	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	432	4	317	1,387	0.002	0.001	0.00	0.002	0.001	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	322	0.04	3	14	0.008	0.000	0.00	0.008	0.000	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	572	0.19	16	69	0.038	0.001	0.00	0.038	0.001	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

line. Inside the mixback loop, the throughput rates are about eight times larger than the net process production rate. Stacks 7101 and 7102 operate in parallel, so the loading rate for those dryers is four times the process production rate. For stacks 7020, 7019, and 7006, the loading rates are eight times the production line throughput. Stacks 7001 and 7027 are located after

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL
23	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37

total emissions - post project

Process	Stack	Process Emissions: Unit Process Throughput Increase* ton/day	lb/hr	ton/yr	PM10 Emission Factor, lb/1000 lbs	PM10 Emissions Increase lb/hr	PM10 Emissions Increase ton/yr	PM2.5 Emission Factor, lb/1000 lbs	PM2.5 Emissions Increase lb/hr	PM2.5 Emissions Increase ton/yr	SO_2 Emission Factor, lb/1000 lbs	SO_2 Emissions Increase lb/hr	SO_2 Emissions Increase ton/yr	Combustion Emissions - Process Burners: Burner Capacity, MMBtu/h	Combustion Rate Increase, MMBtu Hourly	Combustion Rate Increase, MMBtu Annual	PM10 Emission Factor, lb/MMBtu	PM10 Emissions Increase lb/hr	PM10 Emissions Increase ton/yr	PM2.5 Emission Factor, lb/MMBtu	PM2.5 Emissions Increase lb/hr	PM2.5 Emissions Increase ton/yr	SO2 Emission Factor, lb/MMBtu	SO2 Emissions Increase lb/hr	SO2 Emissions Increase ton/yr	NOx Emission Factor, lb/MMBtu	NOx Emissions Increase lb/hr	NOx Emissions Increase ton/yr	CO Emission Factor, lb/MMBtu	CO Emissions Increase lb/hr	CO Emissions Increase ton/yr	VOC Emission Factor, lb/MMBtu	VOC Emissions Increase lb/hr	VOC Emissions Increase ton/yr	Lead Emission Factor, lb/MMBtu	Lead Emissions Increase lb/hr	Lead Emissions Increase ton/yr
Process A	7020	520	43,333	189,800	0.010	0.441	1.93	0.010	0.441	1.93	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7101	260	21,667	94,900	0.106	2.297	10.06	0.106	2.297	10.06	0.005	0.108	0.47	6.5	6.50	56,940	0.007	0.048	0.21	0.007	0.048	0.21	0.002	0.015	0.07	0.051	0.332	1.45	0.260	1.690	7.40	0.005	0.033	0.14	4.9E-07	3.2E-06	1.4E-05
	7102	260	21,667	94,900	0.106	2.297	10.06	0.106	2.297	10.06	0.005	0.108	0.47	6.5	6.50	56,940	0.007	0.048	0.21	0.007	0.048	0.21	0.002	0.015	0.07	0.051	0.332	1.45	0.260	1.690	7.40	0.005	0.033	0.14	4.9E-07	3.2E-06	1.4E-05
	7019	520	43,333	189,800	0.020	0.845	3.70	0.020	0.845	3.70	0.005	0.217	0.95	6.6	6.60	57,816	0.007	0.049	0.22	0.007	0.049	0.22	0.002	0.016	0.07	0.051	0.337	1.47	0.260	1.716	7.52	0.005	0.033	0.14	4.9E-07	3.2E-06	1.4E-05
	7001	65	5,417	23,725	0.046	0.249	1.09	0.046	0.249	1.09	0.005	0.027	0.12		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7027	65	5,417	23,725	0.008	0.043	0.19	0.008	0.043	0.19	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7006	520	43,333	189,800	0.003	0.130	0.57	0.003	0.130	0.57	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Process B	8	363	30,217	132,349	0.002	0.048	0.21	0.002	0.048	0.21	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5001	363	30,217	132,349	0.008	0.242	1.06	0.008	0.242	1.06	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5000	363	30,217	132,349	0.002	0.048	0.21	0.002	0.048	0.21	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	432	363	30,217	132,349	0.002	0.048	0.21	0.002	0.048	0.21	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	322	3.63	302	1,323	0.008	0.002	0.01	0.008	0.002	0.01	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	572	18.13	1,511	6,617	0.038	0.057	0.25	0.038	0.057	0.25	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Notes:

line. Inside the mixback loop, the throughput rates are about eight times larger than the net process production rate. Stacks 7101 and 7102 operate in parallel, so the loading rate for those dryers is four times the process production rate. For stacks 7020, 7019, and 7006, the loading rates are eight times the production line throughput. Stacks 7001 and 7027 are located after

total emissions - pre-project

Process	Stack	Process Emissions: Unit Process Throughput Increase* ton/day	lb/hr	ton/yr	PM10 Emission Factor, lb/1000 lbs	PM10 Emissions lb/hr	PM10 Emissions ton/yr	PM2.5 Emission Factor, lb/1000 lbs	PM2.5 Emissions lb/hr	PM2.5 Emissions ton/yr	SO_2 Emission Factor, lb/1000 lbs	SO_2 Emissions lb/hr	SO_2 Emissions ton/yr	Combustion Emissions - Process Burners: Burner Capacity, MMBtu/h	Combustion Rate Increase, MMBtu Hourly	Combustion Rate Increase, MMBtu Annual	PM10 Emission Factor, lb/MMBtu	PM10 Emissions lb/hr	PM10 Emissions ton/yr	PM2.5 Emission Factor, lb/MMBtu	PM2.5 Emissions lb/hr	PM2.5 Emissions ton/yr	SO2 Emission Factor, lb/MMBtu	SO2 Emissions lb/hr	SO2 Emissions ton/yr	NOx Emission Factor, lb/MMBtu	NOx Emissions lb/hr	NOx Emissions ton/yr	CO Emission Factor, lb/MMBtu	CO Emissions lb/hr	CO Emissions ton/yr	VOC Emission Factor, lb/MMBtu	VOC Emissions lb/hr	VOC Emissions ton/yr
Process A	7020	490	40,800	178,704	0.010	0.415	1.82	0.010	0.415	1.82	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7101	245	20,400	89,352	0.106	2.162	9.47	0.106	2.162	9.47	0.005	0.102	0.45	6.5	6.50	56,940	0.007	0.048	0.21	0.007	0.048	0.21	0.002	0.015	0.07	0.051	0.332	1.45	0.260	1.690	7.40	0.005	0.033	0.14
	7102	245	20,400	89,352	0.106	2.162	9.47	0.106	2.162	9.47	0.005	0.102	0.45	6.5	6.50	56,940	0.007	0.048	0.21	0.007	0.048	0.21	0.002	0.015	0.07	0.051	0.332	1.45	0.260	1.690	7.40	0.005	0.033	0.14
	7019	490	40,800	178,704	0.020	0.796	3.48	0.020	0.796	3.48	0.005	0.204	0.89	6.6	6.60	57,816	0.007	0.049	0.22	0.007	0.049	0.22	0.002	0.016	0.07	0.051	0.337	1.47	0.260	1.716	7.52	0.005	0.033	0.14
	7001	61	5,100	22,338	0.046	0.235	1.03	0.046	0.235	1.03	0.005	0.026	0.11		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7027	61	5,100	22,338	0.008	0.041	0.18	0.008	0.041	0.18	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	7006	490	40,800	178,704	0.003	0.122	0.54	0.003	0.122	0.54	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Process B	8	61	5,100	22,338	0.002	0.008	0.04	0.002	0.008	0.04	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5001	61	5,100	22,338	0.008	0.041	0.18	0.008	0.041	0.18	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5000	61	5,100	22,338	0.002	0.008	0.04	0.002	0.008	0.04	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	432	61	5,100	22,338	0.002	0.008	0.04	0.002	0.008	0.04	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	322	0.61	51	223	0.008	0.000	0.00	0.008	0.000	0.00	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	572	3.06	255	1,117	0.038	0.010	0.04	0.038	0.010	0.04	-	-	-		0	0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

	A	B	C	D
1				
2		Changes in Steam Supply and Capacity		
3			Steam Supply, lb/hr	
4		Parameter	max day	annual
5		Projected Future Steam Demand		
6		Baseline steam usage*	91,505	55,542
7		Added steam demand		
8		New Flake Production	72,000	72,000
9		Increased Process A Productio	621	621
10		Retired steam usage*	-21,075	-7,859
11		Projected future steam	143,051	120,304
12		Added steam capacity		
13		Boiler 1A	80,600	80,600
14		Boiler 2A	80,600	80,600
15		Total new steam capacity	161,200	161,200

	A	B	C	D	E	F	G	H	I	J	K
1	1	2	3	5			28		44	45	46
2											
3		Steam Production									
4	date	KIPPER, lbs steam	#1 BOILER, lbs steam	#2 BOILER, lbs steam	total steam, lbs	total steam, lb/hr	P4, lbs/day	P4, lbs/hr			
5	1/1/2016	0	384,849	1,371,872	1,756,721	73,197	14,800	617			
6	1/2/2016	0	465,368	1,243,847	1,709,215	71,217	20,800	867			
7	1/3/2016	0	469,402	1,290,028	1,759,430	73,310	23,600	983			
8	1/4/2016	0	467,633	1,272,004	1,739,637	72,485	23,200	967			
9	1/5/2016	0	463,220	1,103,149	1,566,369	65,265	20,400	850			
10	1/6/2016	0	459,661	1,221,012	1,680,673	70,028	17,850	744			
11	1/7/2016	0	455,492	1,210,141	1,665,633	69,401	47,518	1,980			
12	1/8/2016	0	450,947	1,182,936	1,633,883	68,078	22,950	956			
13	1/9/2016	0	456,584	1,217,428	1,674,012	69,751	48,450	2,019			
14	1/10/2016	0	466,065	1,267,144	1,733,209	72,217	18,700	779			
15	1/11/2016	0	542,857	1,042,120	1,584,977	66,041	47,600	1,983			
16	1/12/2016	0	526,639	1,153,853	1,680,492	70,021	0	0			
17	1/13/2016	0	493,090	1,047,094	1,540,184	64,174	22,500	938			
18	1/14/2016	0	426,241	1,230,116	1,656,357	69,015	18,000	750			
19	1/15/2016	0	230,795	307,675	538,470	22,436	10,400	433			
20	1/16/2016	439,109	335,028	417,143	1,191,280	49,637	5,200	217			
21	1/17/2016	697,499	389,267	2,653	1,089,419	45,392	30,800	1,283			
22	1/18/2016	742,075	395,431	16	1,137,522	47,397	17,200	717			
23	1/19/2016	816,791	357,470	142	1,174,403	48,933	27,600	1,150			
24	1/20/2016	876,318	339,923	2,841	1,219,082	50,795	16,800	700			
25	1/21/2016	739,589	405,321	29,090	1,174,000	48,917	21,600	900			
26	1/22/2016	791,546	463,522	6,288	1,261,356	52,557	19,200	800			
27	1/23/2016	861,879	416,200	0	1,278,079	53,253	23,600	983			
28	1/24/2016	820,032	461,114	4	1,281,150	53,381	26,000	1,083			
29	1/25/2016	874,433	435,176	0	1,309,609	54,567	22,400	933			
30	1/26/2016	807,132	423,172	0	1,230,304	51,263	12,400	517			
31	1/27/2016	807,950	446,223	0	1,254,173	52,257	12,750	531			
32	1/28/2016	793,383	430,808	0	1,224,191	51,008	28,500	1,188			
33	1/29/2016	718,899	364,430	0	1,083,329	45,139	19,550	815			
34	1/30/2016	650,147	275,931	39	926,117	38,588	26,350	1,098			
35	1/31/2016	712,334	382,107	3	1,094,444	45,602	15,300	638			
36	2/1/2016	605,809	413,974	88	1,019,871	42,495	42,500	1,771			
37	2/2/2016	543,277	385,141	23,518	951,936	39,664	9,350	390			
38	2/3/2016	711,279	433,844	1,703	1,146,826	47,784	33,150	1,381			
39	2/4/2016	773,543	382,137	12,432	1,168,112	48,671	35,700	1,488			
40	2/5/2016	732,838	319,249	119	1,052,206	43,842	15,300	638			
41	2/6/2016	798,389	411,470	5,055	1,214,914	50,621	21,600	900			
42	2/7/2016	565,081	0	1,073,994	1,639,075	68,295	20,800	867			
43	2/8/2016	666,759	0	1,097,712	1,764,471	73,520	29,600	1,233			
44	2/9/2016	787,983	0	809,031	1,597,014	66,542	12,400	517			
45	2/10/2016	677,869	0	1,067,033	1,744,902	72,704	22,800	950			
46	2/11/2016	659,952	0	1,108,521	1,768,473	73,686	34,000	1,417			

	A	B	C	D	E	F	G	H	I	J	K
47	2/12/2016	578,193	3	1,084,946	1,663,142	69,298	6,000	250			
48	2/13/2016	687,587	0	935,141	1,622,728	67,614	20,800	867			
49	2/14/2016	478,734	0	754,812	1,233,546	51,398	38,400	1,600			
50	2/15/2016	0	0	111,621	111,621	4,651	0	0			
51	2/16/2016	0	0	23	23	1	3,000	125			
52	2/17/2016	0	0	0	0	0	0	0			
53	2/18/2016	0	21,581	95,941	117,522	4,897	0	0			
54	2/19/2016	0	357,319	528,798	886,117	36,922	0	0			
55	2/20/2016	0	547,197	956,084	1,503,281	62,637	31,500	1,313			
56	2/21/2016	0	571,294	890,461	1,461,755	60,906	34,650	1,444			
57	2/22/2016	0	577,505	921,218	1,498,723	62,447	29,700	1,238			
58	2/23/2016	91,461	549,763	770,108	1,411,332	58,806	30,600	1,275			
59	2/24/2016	577,849	390,190	261	968,300	40,346	32,400	1,350			
60	2/25/2016	617,672	350,295	5	967,972	40,332	0	0			
61	2/26/2016	753,381	403,745	128	1,157,254	48,219	45,900	1,913			
62	2/27/2016	573,531	518,898	167	1,092,596	45,525	28,900	1,204			
63	2/28/2016	598,681	494,061	0	1,092,742	45,531	28,900	1,204			
64	2/29/2016	649,696	451,232	129,166	1,230,094	51,254	33,150	1,381			
65	3/1/2016	715,495	410,661	0	1,126,156	46,923	17,600	733			
66	3/2/2016	746,499	408,278	15	1,154,792	48,116	10,400	433			
67	3/3/2016	771,518	417,981	12	1,189,511	49,563	26,000	1,083			
68	3/4/2016	824,345	418,817	2,826	1,245,988	51,916	18,000	750			
69	3/5/2016	773,003	392,945	96,671	1,262,619	52,609	27,600	1,150			
70	3/6/2016	793,361	389,905	568	1,183,834	49,326	20,800	867			
71	3/7/2016	579,060	192,623	226,792	998,475	41,603	18,800	783			
72	3/8/2016	923,193	200,462	85,243	1,208,898	50,371	25,600	1,067			
73	3/9/2016	639,055	227,162	519,492	1,385,709	57,738	24,800	1,033			
74	3/10/2016	0	388,952	1,208,108	1,597,060	66,544	29,200	1,217			
75	3/11/2016	0	355,410	1,269,497	1,624,907	67,704	22,400	933			
76	3/12/2016	0	390,757	1,237,128	1,627,885	67,829	17,200	717			
77	3/13/2016	0	387,065	1,244,997	1,632,062	68,003	26,400	1,100			
78	3/14/2016	0	397,472	1,230,798	1,628,270	67,845	25,200	1,050			
79	3/15/2016	0	437,197	1,131,174	1,568,371	65,349	15,600	650			
80	3/16/2016	0	441,093	1,103,678	1,544,771	64,365	0	0			
81	3/17/2016	0	442,094	1,117,896	1,559,990	65,000	38,900	1,621			
82	3/18/2016	0	435,552	1,218,492	1,654,044	68,919	33,150	1,381			
83	3/19/2016	0	461,139	1,238,177	1,699,316	70,805	20,400	850			
84	3/20/2016	0	463,284	1,141,207	1,604,491	66,854	42,500	1,771			
85	3/21/2016	0	417,969	1,014,232	1,432,201	59,675	34,000	1,417			
86	3/22/2016	216,587	3,510	661,224	881,321	36,722	11,900	496			
87	3/23/2016	703,830	35,081	708,514	1,447,425	60,309	17,182	716			
88	3/24/2016	573,217	262,485	196,129	1,031,831	42,993	29,658	1,236			
89	3/25/2016	739,813	217,285	207,327	1,164,425	48,518	29,983	1,249			
90	3/26/2016	640,072	396,219	213,336	1,249,627	52,068	29,600	1,233			
91	3/27/2016	97,362	473,172	890,387	1,460,921	60,872	32,800	1,367			
92	3/28/2016	0	497,790	1,047,283	1,545,073	64,378	42,715	1,780			
93	3/29/2016	0	479,549	1,181,516	1,661,065	69,211	0	0			

	A	B	C	D	E	F	G	H	I	J	K
94	3/30/2016	0	494,296	1,014,027	1,508,323	62,847	7,600	317			
95	3/31/2016	0	496,683	842,133	1,338,816	55,784	0	0			
96	4/1/2016	0	493,056	1,003,634	1,496,690	62,362	7,600	317			
97	4/2/2016	0	487,313	981,712	1,469,025	61,209	16,800	700			
98	4/3/2016	0	489,897	1,017,188	1,507,085	62,795	26,400	1,100			
99	4/4/2016	0	510,362	977,161	1,487,523	61,980	20,400	850			
100	4/5/2016	0	551,311	981,649	1,532,960	63,873	19,600	817			
101	4/6/2016	0	555,912	1,002,746	1,558,658	64,944	10,000	417			
102	4/7/2016	0	471,319	794,405	1,265,724	52,739	29,200	1,217			
103	4/8/2016	0	437,878	763,374	1,201,252	50,052	16,000	667			
104	4/9/2016	0	440,259	858,383	1,298,642	54,110	21,200	883			
105	4/10/2016	0	497,331	1,089,982	1,587,313	66,138	20,800	867			
106	4/11/2016	0	514,233	1,025,813	1,540,046	64,169	11,600	483			
107	4/12/2016	0	539,765	983,512	1,523,277	63,470	20,800	867			
108	4/13/2016	0	469,003	757,949	1,226,952	51,123	18,266	761			
109	4/14/2016	0	441,131	756,034	1,197,165	49,882	18,450	769			
110	4/15/2016	0	431,442	671,495	1,102,937	45,956	29,250	1,219			
111	4/16/2016	0	441,439	705,299	1,146,738	47,781	31,500	1,313			
112	4/17/2016	0	478,729	775,740	1,254,469	52,270	36,000	1,500			
113	4/18/2016	0	490,915	1,010,561	1,501,476	62,562	23,850	994			
114	4/19/2016	0	518,912	939,058	1,457,970	60,749	40,500	1,688			
115	4/20/2016	0	538,497	856,411	1,394,908	58,121	18,900	788			
116	4/21/2016	0	533,507	837,291	1,370,798	57,117	12,800	533			
117	4/22/2016	0	540,576	872,975	1,413,551	58,898	22,800	950			
118	4/23/2016	0	510,001	727,287	1,237,288	51,554	23,600	983			
119	4/24/2016	0	493,524	728,657	1,222,181	50,924	24,000	1,000			
120	4/25/2016	0	550,006	894,317	1,444,323	60,180	17,200	717			
121	4/26/2016	0	555,464	901,616	1,457,080	60,712	22,000	917			
122	4/27/2016	0	559,342	911,701	1,471,043	61,293	17,086	712			
123	4/28/2016	0	554,708	969,469	1,524,177	63,507	33,668	1,403			
124	4/29/2016	0	484,945	828,828	1,313,773	54,741	34,936	1,456			
125	4/30/2016	0	529,042	984,561	1,513,603	63,067	30,949	1,290			
126	5/1/2016	0	533,747	996,281	1,530,028	63,751	40,462	1,686			
127	5/2/2016	0	475,256	960,685	1,435,941	59,831	41,199	1,717			
128	5/3/2016	0	235,843	963,812	1,199,655	49,986	0	0			
129	5/4/2016	0	526,008	927,154	1,453,162	60,548	48,660	2,028			
130	5/5/2016	0	566,352	965,311	1,531,663	63,819	50,380	2,099			
131	5/6/2016	0	543,968	1,021,305	1,565,273	65,220	23,036	960			
132	5/7/2016	0	521,859	1,114,879	1,636,738	68,197	26,848	1,119			
133	5/8/2016	0	516,665	1,140,149	1,656,814	69,034	32,012	1,334			
134	5/9/2016	0	508,106	967,899	1,476,005	61,500	52,164	2,174			
135	5/10/2016	0	524,242	648,075	1,172,317	48,847	3,200	133			
136	5/11/2016	0	526,712	647,286	1,173,998	48,917	0	0			
137	5/12/2016	0	516,714	652,063	1,168,777	48,699	0	0			
138	5/13/2016	0	174,937	121,236	296,173	12,341	0	0			
139	5/14/2016	0	0	0	0	0	0	0			
140	5/15/2016	0	257	0	257	11	0	0			

	A	B	C	D	E	F	G	H	I	J	K
141	5/16/2016	0	205,758	67,335	273,093	11,379	0	0			
142	5/17/2016	0	557,518	860,463	1,417,981	59,083	10,800	450			
143	5/18/2016	0	518,274	953,171	1,471,445	61,310	35,550	1,481			
144	5/19/2016	0	517,640	1,027,364	1,545,004	64,375	27,450	1,144			
145	5/20/2016	0	540,857	915,909	1,456,766	60,699	37,350	1,556			
146	5/21/2016	0	465,189	794,346	1,259,535	52,481	25,200	1,050			
147	5/22/2016	0	463,514	757,873	1,221,387	50,891	34,200	1,425			
148	5/23/2016	0	456,611	834,677	1,291,288	53,804	27,900	1,163			
149	5/24/2016	0	434,282	726,883	1,161,165	48,382	25,650	1,069			
150	5/25/2016	0	438,126	759,029	1,197,155	49,881	24,750	1,031			
151	5/26/2016	0	439,940	810,378	1,250,318	52,097	25,200	1,050			
152	5/27/2016	0	444,617	797,014	1,241,631	51,735	26,550	1,106			
153	5/28/2016	0	481,872	889,717	1,371,589	57,150	37,350	1,556			
154	5/29/2016	0	469,562	833,565	1,303,127	54,297	30,600	1,275			
155	5/30/2016	0	487,507	880,870	1,368,377	57,016	33,750	1,406			
156	5/31/2016	0	499,805	939,986	1,439,791	59,991	32,400	1,350			
157	6/1/2016	0	500,039	929,679	1,429,718	59,572	21,600	900			
158	6/2/2016	0	488,307	889,551	1,377,858	57,411	40,950	1,706			
159	6/3/2016	0	494,250	861,581	1,355,831	56,493	27,450	1,144			
160	6/4/2016	0	455,484	980,982	1,436,466	59,853	34,650	1,444			
161	6/5/2016	0	460,089	980,568	1,440,657	60,027	27,000	1,125			
162	6/6/2016	0	481,117	886,875	1,367,992	57,000	24,300	1,013			
163	6/7/2016	0	544,952	685,318	1,230,270	51,261	30,150	1,256			
164	6/8/2016	0	564,207	767,156	1,331,363	55,473	41,850	1,744			
165	6/9/2016	0	558,576	863,109	1,421,685	59,237	26,550	1,106			
166	6/10/2016	0	561,558	875,358	1,436,916	59,872	23,850	994			
167	6/11/2016	0	591,004	947,900	1,538,904	64,121	35,100	1,463			
168	6/12/2016	0	572,085	834,099	1,406,184	58,591	26,267	1,094			
169	6/13/2016	0	542,358	879,623	1,421,981	59,249	18,000	750			
170	6/14/2016	0	541,891	1,052,285	1,594,176	66,424	31,050	1,294			
171	6/15/2016	0	516,413	904,089	1,420,502	59,188	13,050	544			
172	6/16/2016	0	521,236	1,001,745	1,522,981	63,458	9,520	397			
173	6/17/2016	0	545,580	853,634	1,399,214	58,301	45,414	1,892			
174	6/18/2016	0	531,681	983,623	1,515,304	63,138	34,422	1,434			
175	6/19/2016	0	533,526	986,857	1,520,383	63,349	28,514	1,188			
176	6/20/2016	0	519,447	1,024,363	1,543,810	64,325	51,956	2,165			
177	6/21/2016	0	465,360	847,831	1,313,191	54,716	27,062	1,128			
178	6/22/2016	0	486,582	931,832	1,418,414	59,101	14,650	610			
179	6/23/2016	0	505,149	1,021,829	1,526,978	63,624	21,576	899			
180	6/24/2016	0	537,517	1,042,843	1,580,360	65,848	45,352	1,890			
181	6/25/2016	0	562,084	995,580	1,557,664	64,903	36,080	1,503			
182	6/26/2016	0	567,173	950,902	1,518,075	63,253	40,254	1,677			
183	6/27/2016	0	565,650	930,737	1,496,387	62,349	38,794	1,616			
184	6/28/2016	0	555,182	1,011,384	1,566,566	65,274	40,488	1,687			
185	6/29/2016	0	546,609	783,849	1,330,458	55,436	36,799	1,533			
186	6/30/2016	0	482,081	372,697	854,778	35,616	15,090	629			
187	7/1/2016	0	433,833	669,184	1,103,017	45,959	0	0			

	A	B	C	D	E	F	G	H	I	J	K
188	7/2/2016	0	448,796	754,756	1,203,552	50,148	0	0			
189	7/3/2016	0	444,511	725,264	1,169,775	48,741	0	0			
190	7/4/2016	0	434,671	659,266	1,093,937	45,581	0	0			
191	7/5/2016	0	450,264	767,583	1,217,847	50,744	0	0			
192	7/6/2016	0	465,301	827,616	1,292,917	53,872	0	0			
193	7/7/2016	0	426,035	675,877	1,101,912	45,913	850	35			
194	7/8/2016	0	415,443	470,398	885,841	36,910	0	0			
195	7/9/2016	0	456,972	767,297	1,224,269	51,011	0	0			
196	7/10/2016	0	465,171	808,206	1,273,377	53,057	0	0			
197	7/11/2016	0	480,358	636,028	1,116,386	46,516	0	0			
198	7/12/2016	0	495,029	685,783	1,180,812	49,201	0	0			
199	7/13/2016	0	472,342	550,255	1,022,597	42,608	0	0			
200	7/14/2016	0	64,512	101,684	166,196	6,925	0	0			
201	7/15/2016	0	189,960	256,638	446,598	18,608	800	33			
202	7/16/2016	0	441,143	334,089	775,232	32,301	0	0			
203	7/17/2016	0	496,107	595,290	1,091,397	45,475	0	0			
204	7/18/2016	0	487,626	636,761	1,124,387	46,849	0	0			
205	7/19/2016	0	404,282	543,091	947,373	39,474	0	0			
206	7/20/2016	0	491,303	600,521	1,091,824	45,493	0	0			
207	7/21/2016	0	495,006	637,296	1,132,302	47,179	0	0			
208	7/22/2016	0	501,677	423,465	925,142	38,548	0	0			
209	7/23/2016	0	242,863	0	242,863	10,119	0	0			
210	7/24/2016	0	262,215	0	262,215	10,926	0	0			
211	7/25/2016	0	306,659	0	306,659	12,777	0	0			
212	7/26/2016	567,846	174,808	0	742,654	30,944	1,800	75			
213	7/27/2016	1,004,637	36,924	0	1,041,561	43,398	13,500	563			
214	7/28/2016	990,047	23,573	0	1,013,620	42,234	36,000	1,500			
215	7/29/2016	937,842	73,596	0	1,011,438	42,143	5,500	229			
216	7/30/2016	963,362	82,118	0	1,045,480	43,562	28,600	1,192			
217	7/31/2016	999,893	78,700	0	1,078,593	44,941	27,500	1,146			
218	8/1/2016	835,617	115,690	0	951,307	39,638	0	0			
219	8/2/2016	872,034	166,619	0	1,038,653	43,277	22,406	934			
220	8/3/2016	850,550	199,792	0	1,050,342	43,764	23,850	994			
221	8/4/2016	860,110	183,546	0	1,043,656	43,486	36,000	1,500			
222	8/5/2016	886,852	187,205	0	1,074,057	44,752	21,150	881			
223	8/6/2016	916,972	164,766	0	1,081,738	45,072	12,150	506			
224	8/7/2016	516,589	182,734	6,887	706,210	29,425	41,850	1,744			
225	8/8/2016	0	356,335	0	356,335	14,847	3,150	131			
226	8/9/2016	0	336,079	0	336,079	14,003	0	0			
227	8/10/2016	276,353	283,079	0	559,432	23,310	0	0			
228	8/11/2016	794,039	181,338	0	975,377	40,641	0	0			
229	8/12/2016	1,032,444	185,209	0	1,217,653	50,736	0	0			
230	8/13/2016	1,043,746	181,992	0	1,225,738	51,072	750	31			
231	8/14/2016	1,026,852	182,663	0	1,209,515	50,396	23,650	985			
232	8/15/2016	1,005,557	184,427	0	1,189,984	49,583	27,050	1,127			
233	8/16/2016	965,358	200,284	17,768	1,183,410	49,309	27,170	1,132			
234	8/17/2016	1,001,651	246,136	10,404	1,258,191	52,425	30,256	1,261			

	A	B	C	D	E	F	G	H	I	J	K
235	8/18/2016	804,214	183,102	16,272	1,003,588	41,816	31,410	1,309			
236	8/19/2016	927,379	206,952	0	1,134,331	47,264	10,234	426			
237	8/20/2016	970,492	216,645	0	1,187,137	49,464	27,074	1,128			
238	8/21/2016	892,462	220,858	0	1,113,320	46,388	20,600	858			
239	8/22/2016	806,472	177,889	0	984,361	41,015	43,553	1,815			
240	8/23/2016	734,055	205,383	0	939,438	39,143	33,075	1,378			
241	8/24/2016	895,154	326,523	0	1,221,677	50,903	18,082	753			
242	8/25/2016	420,952	394,037	0	814,989	33,958	32,988	1,375			
243	8/26/2016	703,967	414,419	0	1,118,386	46,599	30,869	1,286			
244	8/27/2016	774,100	414,991	0	1,189,091	49,545	20,351	848			
245	8/28/2016	705,114	467,660	0	1,172,774	48,866	27,212	1,134			
246	8/29/2016	708,529	444,346	0	1,152,875	48,036	19,004	792			
247	8/30/2016	776,526	456,403	0	1,232,929	51,372	23,794	991			
248	8/31/2016	766,607	409,891	0	1,176,498	49,021	35,002	1,458			
249	9/1/2016	798,969	430,189	0	1,229,158	51,215	14,850	619			
250	9/2/2016	767,795	359,670	0	1,127,465	46,978	24,750	1,031			
251	9/3/2016	957,699	256,207	0	1,213,906	50,579	34,650	1,444			
252	9/4/2016	840,198	382,038	0	1,222,236	50,927	21,150	881			
253	9/5/2016	901,235	324,305	0	1,225,540	51,064	36,000	1,500			
254	9/6/2016	653,704	401,970	0	1,055,674	43,986	26,550	1,106			
255	9/7/2016	776,130	431,631	0	1,207,761	50,323	18,900	788			
256	9/8/2016	742,679	417,929	0	1,160,608	48,359	30,600	1,275			
257	9/9/2016	787,902	387,392	0	1,175,294	48,971	23,400	975			
258	9/10/2016	796,837	343,202	0	1,140,039	47,502	46,526	1,939			
259	9/11/2016	666,835	423,290	0	1,090,125	45,422	0	0			
260	9/12/2016	847,003	343,154	0	1,190,157	49,590	770	32			
261	9/13/2016	772,418	427,098	0	1,199,516	49,980	20,629	860			
262	9/14/2016	800,056	458,277	0	1,258,333	52,431	15,942	664			
263	9/15/2016	879,677	441,901	0	1,321,578	55,066	20,516	855			
264	9/16/2016	838,336	408,088	18,238	1,264,662	52,694	18,846	785			
265	9/17/2016	887,064	333,100	41,819	1,261,983	52,583	23,258	969			
266	9/18/2016	856,032	306,874	14,924	1,177,830	49,076	29,144	1,214			
267	9/19/2016	827,506	304,780	0	1,132,286	47,179	28,092	1,171			
268	9/20/2016	806,334	67,956	5,920	880,210	36,675	32,472	1,353			
269	9/21/2016	1,225,514	0	20,170	1,245,684	51,904	4,460	186			
270	9/22/2016	437,199	0	284,956	722,155	30,090	11,334	472			
271	9/23/2016	1,127,578	0	131,700	1,259,278	52,470	19,502	813			
272	9/24/2016	796,291	0	0	796,291	33,179	8,180	341			
273	9/25/2016	1,322,222	0	0	1,322,222	55,093	23,654	986			
274	9/26/2016	1,333,152	0	0	1,333,152	55,548	22,760	948			
275	9/27/2016	1,281,494	0	11,131	1,292,625	53,859	29,946	1,248			
276	9/28/2016	1,304,727	0	0	1,304,727	54,364	31,448	1,310			
277	9/29/2016	947,102	0	0	947,102	39,463	26,984	1,124			
278	9/30/2016	1,299,924	0	73,059	1,372,983	57,208	21,016	876			
279	10/1/2016	1,152,840	0	216,505	1,369,345	57,056	22,088	920			
280	10/2/2016	966,243	0	279,523	1,245,766	51,907	7,200	300			
281	10/3/2016	1,004,469	0	366,933	1,371,402	57,142	27,200	1,133			

	A	B	C	D	E	F	G	H	I	J	K
282	10/4/2016	1,005,983	0	544,014	1,549,997	64,583	25,132	1,047			
283	10/5/2016	907,467	0	716,551	1,624,018	67,667	33,365	1,390			
284	10/6/2016	758,936	1	444,598	1,203,535	50,147	33,248	1,385			
285	10/7/2016	687,644	0	124,670	812,314	33,846	0	0			
286	10/8/2016	597,114	0	146,768	743,882	30,995	0	0			
287	10/9/2016	140,520	75	7,752	148,347	6,181	0	0			
288	10/10/2016	0	0	0	0	0	0	0			
289	10/11/2016	0	0	51	51	2	0	0			
290	10/12/2016	0	0	18	18	1	0	0			
291	10/13/2016	0	0	2	2	0	0	0			
292	10/14/2016	0	5,416	65	5,481	228	0	0			
293	10/15/2016	0	0	363,957	363,957	15,165	0	0			
294	10/16/2016	0	0	449,091	449,091	18,712	0	0			
295	10/17/2016	0	0	142,990	142,990	5,958	0	0			
296	10/18/2016	17,747	107,355	159,992	285,094	11,879	0	0			
297	10/19/2016	0	98,767	14,688	113,455	4,727	0	0			
298	10/20/2016	0	25,246	901	26,147	1,089	0	0			
299	10/21/2016	0	30,852	1,403	32,255	1,344	0	0			
300	10/22/2016	0	12,139	119	12,258	511	0	0			
301	10/23/2016	0	293,907	126,181	420,088	17,504	0	0			
302	10/24/2016	0	534,731	756,456	1,291,187	53,799	2,250	94			
303	10/25/2016	0	549,727	1,211,814	1,761,541	73,398	33,750	1,406			
304	10/26/2016	0	565,945	1,097,247	1,663,192	69,300	29,700	1,238			
305	10/27/2016	0	566,499	1,043,415	1,609,914	67,080	30,150	1,256			
306	10/28/2016	0	561,020	1,118,970	1,679,990	70,000	19,800	825			
307	10/29/2016	0	565,348	1,083,176	1,648,524	68,689	35,550	1,481			
308	10/30/2016	0	565,859	1,132,537	1,698,396	70,767	17,550	731			
309	10/31/2016	0	536,197	988,360	1,524,557	63,523	38,700	1,613			
310	11/1/2016	0	558,946	1,222,184	1,781,130	74,214	26,550	1,106			
311	11/2/2016	0	561,852	1,228,370	1,790,222	74,593	31,500	1,313			
312	11/3/2016	0	565,763	1,119,188	1,684,951	70,206	23,850	994			
313	11/4/2016	0	575,907	1,139,871	1,715,778	71,491	37,800	1,575			
314	11/5/2016	0	579,086	1,087,226	1,666,312	69,430	39,600	1,650			
315	11/6/2016	0	563,250	1,042,701	1,605,951	66,915	40,950	1,706			
316	11/7/2016	0	561,976	1,114,136	1,676,112	69,838	31,500	1,313			
317	11/8/2016	0	567,664	1,107,052	1,674,716	69,780	40,050	1,669			
318	11/9/2016	0	563,842	1,178,886	1,742,728	72,614	33,300	1,388			
319	11/10/2016	0	499,593	950,943	1,450,536	60,439	26,550	1,106			
320	11/11/2016	0	596,459	1,239,948	1,836,407	76,517	31,950	1,331			
321	11/12/2016	0	605,999	1,238,160	1,844,159	76,840	31,950	1,331			
322	11/13/2016	0	607,968	1,144,735	1,752,703	73,029	28,800	1,200			
323	11/14/2016	0	587,634	752,063	1,339,697	55,821	21,289	887			
324	11/15/2016	0	562,310	1,035,251	1,597,561	66,565	0	0			
325	11/16/2016	0	555,569	1,214,407	1,769,976	73,749	25,584	1,066			
326	11/17/2016	0	562,397	1,220,736	1,783,133	74,297	29,579	1,232			
327	11/18/2016	0	555,126	1,002,386	1,557,512	64,896	27,778	1,157			
328	11/19/2016	0	563,125	1,188,195	1,751,320	72,972	41,752	1,740			

	A	B	C	D	E	F	G	H	I	J	K
329	11/20/2016	0	569,815	1,238,416	1,808,231	75,343	39,149	1,631			
330	11/21/2016	0	567,906	1,225,312	1,793,218	74,717	19,550	815			
331	11/22/2016	0	567,578	1,225,945	1,793,523	74,730	44,576	1,857			
332	11/23/2016	0	566,006	1,157,202	1,723,208	71,800	40,078	1,670			
333	11/24/2016	0	580,389	1,220,341	1,800,730	75,030	40,874	1,703			
334	11/25/2016	0	573,930	1,213,681	1,787,611	74,484	21,000	875			
335	11/26/2016	0	570,705	1,251,202	1,821,907	75,913	30,420	1,268			
336	11/27/2016	0	565,289	1,181,714	1,747,003	72,792	28,932	1,206			
337	11/28/2016	0	509,439	962,516	1,471,955	61,331	37,425	1,559			
338	11/29/2016	0	566,801	967,182	1,533,983	63,916	29,010	1,209			
339	11/30/2016	0	551,341	990,632	1,541,973	64,249	20,830	868			
340	12/1/2016	0	609,901	1,156,261	1,766,162	73,590	28,194	1,175			
341	12/2/2016	0	605,921	1,032,635	1,638,556	68,273	40,632	1,693			
342	12/3/2016	0	615,239	1,101,621	1,716,860	71,536	33,674	1,403			
343	12/4/2016	0	603,553	1,021,792	1,625,345	67,723	10,364	432			
344	12/5/2016	0	588,246	1,179,237	1,767,483	73,645	40,950	1,706			
345	12/6/2016	0	435,761	1,000,596	1,436,357	59,848	20,700	863			
346	12/7/2016	0	447,099	1,250,266	1,697,365	70,724	15,570	649			
347	12/8/2016	0	429,614	938,012	1,367,626	56,984	20,554	856			
348	12/9/2016	0	526,934	1,235,252	1,762,186	73,424	29,041	1,210			
349	12/10/2016	0	475,354	1,189,231	1,664,585	69,358	49,478	2,062			
350	12/11/2016	0	498,048	1,191,909	1,689,957	70,415	21,250	885			
351	12/12/2016	0	520,282	1,206,138	1,726,420	71,934	53,337	2,222			
352	12/13/2016	0	523,393	1,264,468	1,787,861	74,494	34,750	1,448			
353	12/14/2016	0	522,053	1,268,079	1,790,132	74,589	42,788	1,783			
354	12/15/2016	0	522,758	1,244,394	1,767,152	73,631	38,502	1,604			
355	12/16/2016	0	528,046	1,282,278	1,810,324	75,430	35,876	1,495			
356	12/17/2016	0	549,580	1,292,412	1,841,992	76,750	32,300	1,346			
357	12/18/2016	0	585,893	1,199,901	1,785,794	74,408	39,340	1,639			
358	12/19/2016	0	606,150	1,154,974	1,761,124	73,380	56,820	2,368			
359	12/20/2016	0	572,873	1,106,424	1,679,297	69,971	14,400	600			
360	12/21/2016	0	543,174	1,198,252	1,741,426	72,559	38,700	1,613			
361	12/22/2016	0	539,260	1,172,532	1,711,792	71,325	46,800	1,950			
362	12/23/2016	0	529,073	1,079,381	1,608,454	67,019	38,250	1,594			
363	12/24/2016	0	543,036	1,144,006	1,687,042	70,293	30,150	1,256			
364	12/25/2016	0	499,849	947,761	1,447,610	60,317	36,900	1,538			
365	12/26/2016	0	530,740	1,002,758	1,533,498	63,896	32,850	1,369			
366	12/27/2016	0	550,888	1,127,484	1,678,372	69,932	42,300	1,763			
367	12/28/2016	0	545,431	1,178,199	1,723,630	71,818	18,900	788			
368	12/29/2016	0	508,268	1,069,894	1,578,162	65,757	37,800	1,575			
369	12/30/2016	0	507,486	1,173,548	1,681,034	70,043	30,600	1,275			
370	12/31/2016	0	617,161	1,087,043	1,704,204	71,009	36,900	1,538			
371	1/1/2017	0	572,849	1,065,992	1,638,841	68,285	21,150	881			
372	1/2/2017	0	557,786	1,140,825	1,698,611	70,775	37,800	1,575			
373	1/3/2017	0	527,125	864,737	1,391,862	57,994	13,950	581			
374	1/4/2017	0	536,313	860,564	1,396,877	58,203	17,030	710			
375	1/5/2017	0	529,586	834,461	1,364,047	56,835	850	35			

	A	B	C	D	E	F	G	H	I	J	K
376	1/6/2017	0	532,785	755,050	1,287,835	53,660	0	0			
377	1/7/2017	0	542,850	811,677	1,354,527	56,439	0	0			
378	1/8/2017	0	542,108	802,990	1,345,098	56,046	0	0			
379	1/9/2017	0	537,950	983,762	1,521,712	63,405	0	0			
380	1/10/2017	0	592,902	1,272,308	1,865,210	77,717	8,906	371			
381	1/11/2017	0	274,893	1,261,069	1,535,962	63,998	38,422	1,601			
382	1/12/2017	0	198,429	1,305,390	1,503,819	62,659	36,896	1,537			
383	1/13/2017	0	0	1,116,619	1,116,619	46,526	37,387	1,558			
384	1/14/2017	0	0	1,072,715	1,072,715	44,696	9,000	375			
385	1/15/2017	0	0	1,053,943	1,053,943	43,914	55,974	2,332			
386	1/16/2017	0	0	1,070,057	1,070,057	44,586	11,462	478			
387	1/17/2017	0	0	1,079,864	1,079,864	44,994	48,341	2,014			
388	1/18/2017	0	0	1,090,536	1,090,536	45,439	26,056	1,086			
389	1/19/2017	0	471,841	1,050,572	1,522,413	63,434	43,892	1,829			
390	1/20/2017	0	668,699	1,026,443	1,695,142	70,631	37,432	1,560			
391	1/21/2017	0	389,186	1,058,794	1,447,980	60,333	17,348	723			
392	1/22/2017	0	371,900	1,109,768	1,481,668	61,736	20,896	871			
393	1/23/2017	0	759,932	1,071,556	1,831,488	76,312	43,166	1,799			
394	1/24/2017	0	251,379	1,239,371	1,490,750	62,115	27,892	1,162			
395	1/25/2017	0	0	1,231,743	1,231,743	51,323	53,077	2,212			
396	1/26/2017	0	0	1,206,102	1,206,102	50,254	34,376	1,432			
397	1/27/2017	0	0	1,253,013	1,253,013	52,209	57,736	2,406			
398	1/28/2017	0	0	1,375,798	1,375,798	57,325	9,150	381			
399	1/29/2017	0	0	960,338	960,338	40,014	38,827	1,618			
400	1/30/2017	0	0	0	0	0	21,334	889			
401	1/31/2017	0	0	0	0	0	20,773	866			
402	2/1/2017	359	48	387,977	388,384	16,183	49,463	2,061			
403	2/2/2017	0	0	677,984	677,984	28,249	6,662	278			
404	2/3/2017	0	282,883	1,015,510	1,298,393	54,100	45,286	1,887			
405	2/4/2017	0	676,864	1,297,515	1,974,379	82,266	38,570	1,607			
406	2/5/2017	0	917,761	1,278,352	2,196,113	91,505	40,952	1,706			
407	2/6/2017	0	917,740	1,133,334	2,051,074	85,461	34,486	1,437			
408	2/7/2017	0	917,750	1,185,662	2,103,412	87,642	71,149	2,965			
409	2/8/2017	102,805	702,602	1,183,244	1,988,651	82,860	59,929	2,497			
410	2/9/2017	0	116,733	151,580	268,313	11,180	14,620	609			
411	2/10/2017	0	223,088	808,031	1,031,119	42,963	0	0			
412	2/11/2017	0	366,824	1,087,391	1,454,215	60,592	41,254	1,719			
413	2/12/2017	0	0	1,088,774	1,088,774	45,366	11,900	496			
414	2/13/2017	0	223,625	1,112,895	1,336,520	55,688	49,210	2,050			
415	2/14/2017	0	328,286	1,110,745	1,439,031	59,960	26,656	1,111			
416	2/15/2017	0	299,164	1,124,529	1,423,693	59,321	56,355	2,348			
417	2/16/2017	0	275,520	1,182,472	1,457,992	60,750	33,374	1,391			
418	2/17/2017	0	224,400	1,227,110	1,451,510	60,480	11,200	467			
419	2/18/2017	0	0	1,165,141	1,165,141	48,548	57,742	2,406			
420	2/19/2017	0	0	1,165,864	1,165,864	48,578	21,916	913			
421	2/20/2017	0	0	955,882	955,882	39,828	54,786	2,283			
422	2/21/2017	0	0	3,925	3,925	164	0	0			

	A	B	C	D	E	F	G	H	I	J	K
423	2/22/2017	0	880,743	606,667	1,487,410	61,975	0	0			
424	2/23/2017	0	797,087	864,812	1,661,899	69,246	43,514	1,813			
425	2/24/2017	0	910,393	817,583	1,727,976	71,999	28,191	1,175			
426	2/25/2017	0	857,770	812,890	1,670,660	69,611	31,500	1,313			
427	2/26/2017	0	766,038	801,067	1,567,105	65,296	27,900	1,163			
428	2/27/2017	0	913,822	734,767	1,648,589	68,691	35,100	1,463			
429	2/28/2017	0	913,665	848,500	1,762,165	73,424	18,000	750			
430	3/1/2017	0	913,687	857,789	1,771,476	73,812	36,000	1,500			
431	3/2/2017	0	905,827	866,382	1,772,209	73,842	34,200	1,425			
432	3/3/2017	0	913,843	789,597	1,703,440	70,977	27,000	1,125			
433	3/4/2017	0	913,748	851,844	1,765,592	73,566	33,750	1,406			
434	3/5/2017	0	818,969	784,908	1,603,877	66,828	18,000	750			
435	3/6/2017	0	915,749	863,365	1,779,114	74,130	18,000	750			
436	3/7/2017	0	931,643	946,751	1,878,394	78,266	21,600	900			
437	3/8/2017	0	931,352	854,648	1,786,000	74,417	36,900	1,538			
438	3/9/2017	0	931,385	803,868	1,735,253	72,302	29,250	1,219			
439	3/10/2017	0	931,383	704,131	1,635,514	68,146	40,500	1,688			
440	3/11/2017	0	931,809	557,860	1,489,669	62,070	25,200	1,050			
441	3/12/2017	0	931,515	870,271	1,801,786	75,074	39,600	1,650			
442	3/13/2017	0	882,975	672,123	1,555,098	64,796	32,400	1,350			
443	3/14/2017	0	699,246	507,868	1,207,114	50,296	8,550	356			
444	3/15/2017	0	930,869	723,619	1,654,488	68,937	33,200	1,383			
445	3/16/2017	0	930,735	738,589	1,669,324	69,555	30,000	1,250			
446	3/17/2017	0	583,911	916,318	1,500,229	62,510	22,996	958			
447	3/18/2017	0	838,457	823,609	1,662,066	69,253	27,410	1,142			
448	3/19/2017	0	930,314	877,550	1,807,864	75,328	21,150	881			
449	3/20/2017	0	560,531	733,934	1,294,465	53,936	16,200	675			
450	3/21/2017	0	480,834	647,526	1,128,360	47,015	0	0			
451	3/22/2017	0	538,622	1,204,299	1,742,921	72,622	37,350	1,556			
452	3/23/2017	0	601,725	1,100,321	1,702,046	70,919	18,108	755			
453	3/24/2017	0	577,029	1,155,388	1,732,417	72,184	54,000	2,250			
454	3/25/2017	0	598,103	1,307,761	1,905,864	79,411	24,300	1,013			
455	3/26/2017	0	600,806	1,365,381	1,966,187	81,924	22,500	938			
456	3/27/2017	0	587,046	1,180,097	1,767,143	73,631	46,350	1,931			
457	3/28/2017	0	626,338	1,246,080	1,872,418	78,017	20,250	844			
458	3/29/2017	0	624,600	1,173,379	1,797,979	74,916	16,000	667			
459	3/30/2017	0	608,082	1,234,930	1,843,012	76,792	34,024	1,418			
460	3/31/2017	0	585,354	1,225,297	1,810,651	75,444	27,160	1,132			
461	4/1/2017	0	588,483	1,073,399	1,661,882	69,245	36,152	1,506			
462	4/2/2017	0	606,901	1,187,672	1,794,573	74,774	27,200	1,133			
463	4/3/2017	0	580,537	928,249	1,508,786	62,866	0	0			
464	4/4/2017	0	577,786	834,790	1,412,576	58,857	8,064	336			
465	4/5/2017	0	570,035	782,329	1,352,364	56,349	19,744	823			
466	4/6/2017	0	563,315	775,914	1,339,229	55,801	0	0			
467	4/7/2017	0	447,063	379,271	826,334	34,431	0	0			
468	4/8/2017	0	564,985	742,391	1,307,376	54,474	0	0			
469	4/9/2017	0	578,727	819,315	1,398,042	58,252	0	0			

	A	B	C	D	E	F	G	H	I	J	K
470	4/10/2017	0	561,669	351,848	913,517	38,063	0	0			
471	4/11/2017	0	280,901	117,655	398,556	16,607	0	0			
472	4/12/2017	0	519,643	202,293	721,936	30,081	0	0			
473	4/13/2017	0	513,827	817,784	1,331,611	55,484	0	0			
474	4/14/2017	0	518,334	863,696	1,382,030	57,585	0	0			
475	4/15/2017	0	521,871	866,134	1,388,005	57,834	0	0			
476	4/16/2017	0	529,147	893,412	1,422,559	59,273	0	0			
477	4/17/2017	0	568,794	1,197,308	1,766,102	73,588	0	0			
478	4/18/2017	0	566,625	1,132,468	1,699,093	70,796	31,910	1,330			
479	4/19/2017	0	604,998	1,257,141	1,862,139	77,589	31,568	1,315			
480	4/20/2017	0	611,820	1,246,788	1,858,608	77,442	18,938	789			
481	4/21/2017	0	591,165	1,195,756	1,786,921	74,455	24,061	1,003			
482	4/22/2017	0	601,910	1,174,215	1,776,125	74,005	32,400	1,350			
483	4/23/2017	0	595,775	1,290,015	1,885,790	78,575	14,850	619			
484	4/24/2017	0	591,464	1,188,335	1,779,799	74,158	39,150	1,631			
485	4/25/2017	0	577,207	1,118,757	1,695,964	70,665	12,600	525			
486	4/26/2017	0	589,212	1,257,163	1,846,375	76,932	45,450	1,894			
487	4/27/2017	0	566,418	1,124,740	1,691,158	70,465	1,800	75			
488	4/28/2017	0	589,826	1,267,470	1,857,296	77,387	58,500	2,438			
489	4/29/2017	0	589,798	1,193,293	1,783,091	74,295	18,000	750			
490	4/30/2017	0	608,402	1,105,129	1,713,531	71,397	42,750	1,781			
491	5/1/2017	0	588,233	988,835	1,577,068	65,711	15,750	656			
492	5/2/2017	0	598,150	1,116,291	1,714,441	71,435	35,550	1,481			
493	5/3/2017	0	593,969	1,124,412	1,718,381	71,599	26,550	1,106			
494	5/4/2017	0	590,031	1,168,138	1,758,169	73,257	17,536	731			
495	5/5/2017	0	569,747	1,009,682	1,579,429	65,810	37,800	1,575			
496	5/6/2017	0	603,925	1,066,350	1,670,275	69,595	36,000	1,500			
497	5/7/2017	0	595,255	1,113,385	1,708,640	71,193	13,500	563			
498	5/8/2017	0	587,790	1,003,609	1,591,399	66,308	31,500	1,313			
499	5/9/2017	0	596,907	1,062,635	1,659,542	69,148	34,500	1,438			
500	5/10/2017	0	581,898	1,022,930	1,604,828	66,868	15,150	631			
501	5/11/2017	0	503,919	871,866	1,375,785	57,324	34,200	1,425			
502	5/12/2017	0	577,733	1,028,721	1,606,454	66,936	24,750	1,031			
503	5/13/2017	0	596,046	1,141,067	1,737,113	72,380	40,500	1,688			
504	5/14/2017	0	587,806	1,167,168	1,754,974	73,124	28,350	1,181			
505	5/15/2017	0	585,124	968,446	1,553,570	64,732	26,100	1,088			
506	5/16/2017	0	585,373	1,120,320	1,705,693	71,071	30,150	1,256			
507	5/17/2017	0	599,181	1,189,305	1,788,486	74,520	22,950	956			
508	5/18/2017	0	586,348	1,129,335	1,715,683	71,487	37,050	1,544			
509	5/19/2017	0	573,661	988,189	1,561,850	65,077	12,600	525			
510	5/20/2017	0	589,551	1,267,474	1,857,025	77,376	14,550	606			
511	5/21/2017	0	601,414	1,284,635	1,886,049	78,585	28,187	1,174			
512	5/22/2017	0	594,673	1,182,587	1,777,260	74,053	24,724	1,030			
513	5/23/2017	0	597,842	1,131,520	1,729,362	72,057	29,924	1,247			
514	5/24/2017	0	592,520	1,116,904	1,709,424	71,226	37,885	1,579			
515	5/25/2017	0	534,994	959,632	1,494,626	62,276	36,313	1,513			
516	5/26/2017	0	583,199	1,012,375	1,595,574	66,482	27,962	1,165			

	A	B	C	D	E	F	G	H	I	J	K
517	5/27/2017	0	581,156	1,180,648	1,761,804	73,409	40,050	1,669			
518	5/28/2017	0	579,808	1,051,625	1,631,433	67,976	27,900	1,163			
519	5/29/2017	0	577,534	1,058,851	1,636,385	68,183	14,400	600			
520	5/30/2017	0	117,416	968,698	1,086,114	45,255	35,100	1,463			
521	5/31/2017	0	582,963	968,008	1,550,971	64,624	4,500	188			
522	6/1/2017	0	582,316	1,063,303	1,645,619	68,567	42,300	1,763			
523	6/2/2017	0	590,407	1,098,320	1,688,727	70,364	36,450	1,519			
524	6/3/2017	0	602,389	1,081,906	1,684,295	70,179	35,100	1,463			
525	6/4/2017	0	595,047	1,073,369	1,668,416	69,517	27,900	1,163			
526	6/5/2017	0	602,040	1,134,007	1,736,047	72,335	22,050	919			
527	6/6/2017	0	584,229	1,110,063	1,694,292	70,596	32,850	1,369			
528	6/7/2017	0	575,817	1,079,731	1,655,548	68,981	26,550	1,106			
529	6/8/2017	0	555,374	1,031,138	1,586,512	66,105	32,367	1,349			
530	6/9/2017	0	598,285	1,082,501	1,680,786	70,033	15,750	656			
531	6/10/2017	0	592,622	1,199,271	1,791,893	74,662	14,100	588			
532	6/11/2017	0	600,245	1,065,344	1,665,589	69,400	33,236	1,385			
533	6/12/2017	0	590,965	1,146,825	1,737,790	72,408	27,600	1,150			
534	6/13/2017	0	593,615	1,127,875	1,721,490	71,729	13,950	581			
535	6/14/2017	0	561,112	1,025,621	1,586,733	66,114	23,704	988			
536	6/15/2017	0	575,265	1,034,750	1,610,015	67,084	39,102	1,629			
537	6/16/2017	0	573,963	998,125	1,572,088	65,504	20,824	868			
538	6/17/2017	0	577,140	1,125,906	1,703,046	70,960	7,200	300			
539	6/18/2017	0	497,862	835,316	1,333,178	55,549	45,343	1,889			
540	6/19/2017	0	567,616	993,904	1,561,520	65,063	0	0			
541	6/20/2017	0	590,751	1,091,997	1,682,748	70,115	41,150	1,715			
542	6/21/2017	0	566,177	1,100,873	1,667,050	69,460	42,130	1,755			
543	6/22/2017	0	568,204	1,042,805	1,611,009	67,125	24,200	1,008			
544	6/23/2017	0	588,752	1,079,091	1,667,843	69,493	27,190	1,133			
545	6/24/2017	284,774	449,058	698,282	1,432,114	59,671	33,750	1,406			
546	6/25/2017	939,252	238,405	30,542	1,208,199	50,342	27,000	1,125			
547	6/26/2017	1,084,019	120,200	22	1,204,241	50,177	31,500	1,313			
548	6/27/2017	1,156,760	46,369	4,215	1,207,344	50,306	29,700	1,238			
549	6/28/2017	1,272,296	44	1,274	1,273,614	53,067	18,450	769			
550	6/29/2017	1,256,865	11,836	1,934	1,270,635	52,943	17,550	731			
551	6/30/2017	1,062,412	127,726	30,425	1,220,563	50,857	24,300	1,013			
552	7/1/2017	1,102,264	135,336	855	1,238,455	51,602	20,700	863			
553	7/2/2017	777,685	138,957	2,726	919,368	38,307	25,650	1,069			
554	7/3/2017	747,915	132,665	5,758	886,338	36,931	0	0			
555	7/4/2017	939,704	57,140	865	997,709	41,571	0	0			
556	7/5/2017	1,103,908	18,945	9,414	1,132,267	47,178	6,750	281			
557	7/6/2017	517,080	242,273	386,667	1,146,020	47,751	31,500	1,313			
558	7/7/2017	0	546,441	761,517	1,307,958	54,498	25,200	1,050			
559	7/8/2017	0	534,591	687,324	1,221,915	50,913	27,450	1,144			
560	7/9/2017	0	580,851	1,002,158	1,583,009	65,959	23,400	975			
561	7/10/2017	0	569,540	918,001	1,487,541	61,981	22,500	938			
562	7/11/2017	0	577,103	1,011,351	1,588,454	66,186	36,000	1,500			
563	7/12/2017	0	587,755	1,102,459	1,690,214	70,426	33,750	1,406			

	A	B	C	D	E	F	G	H	I	J	K
564	7/13/2017	0	585,544	1,085,009	1,670,553	69,606	27,900	1,163			
565	7/14/2017	0	572,412	1,023,391	1,595,803	66,492	13,837	577			
566	7/15/2017	0	551,201	915,801	1,467,002	61,125	54,770	2,282			
567	7/16/2017	0	587,778	1,086,518	1,674,296	69,762	0	0			
568	7/17/2017	0	579,073	1,025,109	1,604,182	66,841	46,858	1,952			
569	7/18/2017	317,893	490,532	528,039	1,336,464	55,686	33,587	1,399			
570	7/19/2017	845,221	426,653	4,507	1,276,381	53,183	7,030	293			
571	7/20/2017	777,854	425,593	3,146	1,206,593	50,275	50,008	2,084			
572	7/21/2017	447,813	481,266	511,532	1,440,611	60,025	39,576	1,649			
573	7/22/2017	0	517,276	1,160,337	1,677,613	69,901	0	0			
574	7/23/2017	0	482,263	1,151,376	1,633,639	68,068	43,585	1,816			
575	7/24/2017	0	421,718	949,394	1,371,112	57,130	24,300	1,013			
576	7/25/2017	0	560,158	822,056	1,382,214	57,592	31,500	1,313			
577	7/26/2017	0	497,097	1,109,057	1,606,154	66,923	22,500	938			
578	7/27/2017	0	320,265	624,940	945,205	39,384	35,550	1,481			
579	7/28/2017	0	351,783	827,912	1,179,695	49,154	0	0			
580	7/29/2017	0	540,230	992,541	1,532,771	63,865	0	0			
581	7/30/2017	0	588,493	1,023,679	1,612,172	67,174	27,495	1,146			
582	7/31/2017	0	575,145	1,007,754	1,582,899	65,954	24,547	1,023			
583	8/1/2017	0	583,445	1,080,039	1,663,484	69,312	52,897	2,204			
584	8/2/2017	0	522,854	1,227,444	1,750,298	72,929	16,650	694			
585	8/3/2017	0	417,790	1,179,213	1,597,003	66,542	50,850	2,119			
586	8/4/2017	0	520,147	1,203,397	1,723,544	71,814	16,200	675			
587	8/5/2017	0	583,730	1,078,552	1,662,282	69,262	30,150	1,256			
588	8/6/2017	0	586,451	1,068,208	1,654,659	68,944	34,200	1,425			
589	8/7/2017	0	544,136	944,441	1,488,577	62,024	10,800	450			
590	8/8/2017	0	547,193	812,506	1,359,699	56,654	35,550	1,481			
591	8/9/2017	0	566,909	951,595	1,518,504	63,271	24,750	1,031			
592	8/10/2017	0	562,600	922,484	1,485,084	61,879	22,950	956			
593	8/11/2017	0	464,176	527,635	991,811	41,325	48,600	2,025			
594	8/12/2017	0	626,308	911,912	1,538,220	64,093	22,050	919			
595	8/13/2017	0	616,582	915,919	1,532,501	63,854	14,850	619			
596	8/14/2017	0	598,328	992,924	1,591,252	66,302	40,050	1,669			
597	8/15/2017	0	575,931	1,043,814	1,619,745	67,489	18,450	769			
598	8/16/2017	0	578,084	1,064,609	1,642,693	68,446	14,400	600			
599	8/17/2017	0	568,878	1,024,518	1,593,396	66,392	38,741	1,614			
600	8/18/2017	0	568,049	1,110,843	1,678,892	69,954	50,098	2,087			
601	8/19/2017	0	596,712	1,070,206	1,666,918	69,455	19,100	796			
602	8/20/2017	0	198,934	205,098	404,032	16,835	45,176	1,882			
603	8/21/2017	0	19,892	7,933	27,825	1,159	0	0			
604	8/22/2017	0	548,703	769,512	1,318,215	54,926	0	0			
605	8/23/2017	0	584,171	1,171,834	1,756,005	73,167	32,318	1,347			
606	8/24/2017	0	597,169	1,066,367	1,663,536	69,314	10,444	435			
607	8/25/2017	0	595,794	1,129,743	1,725,537	71,897	32,608	1,359			
608	8/26/2017	0	597,037	1,110,076	1,707,113	71,130	39,429	1,643			
609	8/27/2017	0	602,115	1,093,654	1,695,769	70,657	30,075	1,253			
610	8/28/2017	0	525,807	864,994	1,390,801	57,950	45,160	1,882			

	A	B	C	D	E	F	G	H	I	J	K
611	8/29/2017	0	392,402	681,241	1,073,643	44,735	0	0			
612	8/30/2017	0	548,797	675,320	1,224,117	51,005	0	0			
613	8/31/2017	0	520,106	640,664	1,160,770	48,365	0	0			
614	9/1/2017	0	531,275	595,248	1,126,523	46,938	0	0			
615	9/2/2017	0	551,523	677,804	1,229,327	51,222	0	0			
616	9/3/2017	0	551,697	665,489	1,217,186	50,716	0	0			
617	9/4/2017	0	555,061	695,623	1,250,684	52,112	0	0			
618	9/5/2017	0	552,778	716,143	1,268,921	52,872	0	0			
619	9/6/2017	0	582,617	926,115	1,508,732	62,864	0	0			
620	9/7/2017	0	569,532	1,021,879	1,591,411	66,309	16,650	694			
621	9/8/2017	0	574,343	1,168,305	1,742,648	72,610	36,450	1,519			
622	9/9/2017	0	579,194	1,162,983	1,742,177	72,591	16,200	675			
623	9/10/2017	0	567,598	1,115,942	1,683,540	70,148	37,800	1,575			
624	9/11/2017	0	585,198	1,128,421	1,713,619	71,401	38,250	1,594			
625	9/12/2017	0	607,148	1,123,866	1,731,014	72,126	36,000	1,500			
626	9/13/2017	0	599,952	1,058,494	1,658,446	69,102	20,250	844			
627	9/14/2017	0	608,428	905,019	1,513,447	63,060	33,300	1,388			
628	9/15/2017	0	600,192	773,916	1,374,108	57,255	31,500	1,313			
629	9/16/2017	0	603,374	720,222	1,323,596	55,150	6,750	281			
630	9/17/2017	0	612,772	602,218	1,214,990	50,625	0	0			
631	9/18/2017	0	589,556	743,437	1,332,993	55,541	0	0			
632	9/19/2017	0	535,878	752,109	1,287,987	53,666	8,215	342			
633	9/20/2017	0	579,769	998,574	1,578,343	65,764	44,258	1,844			
634	9/21/2017	0	538,296	705,954	1,244,250	51,844	26,970	1,124			
635	9/22/2017	0	616,704	1,020,023	1,636,727	68,197	45,884	1,912			
636	9/23/2017	0	282,741	691,602	974,343	40,598	10,506	438			
637	9/24/2017	0	566,692	742,096	1,308,788	54,533	0	0			
638	9/25/2017	0	617,515	1,047,934	1,665,449	69,394	26,400	1,100			
639	9/26/2017	0	620,893	984,408	1,605,301	66,888	28,600	1,192			
640	9/27/2017	0	633,666	1,014,721	1,648,387	68,683	4,551	190			
641	9/28/2017	0	615,835	990,130	1,605,965	66,915	41,842	1,743			
642	9/29/2017	0	627,302	965,821	1,593,123	66,380	40,786	1,699			
643	9/30/2017	0	600,964	818,334	1,419,298	59,137	41,192	1,716			
644	10/1/2017	0	427,089	586,165	1,013,254	42,219	41,670	1,736			
645	10/2/2017	0	24,223	0	24,223	1,009	0	0			
646	10/3/2017	0	0	0	0	0	0	0			
647	10/4/2017	0	0	0	0	0	0	0			
648	10/5/2017	0	0	0	0	0	0	0			
649	10/6/2017	0	11,963	1,279	13,242	552	0	0			
650	10/7/2017	0	129,223	58	129,281	5,387	0	0			
651	10/8/2017	0	137,999	216	138,215	5,759	0	0			
652	10/9/2017	0	152,550	3,612	156,162	6,507	9,000	375			
653	10/10/2017	0	15,437	1,951	17,388	725	450	19			
654	10/11/2017	0	124,939	1,988	126,927	5,289	0	0			
655	10/12/2017	0	166,963	2,010	168,973	7,041	0	0			
656	10/13/2017	0	178,424	3,656	182,080	7,587	0	0			
657	10/14/2017	0	176,956	403	177,359	7,390	0	0			

	A	B	C	D	E	F	G	H	I	J	K
658	10/15/2017	0	107,279	1,978	109,257	4,552	0	0			
659	10/16/2017	0	169,131	7,667	176,798	7,367	0	0			
660	10/17/2017	0	374,675	450,817	825,492	34,396	0	0			
661	10/18/2017	0	302,583	507,465	810,048	33,752	0	0			
662	10/19/2017	0	593,455	40,907	634,362	26,432	0	0			
663	10/20/2017	0	281,454	636,565	918,019	38,251	0	0			
664	10/21/2017	0	355,437	616,941	972,378	40,516	0	0			
665	10/22/2017	0	363,975	618,749	982,724	40,947	0	0			
666	10/23/2017	0	198,702	606,315	805,017	33,542	0	0			
667	10/24/2017	0	450,954	802,978	1,253,932	52,247	0	0			
668	10/25/2017	0	512,522	819,130	1,331,652	55,486	0	0			
669	10/26/2017	0	508,284	773,923	1,282,207	53,425	0	0			
670	10/27/2017	0	503,732	761,722	1,265,454	52,727	0	0			
671	10/28/2017	0	498,643	776,619	1,275,262	53,136	0	0			
672	10/29/2017	0	509,786	771,779	1,281,565	53,399	0	0			
673	10/30/2017	0	413,476	827,136	1,240,612	51,692	0	0			
674	10/31/2017	0	575,594	1,154,289	1,729,883	72,078	19,450	810			
675	11/1/2017	0	568,770	1,071,886	1,640,656	68,361	27,751	1,156			
676	11/2/2017	0	561,023	1,095,898	1,656,921	69,038	25,296	1,054			
677	11/3/2017	0	579,093	1,131,921	1,711,014	71,292	66,714	2,780			
678	11/4/2017	0	564,878	1,195,295	1,760,173	73,341	28,075	1,170			
679	11/5/2017	0	567,300	1,157,454	1,724,754	71,865	27,642	1,152			
680	11/6/2017	0	491,690	775,788	1,267,478	52,812	30,656	1,277			
681	11/7/2017	0	570,940	1,113,211	1,684,151	70,173	19,794	825			
682	11/8/2017	0	586,996	1,222,894	1,809,890	75,412	23,650	985			
683	11/9/2017	0	604,338	1,208,919	1,813,257	75,552	44,000	1,833			
684	11/10/2017	0	600,283	1,047,601	1,647,884	68,662	13,200	550			
685	11/11/2017	0	622,149	1,081,261	1,703,410	70,975	22,708	946			
686	11/12/2017	0	625,977	1,045,842	1,671,819	69,659	42,814	1,784			
687	11/13/2017	0	603,195	928,394	1,531,589	63,816	24,750	1,031			
688	11/14/2017	0	613,912	1,216,471	1,830,383	76,266	31,160	1,298			
689	11/15/2017	0	627,177	1,200,560	1,827,737	76,156	31,170	1,299			
690	11/16/2017	0	624,458	1,117,122	1,741,580	72,566	41,400	1,725			
691	11/17/2017	0	581,753	713,967	1,295,720	53,988	0	0			
692	11/18/2017	0	473,570	649,353	1,122,923	46,788	0	0			
693	11/19/2017	0	580,577	730,128	1,310,705	54,613	0	0			
694	11/20/2017	0	549,421	613,211	1,162,632	48,443	0	0			
695	11/21/2017	0	563,905	827,313	1,391,218	57,967	8,100	338			
696	11/22/2017	0	624,619	1,017,638	1,642,257	68,427	30,600	1,275			
697	11/23/2017	0	627,586	1,028,574	1,656,160	69,007	34,650	1,444			
698	11/24/2017	0	610,072	939,263	1,549,335	64,556	23,850	994			
699	11/25/2017	0	622,695	999,108	1,621,803	67,575	27,900	1,163			
700	11/26/2017	0	604,038	886,050	1,490,088	62,087	44,550	1,856			
701	11/27/2017	0	610,606	919,372	1,529,978	63,749	19,110	796			
702	11/28/2017	0	585,094	842,254	1,427,348	59,473	29,250	1,219			
703	11/29/2017	0	628,023	1,021,740	1,649,763	68,740	17,100	713			
704	11/30/2017	0	625,132	1,021,420	1,646,552	68,606	42,300	1,763			

	A	B	C	D	E	F	G	H	I	J	K
705	12/1/2017	0	621,911	1,036,240	1,658,151	69,090	22,050	919			
706	12/2/2017	0	627,525	1,050,910	1,678,435	69,935	22,500	938			
707	12/3/2017	0	629,160	1,092,328	1,721,488	71,729	49,950	2,081			
708	12/4/2017	0	629,204	1,084,058	1,713,262	71,386	10,800	450			
709	12/5/2017	0	574,574	898,566	1,473,140	61,381	54,900	2,288			
710	12/6/2017	0	562,070	901,198	1,463,268	60,970	18,000	750			
711	12/7/2017	0	563,240	913,556	1,476,796	61,533	45,450	1,894			
712	12/8/2017	0	535,618	820,675	1,356,293	56,512	26,100	1,088			
713	12/9/2017	0	624,066	1,052,941	1,677,007	69,875	4,950	206			
714	12/10/2017	0	557,004	915,932	1,472,936	61,372	39,308	1,638			
715	12/11/2017	0	630,721	1,076,645	1,707,366	71,140	39,600	1,650			
716	12/12/2017	0	615,928	998,418	1,614,346	67,264	6,183	258			
717	12/13/2017	0	610,746	1,016,355	1,627,101	67,796	3,200	133			
718	12/14/2017	0	624,628	1,150,252	1,774,880	73,953	73,956	3,082			
719	12/15/2017	0	595,151	910,853	1,506,004	62,750	10,213	426			
720	12/16/2017	0	614,703	1,000,740	1,615,443	67,310	38,900	1,621			
721	12/17/2017	0	619,959	1,026,352	1,646,311	68,596	15,330	639			
722	12/18/2017	0	609,717	972,018	1,581,735	65,906	26,124	1,089			
723	12/19/2017	0	620,314	1,038,002	1,658,316	69,097	20,752	865			
724	12/20/2017	0	626,197	1,093,445	1,719,642	71,652	46,554	1,940			
725	12/21/2017	0	290,346	287,862	578,208	24,092	31,106	1,296			
726	12/22/2017	0	229,407	0	229,407	9,559	0	0			
727	12/23/2017	0	182,162	0	182,162	7,590	0	0			
728	12/24/2017	0	194,317	0	194,317	8,097	0	0			
729	12/25/2017	0	194,133	0	194,133	8,089	0	0			
730	12/26/2017	0	194,458	0	194,458	8,102	0	0			
731	12/27/2017	0	269,963	0	269,963	11,248	550	23			
732	12/28/2017	0	237,521	0	237,521	9,897	0	0			
733	12/29/2017	0	331,019	180,708	511,727	21,322	0	0			
734	12/30/2017	0	429,837	711,562	1,141,399	47,558	0	0			
735	12/31/2017	0	395,963	715,412	1,111,375	46,307	0	0			
736											
737			Maximum:		2,196,113	91,505		3,082			
738			Average		1,333,014	55,542		932			

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	**Changes in Potential To Emit for Criteria Air Pollutants**												
2	Emission Point	**CO**		**NOx**		**SO_2**		**PM2.5**		**PM10**		**VOC**	
3		lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr
4	*Point Sources*												
5	Boiler 1A	7.37	32.01	1.89	8.05	0.06	0.25	0.74	3.23	0.74	3.23	0.54	2.34
6	Boiler 2A	7.37	32.01	1.89	8.05	0.06	0.25	0.74	3.23	0.74	3.23	0.54	2.34
7	Kipper Boiler	8.91	-136.91	-3.69	-79.19	-46.28	-210.72	-2.73	-51.39	-2.73	-51.39	0.47	-6.32
8	Boiler 1	-4.28	-18.76	-5.10	-22.33	-0.12	-0.54	-0.39	-1.70	-0.39	-1.70	-0.28	-1.23
9	Boiler 2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	7020	0.14	0.32	0.05	0.10	0.00	0.00	0.04	0.12	0.04	0.12	0.00	0.01
11	7101	0.48	1.06	0.16	0.37	0.01	0.03	0.20	0.84	0.20	0.84	0.01	0.02
12	7102	0.48	1.05	0.16	0.37	0.01	0.03	0.20	0.84	0.20	0.84	0.01	0.02
13	7019	0.34	0.76	0.12	0.27	0.01	0.06	0.11	0.46	0.11	0.46	0.00	0.01
14	7001	0.06	0.13	0.02	0.04	0.00	0.01	0.02	0.07	0.02	0.07	0.00	0.00
15	7027	0.05	0.10	0.02	0.03	0.00	0.00	0.01	0.01	0.01	0.01	0.00	0.00
16	7006	0.04	0.08	0.01	0.03	0.00	0.00	0.01	0.03	0.01	0.03	0.00	0.00
17	5034	0.02	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
18	5037	0.19	0.42	0.06	0.14	0.00	0.00	0.01	0.02	0.01	0.02	0.01	0.01
19	4000	0.50	1.10	0.16	0.36	0.00	0.00	0.02	0.04	0.02	0.04	0.01	0.03
20	228	0.30	0.65	0.10	0.21	0.00	0.00	0.01	0.03	0.01	0.03	0.01	0.02
21	234	0.44	0.96	0.14	0.31	0.00	0.00	0.02	0.04	0.02	0.04	0.01	0.03
22	613/614	0.00	0.00	0.00	0.00	-0.13	-0.56	-0.85	-3.74	-0.85	-3.74	0.00	0.00
23	615/616	0.00	0.00	0.00	0.00	-0.04	-0.16	-0.24	-1.05	-0.24	-1.05	0.00	0.00
24	638	0.00	0.00	0.00	0.00	-0.17	-0.74	-1.09	-4.80	-1.09	-4.80	0.00	0.00
25	M33	0.12	0.27	0.04	0.09	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01
26	M44	0.03	0.06	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	M56	0.04	0.10	0.01	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	M62	0.06	0.12	0.02	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	M86	0.12	0.26	0.04	0.09	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.01
30	Flake North	0.33	0.72	0.27	0.59	0.00	0.01	0.49	0.53	0.49	2.06	0.03	0.06
31	Flake South	0.33	0.72	0.27	0.59	0.00	0.01	0.49	0.53	0.49	2.06	0.03	0.06
32	P4A	1.94	7.76	0.38	1.41	0.01	0.02	0.43	1.84	0.43	1.84	0.06	0.23
33	P4BCD	2.16	8.72	0.38	1.41	0.01	0.03	1.74	7.59	1.74	7.59	0.06	0.26
34	707	0.02	0.05	0.01	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	725	0.02	0.04	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	8	0.04	0.09	0.01	0.03	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
37	5001	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
38	5000	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	432	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40	322	0.01	0.02	0.00	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.00	0.00
41	572	0.01	0.03	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	*Fugitive Sources*									0.00			
43	Main	2.88	6.32	0.94	2.05	0.01	0.02	0.11	0.24	0.11	0.24	0.09	0.19
44	Old Boilerhouse	0.78	1.71	0.15	0.33	0.00	0.00	0.02	0.05	0.02	0.05	0.02	0.04
45	New Boilerhouse	0.12	0.26	0.10	0.21	0.00	0.00	0.01	0.03	0.01	0.03	0.01	0.02
46	Flake	0.27	0.59	0.22	0.49	0.00	0.00	0.03	0.06	0.03	0.06	0.02	0.05
47	Receiving	0.46	1.01	0.18	0.40	0.00	0.00	0.02	0.05	0.02	0.05	0.02	0.04
48	Heaters	-8.01	-17.54	-1.54	-3.37	-0.07	-0.16	-0.23	-0.50	-0.23	-0.50	-0.17	-0.36
49	RX-OB11	-0.94	-2.05	-1.08	-2.36	-0.03	-0.07	-0.10	-0.22	-0.10	-0.22	-0.07	-0.31
50	Woodpile	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	-0.02	0.00	-9.95
51	*Δ PTE - Point Sources:*	*27.69*	*-65.93*	*-2.55*	*-78.80*	*-46.58*	*-211.99*	*0.00*	*-43.17*	*0.00*	*-40.12*	*1.53*	*-2.08*
52	*Δ PTE - Fugitive*	*-4.43*	*-9.71*	*-1.03*	*-2.25*	*-0.09*	*-0.20*	*-0.13*	*-0.29*	*-0.13*	*-0.31*	*-0.09*	*-10.29*
53	*Δ PTE for All Units:*	*23.26*	*-75.64*	*-3.58*	*-81.05*	*-46.66*	*-212.18*	*-0.14*	*-43.46*	*-0.13*	*-40.42*	*1.44*	*-12.37*

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2													
3													
4			**CO**		**NOx**		**SO_2**		**PM2.5**		**PM10**		**Pb**
5			lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/month
6	PTE for New Units and Increase in Emissions for Existing uniots		36.48	99.62	7.83	26.20	0.18	0.76	5.50	19.94	5.50	23.00	
7	Associated Emissions Increases												
8		Process A Burners	0.20	0.87	0.04	0.17	0.00	0.01	0.01	0.02	0.01	0.02	
9		Kipper Boiler Steam Generation	0.70	0.00	0.25	0.00	0.03	0.00	0.16	0.00	0.16	0.00	
10		Materials Transport and Packaging	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.02	
11		*Total Emissions Increase*	37.39	100.49	8.12	26.37	0.21	0.77	5.66	19.98	5.67	23.04	
12	Threshold Comparison												
13	Level 1	Threshold Value	15	-	0.2	1.2			0.054	0.35	0.22		
14		% of Threshold	249%		4059%	2197%			10489%	5709%	2575%		
15	Level II	Threshold Value	175	-	-	-	0.21	1.2					
16		% of Threshold	21%				100%	64%					
17	Level II Case-by-Case	Threshold Value	-	-	2.4	14	2.5	14	0.63	4.1	2.6		
18		% of Threshold			338%	188%	8%	5%	899%	487%	218%		

	A	B	C	D
1				
2	**Parameter**	**Value**	**Units**	**Discussion/Basis**
3				
4	moisture content of product	7%		
5	moisute content of feed	80%		
6	total flake production (finsished product)	12,000	lb/hr	
7				
8	Process B Process Weight Preproject	76,000	lb/hr	from Dec 2014 PTC application for addition of new production line
9	Process wight for drum dryers	55,800	lb/hr	
10	Net change in process weight forf replacement belt dryer	-9,625	lb/hr	No change in production rate
11	Process weight post project	122,175	lb/hr	
12	Allowable emissions	20.57	lb/hr	IDAPA 58.01.01.701
13	postproject process B emissions	9.01	lb/hr	sum of process B PM10 emissions from Emissions Summary - post-project
14				
15				
16	Process A Process Weight input	24,917	lb/hr	Based on 65 tons/day output at 8% moisture and 20% solids in raw potato
17	Allowable emission	13.82	lb/hr	IDAPA 58.01.01.701
18	Actual PM emissions	6.51	lb/hr	sum of process B PM10 emissions from Emissions Summary - post-project

	A	B	C	D	E	F	G
1							
2							
3	Table 26						
4	Results of Significant Impact Analysis						
5	Pollutant	Averaging Period	Maximum Modeled Concentration, $\mu g/m^3$	Significant Contribution Level, $\mu g/m^3$	Impact Percentage of Significant Contribution Level	Cumulative NAAQS Analysis Required	
6	$PM_{2.5}$	24-hour	0.27	1.2	23%	No	
7		Annual	0.00	0.3	0%	No	
8	PM_{10}	24-hour	0.43	5	9%	No	
9							
10	Table 27						
11	Results of Cumulative Impacts Analysis for NO2						
12	Averaging Period	Time Period	Rank	Maximum Modeled Concentration, $\mu g/m^3$	NAAQS	Impact Percentage of NAAQS	
13	1-hour	2011-2012; 2014-2016 (Five Years)	Highest 8th High Max Daily Hour Averaged Over 5 year	143	188	76.1%	
14	Annual	2011	Maximum Annual Average	7.39			
15		2012	Maximum Annual Average	7.85			
16		2014	Maximum Annual Average	8.30			
17		2015	Maximum Annual Average	9.40			
18		2016	Maximum Annual Average	8.35			
19			*Maximum Annual*	9.40	100	9.4%	
20							
21							
22							
23							
24							
25							
26							
27							
28		Table 27					
29		Results of Cumulative Impact Analysis for 1-hour and Annual NO2 Standard					
30							

	A	B	C	D	E	F	G
31		Rank	Modeled Impact, with Background*, µg/m^3	NAAQS, µg/m3	Impact Percentage of NAAQS		
32		1st Highest	246.2	-	-		
33		2nd Highest	226.6	-	-		
34		3rd Highest	211.7	-	-		
35		4th Highest	204.4	-	-		Chromium(VI)
36		5th Highest	199.2	-	-		
37		6th Highest	192.1	-	-		
38		7th Highest	184.3	-	-		
39		8th Highest	181.3	188	96%		
40		* Background = 14 µg/m3					

	A	B	C	D	E	F	G	H	I	J	K	L	M
1				Receptor Location		Modeled Impact							
2	Pollutant	Year	Group	East (X)	North (Y)	µg/m^3	% of AAAC			Elev	Hill	Flag	Time
3	Formaldehyde	2011	ALL	436765	4854094	2.2E-03				1481	1481.01	0	1 YEARS
4	Formaldehyde	2012	ALL	436780	4854075	2.2E-03				1481	1481.02	0	1 YEARS
5	Formaldehyde	2014	ALL	436765	4854094	2.3E-03				1481	1481.01	0	1 YEARS
6	Formaldehyde	2015	ALL	436765	4854094	2.6E-03				1481	1481.01	0	1 YEARS
7	Formaldehyde	2016	ALL	436765	4854094	2.3E-03				1481	1481.01	0	1 YEARS
8				***Formaldehyde Max***		*2.6E-03*	*3.3%*						
9	Arsenic	2011	ALL	436765	4854094	5.9E-06				1481	1481.01	0	1 YEARS
10	Arsenic	2012	ALL	436780	4854075	5.8E-06				1481	1481.02	0	1 YEARS
11	Arsenic	2014	ALL	436765	4854094	6.1E-06				1481	1481.01	0	1 YEARS
12	Arsenic	2015	ALL	436765	4854094	6.8E-06				1481	1481.01	0	1 YEARS
13	Arsenic	2016	ALL	436765	4854094	6.2E-06				1481	1481.01	0	1 YEARS
14					***Arsenic Max***	***6.8E-06***	*3.0%*						
15	Cadmium	2011	ALL	436765	4854094	3.3E-05				1481	1481.01	0	1 YEARS
16	Cadmium	2012	ALL	436780	4854075	3.2E-05				1481	1481.02	0	1 YEARS
17	Cadmium	2014	ALL	436765	4854094	3.4E-05				1481	1481.01	0	1 YEARS
18	Cadmium	2015	ALL	436765	4854094	3.7E-05				1481	1481.01	0	1 YEARS
19	Cadmium	2016	ALL	436765	4854094	3.4E-05				1481	1481.01	0	1 YEARS
20					***Cadmium Max***	*3.7E-05*	*6.7%*						
21	Chromium(VI)	2011	ALL	436765	4854094	2.1E-06				1481	1481.01	0	1 YEARS
22	Chromium(VI)	2012	ALL	436780	4854075	2.0E-06				1481	1481.02	0	1 YEARS
23	Chromium(VI)	2014	ALL	436765	4854094	2.1E-06				1481	1481.01	0	1 YEARS
24	Chromium(VI)	2015	ALL	436765	4854094	2.4E-06				1481	1481.01	0	1 YEARS
25	Chromium(VI)	2016	ALL	436765	4854094	2.2E-06				1481	1481.01	0	1 YEARS
26					***Chromium(VI) Max***	*2.4E-06*	*2.9%*						
27	Nickel	2011	ALL	436765	4854094	6.2E-05				1481	1481.01	0	1 YEARS
28	Nickel	2012	ALL	436780	4854075	6.1E-05				1481	1481.02	0	1 YEARS
29	Nickel	2014	ALL	436765	4854094	6.4E-05				1481	1481.01	0	1 YEARS
30	Nickel	2015	ALL	436765	4854094	7.2E-05				1481	1481.01	0	1 YEARS
31	Nickel	2016	ALL	436765	4854094	6.5E-05				1481	1481.01	0	1 YEARS
32					***Nickel Max***	*7.2E-05*	*1.7%*						

	N	O	P	Q	R	S	T
1							
2	Met File	Sources	Groups	Receptors			Conc/Dep
3	DEQ KRXE2011_adj u.SFC	9	1	2728			2218.29785
4	DEQ KRXE2012_adj u.SFC	9	1	2728			2179.25067
5	DEQ KRXE2014_adj u.SFC	9	1	2728			2284.07171
6	DEQ KRXE2015_adj u.SFC	9	1	2728			2554.20849
7	DEQ KRXE2016_adj u.SFC	9	1	2728			2323.41605
8							
9	DEQ KRXE2011_adj u.SFC	9	1	2728			5.9134
10	DEQ KRXE2012_adj u.SFC	9	1	2728			5.80933
11	DEQ KRXE2014_adj u.SFC	9	1	2728			6.08885
12	DEQ KRXE2015_adj u.SFC	9	1	2728			6.80899
13	DEQ KRXE2016_adj u.SFC	9	1	2728			6.19373
14							
15	DEQ KRXE2011_adj u.SFC	9	1	2728			32.56622
16	DEQ KRXE2012_adj u.SFC	9	1	2728			31.99174
17	DEQ KRXE2014_adj u.SFC	9	1	2728			33.53264
18	DEQ KRXE2015_adj u.SFC	9	1	2728			37.49876
19	DEQ KRXE2016_adj u.SFC	9	1	2728			34.10956
20							
21	DEQ KRXE2011_adj u.SFC	9	1	2728			2.06762
22	DEQ KRXE2012_adj u.SFC	9	1	2728			2.03121
23	DEQ KRXE2014_adj u.SFC	9	1	2728			2.12887
24	DEQ KRXE2015_adj u.SFC	9	1	2728			2.38066
25	DEQ KRXE2016_adj u.SFC	9	1	2728			2.16563
26							
27	DEQ KRXE2011_adj u.SFC	9	1	2728			62.13492
28	DEQ KRXE2012_adj u.SFC	9	1	2728			61.04034
29	DEQ KRXE2014_adj u.SFC	9	1	2728			63.978
30	DEQ KRXE2015_adj u.SFC	9	1	2728			71.54477
31	DEQ KRXE2016_adj u.SFC	9	1	2728			65.07937
32							

	A	B	C	D
1				
2	**Parameter**	**Value**	**Units**	**Discussion**
3	**General Parameters**			
4	barometric pressure - standard conditions	14.7	psi	
5	barometric pressure at Rexburg @ 20 C	12.33	psi	
6	NG, HHV	1020	BTU/scf	
7	FW, NO2	46		
8	FW, CO	28		
9	*Stoichiometric NG combustion parameters*			
10	Fd, dry exhaust gas factor	8710	dscf/MMBtu	From Table 19-2, EPA Test Method 19
11	Fw, wet exhaust gas factor	10610	wscf/MMBtu	From Table 19-2, EPA Test Method 19
12				
13	amu air flow per MMBTUh	9000	cfm/MMBtuh	Based on data for Reyco VentPak 800 for Rexburg - 80,000 cfm makeup air supply @ 8.8 MMBtuh burner rating
14				
15	**Generic Bar Burner Emission Factors**			
16	PM10 - primary	7.6000	lb/MMscf	AP-42, Table 1.4-2
17	PM2.5 - primary	7.6000	lb/MMscf	
18	VOC	5.8	lb/MMscf	AP-42, Section 1.4 (7/98).for small boilers < 100 MMBtu
19	Pb	2.71E-04	lb/MMscf	
20	SO_2	0.6	lb/MMscf	
21	NOx	0.05	lb/MMBtu	Based on results of emission measurements of similar bar burners completed at the BAF Blackfoot Plant.
22	CO	0.26	lb/MMBtu	
23	HCOH	7.50E-02	lb/MMscf	AP-42, Section 1.4
24	As	2.00E-04	lb/MMscf	AP-42, Section 1.4
25	Cd	1.10E-03	lb/MMscf	AP-42, Section 1.4
26	Cr(VI)	7.00E-05	lb/MMscf	AP-42, Section 1.4. 5% of chromium assumed to be Chromium (VI). See "AB 2588 Combustion Emission Factors", Ventura County APCD, May 17, 2001
27	Ni	2.10E-03	lb/MMscf	AP-42, Section 1.4

	A	B	C	D	E	F	G	H
1						Burner Emissions, ppm @ 3% Oxygen		
2	**AMU**	**Associated Building**	**Status**	**Air Supply, cfm**	**Burner Rating, MMBtuh**	**NOx**	**CO**	**Discussion**
3	Reyco - Boiler Room North	New Boilerhouse	New	35,000	2.5	50	100	Reyco drawing no. 190489-001A01 Rev 1 (4-26-19). Attached to 6-15-19 email from Scott Holdeman.
4	Reyco - Boiler Room South	New Boilerhouse	New	35,000	2.5	50	100	
5	Reyco - Flake South	Flake	New	40,000	2.9	50	100	Reyco drawing no. 190488-002A01 Rev 3 (5-29-19). Attached to 6-15-19 email from Scott Holdeman.
6	Reyco - Flake North #1	Flake	New	68,000	4.9	50	100	
7	Reyco - Flake North #2	Flake	New	68,000	4.9	50	100	
8	Reyco - Slab	Receiving	New	18,000	1.3	50	100	Reyco drawing no. 190489721-001A01 Rev 0 (5-24-19). Attached to 6-15-19 email from Scott Holdeman.
9	Reyco - Potato Cleaning	Receiving	New	10,000	0.7	50	100	
10	King DFOC - Receiving	Receiving	Existing	12,000	1.2	-	-	Equipment Inspection by Ron Gibb and Steve Brockett, BAF., 2003 and 2019
11	Aerovent G500 - Main NW	Main	Existing	30,000	3.0	-	-	Equipment Inspection by Ron Gibb and Steve Brockett, BAF., 2003 and 2019
12	Aerovent G503 - Main - North	Main	Existing	30,000	3.0	-	-	
13	Reyco VentPak 800 Main - Shop	Main	Existing	80,000	8.8	-	-	
14	Reyco VentPak 800 - Main - Proctor	Main	Existing	80,000	8.8	-	-	
15	Reyco VentPak - West	Main	Existing	120,000*	13.3	70	100	Equipment Specifications
16	Aerovent - Boilerhouse	Old Boilerhouse	Existing	30,000	3.0	-	-	Equipment Inspection by Ron Gibb and Steve Brockett, BAF., 2003 and 2019
17								
18	* Rated air supply not available. Air supply estimated at 9000 cfm/MMBtu, based on Reyco VentPak 800 units.							

	A	B	C	D	E	F	G
1							
2							
3	**Stack**	**Stack ID**	**Temp, deg F**	**Stack Discharge, acfm**	**Associated Building**	**Process Air Source**	
4	Boiler 1A	BLR1A	306	34,480	New Boilerhouse	Room	
5	Boiler 2A	BLR2A	306	34,480	New Boilerhouse	Room	
6	Kipper Boiler	Kipper	129	26,238	Old Boilerhouse	Outside	
7	Boiler 2	Boiler2	450	20,446	Old Boilerhouse	Outside	
8	Flake North	FLK_N	115	68,000	Flake	Room	
9	Flake South	FLK_S	115	68,000	Flake	Room	
10	P4A	P4A	145	18,710	Main	Room	
11	P4BCD	P4BCD	145	18,713	Main	Room	
12	7020	7020	97	7,288	Main	Room	
13	7101	7101	174	27,572	Main	Room	
14	7102	7102	153	26,443	Main	Room	
15	7019	7019	135	18,743	Main	Room	
16	7001	7001	90	2,919	Main	Room	
17	7027	7027	85	2,281	Main	Room	
18	7006	7006	90	1,891	Main	Room	
19	5037	5037	130	10,157	Main	Room	
20	5034	5034	150	1,087	Main	Room	
21	4000	4000	147	27,666	Main	Room	
22	228	228	133	15,890	Main	Room	
23	234	234	157	24,532	Main	Room	
24	M33	M33	160	7,000	Main	Room	
25	M44	M44	293	1,844	Main	Room	
26	M56	M56	170	2,500	Main	Room	
27	M62	M62	140	3,000	Main	Room	
28	M86	M86	137	6,500	Main	Room	
29	707	707	90	1118	Main	Room	
30	725	725	90	796	Main	Room	
31	8	8	81	2059	Main	Room	
32	5001	5000	76	605	Main	Room	
33	5000	5001	80	618	Main	Room	
34	432	432	80	466	Main	Room	
35	322	322	180	426	Main	Room	
36	572	572	90	691	Main	Room	
37							
38							
39							
40	*Retired Stacks*						
41	Boiler1	Boiler1	500	19,972		Outside	
42	613/614	613/614	140	11,041		Room	
43	615/616	615/616	192	9,929		Room	
44	638	638	162	2,599		Room	

	A	B	C	D
1				
2	**Parameter**	**Value**	**Units**	**Discussion**
3	NOx emissions conversion - ppm to lb/MMBtu			
4	unit ppm	1	ppmv @ 3% O2	
5	FW, formula weight	46	-	NOx as NO2
6	E, emissions	0.00000012	lb/dscf	=PPM*FW/(385.1*10^6)
7	Fa, Fd adjusted to 3% O2	10,170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
8	heat rate emission factor	0.00121	(lb/MMBtu)/ppmv	=E*Fa
9	fuel rate emission factor	1.24	(lb/MMscf NG)/ppm	
10				
11	CO emissions conversion - ppm to lb/MMBtu			
12	PPM, stack gas concentration	1	ppmv @ 3% O2	estimate for uncontrolled burner
13	FW, formula weight	28	-	
14	E, emissions	0.00000007	lb/dscf	=PPM*FW/(385.1*10^6)
15	Fa, Fd adjusted to 3% O2	10,170	dscf/MMBtu @ 3% O2	=Fd*(20.9/(20.9-3))
16	heat rate emission factor	0.00074	(lb/MMBtu)/ppmv	=E*Fa
17	fuel rate emission factor	0.75	(lb/MMscf NG)/ppm	

	A	B	C	D	E
1					
2					
3		NG Combustion			
4		MMBtu		MMscf*	
5	AMU	Hourly	Annual†	Hourly	Annual†
6	*New AMUs*				
7	Reyco - Boiler Room North	2.50	10,950	0.0025	10.74
8	Reyco - Boiler Room South	2.50	10,950	0.0025	10.74
9	Reyco - Flake South	2.86	12,527	0.0028	12.28
10	Reyco - Flake North #1	4.86	21,296	0.0048	20.88
11	Reyco - Flake North #2	4.86	21,296	0.0048	20.88
12	Reyco - Slab	1.29	5,637	0.0013	5.53
13	Reyco - Potato Cleaning	0.72	3,132	0.0007	3.07
14	*Existing AMUs*				
15	King DFOC - Receiving	1.20	5,256	0.0012	5.15
16	Aerovent G500 - Main NW	3.00	13,140	0.0029	12.88
17	Aerovent G503 - Main - North	3.00	13,140	0.0029	12.88
18	Reyco VentPak 800 Main - Shop	8.80	38,544	0.0086	37.79
19	Reyco VentPak 800 - Main - Proctor	8.80	38,544	0.0086	37.79
20	Reyco VentPak - West	13.30	58,254	0.0130	57.11
21	Aerovent - Boilerhouse	3.00	13,140	0.0029	12.88
22	Notes:				
23	* Based on NG HHV = 1020 Btu/scf				
24	† Maximum Firing Assumed to be 50% of Maximum Hourly Firing Rate				

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
1																							
2			Criteria Air Pollutants																				
3			PM10		PM2.5		SO2		NOx		CO		VOC		Pb								1
4			Hourly,	Annual,	Hourly,	Annual,	Hourly,	Annual,	Hourly,	Annual,	Hourly,	Annual,	Hourly,	Annual,	Hourly,	Annual,	Toxic Air Pollutants, lb/hr (annual average)						2
5	AMU	Building	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	HCOH	As	Cd	Cr(VI)	Ni		3
6	*New AMUs*																						4
7	Reyco - Boiler Room North	New Boilerhouse	0.019	0.041	0.019	0.041	0.001	0.003	0.152	0.33	0.185	0.40	0.014	0.03	6.6E-07	1.5E-06	9.19E-05	2.45E-07	1.35E-06	8.58E-08	2.57E-06		5
8	Reyco - Boiler Room South	New Boilerhouse	0.019	0.041	0.019	0.041	0.001	0.003	0.152	0.33	0.185	0.40	0.014	0.03	6.6E-07	1.5E-06	9.19E-05	2.45E-07	1.35E-06	8.58E-08	2.57E-06		6
9	Reyco - Flake South	Flake	0.021	0.047	0.021	0.047	0.002	0.004	0.174	0.38	0.211	0.46	0.016	0.04	7.6E-07	1.7E-06	1.05E-04	2.80E-07	1.54E-06	9.81E-08	2.94E-06		7
10	Reyco - Flake North #1	Flake	0.036	0.079	0.036	0.079	0.003	0.006	0.295	0.65	0.360	0.79	0.028	0.06	1.3E-06	2.8E-06	1.79E-04	4.77E-07	2.62E-06	1.67E-07	5.01E-06		8
11	Reyco - Flake North #2	Flake	0.036	0.079	0.036	0.079	0.003	0.006	0.295	0.65	0.360	0.79	0.028	0.06	1.3E-06	2.8E-06	1.79E-04	4.77E-07	2.62E-06	1.67E-07	5.01E-06		9
12	Reyco - Slab	Receiving	0.010	0.021	0.010	0.021	0.001	0.002	0.078	0.17	0.095	0.21	0.007	0.02	3.4E-07	7.5E-07	4.73E-05	1.26E-07	6.94E-07	4.42E-08	1.32E-06		10
13	Reyco - Potato Cleaning	Receiving	0.005	0.012	0.005	0.012	0.000	0.001	0.043	0.10	0.053	0.12	0.004	0.01	1.9E-07	4.2E-07	2.63E-05	7.01E-08	3.86E-07	2.45E-08	7.36E-07		11
14	*Existing AMUs*																						12
15	King DFOC - Receiving	Receiving	0.009	0.020	0.009	0.020	0.001	0.002	0.060	0.131	0.312	0.683	0.007	0.01	3.2E-07	7.0E-07	4.41E-05	1.18E-07	6.47E-07	4.12E-08	1.24E-06		13
16	Aerovent G500 - Main NW	Main	0.022	0.049	0.022	0.049	0.002	0.004	0.150	0.329	0.780	1.708	0.017	0.04	8.0E-07	1.7E-06	1.10E-04	2.94E-07	1.62E-06	1.03E-07	3.09E-06		14
17	Aerovent G503 - Main - North	Main	0.022	0.049	0.022	0.049	0.002	0.004	0.150	0.329	0.780	1.708	0.017	0.04	8.0E-07	1.7E-06	1.10E-04	2.94E-07	1.62E-06	1.03E-07	3.09E-06		15
18	Reyco VentPak 800 Main - Shop	Main	0.066	0.144	0.066	0.144	0.005	0.011	0.440	0.964	2.288	5.011	0.050	0.11	2.3E-06	5.1E-06	3.24E-04	8.63E-07	4.75E-06	3.02E-07	9.06E-06		16
19	Reyco VentPak 800 - Main - Proctor	Main	0.066	0.144	0.066	0.144	0.005	0.011	0.440	0.964	2.288	5.011	0.050	0.11	2.3E-06	5.1E-06	3.24E-04	8.63E-07	4.75E-06	3.02E-07	9.06E-06		17
20	Reyco VentPak - West	Main	0.099	0.217	0.099	0.217	0.008	0.017	1.131	2.48	0.983	2.15	0.076	0.17	3.5E-06	7.7E-06	4.89E-04	1.30E-06	7.17E-06	4.56E-07	1.37E-05		18
21	Aerovent - Boilerhouse	Old Boilerhouse	0.022	0.049	0.022	0.049	0.002	0.004	0.150	0.329	0.780	1.708	0.017	0.04	8.0E-07	1.7E-06	1.10E-04	2.94E-07	1.62E-06	1.03E-07	3.09E-06		19
22	*Totals:*																						20
23	*New AMUs:*		*0.146*	*0.320*	*0.146*	*0.320*	*0.012*	*0.025*	*1.190*	*2.605*	*1.448*	*3.172*	*0.111*	*0.244*	*5.2E-06*	*1.1E-05*	*7.2E-04*	*1.9E-06*	*1.1E-05*	*6.7E-07*	*2.0E-05*		21
24	*Existing AMUs:*		*0.306*	*0.671*	*0.306*	*0.671*	*0.024*	*0.053*	*2.521*	*5.521*	*3.211*	*17.983*	*0.234*	*0.512*	*1.1E-05*	*2.4E-05*	*1.5E-03*	*4.0E-06*	*2.2E-05*	*1.4E-06*	*4.2E-05*		22
25	*All AMUs:*		*0.452*	*0.990*	*0.452*	*0.990*	*0.036*	*0.078*	*3.711*	*8.126*	*9.660*	*21.155*	*0.345*	*0.756*	*1.6E-05*	*3.5E-05*	*2.2E-03*	*5.9E-06*	*3.3E-05*	*2.1E-06*	*6.2E-05*		23
26	*Building Totals:*																						24
27	*New Boilerhouse*		*0.037*	*0.082*	*0.037*	*0.082*	*0.003*	*0.006*	*0.304*	*0.665*	*0.370*	*0.810*	*0.028*	*0.062*	*1.3E-06*	*2.9E-06*	*1.8E-04*	*4.9E-07*	*2.7E-06*	*1.7E-07*	*5.1E-06*		25
28	*Old Boilerhouse*		*0.022*	*0.049*	*0.022*	*0.049*	*0.002*	*0.004*	*0.150*	*0.329*	*0.780*	*1.708*	*0.017*	*0.037*	*8.0E-07*	*1.7E-06*	*1.1E-04*	*2.9E-07*	*1.6E-06*	*1.0E-07*	*3.1E-06*		26
29	*Flake*		*0.094*	*0.205*	*0.094*	*0.205*	*0.007*	*0.016*	*0.764*	*1.674*	*0.930*	*2.038*	*0.072*	*0.157*	*3.3E-06*	*7.3E-06*	*4.6E-04*	*1.2E-06*	*6.8E-06*	*4.3E-07*	*1.3E-05*		27
30	*Receiving*		*0.024*	*0.052*	*0.024*	*0.052*	*0.002*	*0.004*	*0.182*	*0.398*	*0.460*	*1.007*	*0.018*	*0.040*	*8.5E-07*	*1.9E-06*	*1.2E-04*	*3.1E-07*	*1.7E-06*	*1.1E-07*	*3.3E-06*		28
31	*Main*		*0.275*	*0.602*	*0.275*	*0.602*	*0.022*	*0.048*	*2.311*	*5.061*	*7.119*	*15.592*	*0.210*	*0.460*	*9.8E-06*	*2.1E-05*	*1.4E-03*	*3.6E-06*	*2.0E-05*	*1.3E-06*	*3.8E-05*		29
32																							30
33	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		31
34	Notes:																						32

	A	B	C	D	E
1					
2			Stack	Stack Exhaust, cfm	
3	**Stack**	**Building Air Source**	**Temp, °F**	**actual**	**68 ° F**
4	Boiler 1A	New Boilerhouse	306	34,480	23,762
5	Boiler 2A	New Boilerhouse	306	34,480	23,762
6	Kipper Boiler	NA - Ambient	129	26,238	23,519
7	Boiler 2	NA - Ambient	450	20,446	11,860
8	Flake North	Flake	115	68,000	62,438
9	Flake South	Flake	115	68,000	62,438
10	P4A	Main	145	18,710	16,328
11	P4BCD	Main	145	18,713	16,330
12	7020	Main	97	7,288	6,909
13	7101	Main	174	27,572	22,960
14	7102	Main	153	26,443	22,774
15	7019	Main	135	18,743	16,631
16	7001	Main	90	2,919	2,802
17	7027	Main	85	2,281	2,210
18	7006	Main	90	1,891	1,815
19	5037	Main	130	10,157	9,089
20	5034	Main	150	1,087	941
21	4000	Main	147	27,666	24,063
22	228	Main	133	15,890	14,147
23	234	Main	157	24,532	20,991
24	M33	Main	160	7,000	5,961
25	M44	Main	293	1,844	1,293
26	M56	Main	170	2,500	2,095
27	M62	Main	140	3,000	2,640
28	M86	Main	137	6,500	5,748
29	707	Main	90	1,118	1,073
30	725	Main	90	796	764
31	8	Main	81	2,059	2,009
32	5001	Main	76	605	596
33	5000	Main	80	618	604
34	432	Main	80	466	455
35	322	Main	180	426	351
36	572	Main	90	691	664
37					
38	*Retired Stacks*				
39	Boiler1		500	19,972	10,982
40	613/614		140	11,041	9,715
41	615/616		192	9,929	8,040
42	638		162	2,599	2,206

	A	B	C	D	E	F
1						
2			Building Exhaust Summary			
3		Makeup Air,	cfm*		% of makeup supply	
4	Building	cfm	Stacks	Fugitive	Stacks	Fugitive
5	Main	340,000	202,244	137,756	59.5%	40.5%
6	Old Boilerhouse	30,000	0	30,000	0.0%	100.0%
7	New Boilerhouse	70,000	47,524	22,476	67.9%	32.1%
8	Flake	176,000	124,877	51,123	71.0%	29.0%
9	Receiving	40,000	0	40,000	0.0%	100.0%
10						
11						
12						
13	* Corrected to 68 °F					

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T
1																				
2			Emissions Rates by Building																	
3			New Boilerhouse			Old Boilerhouse			Flake			Receiving			Main					
4	Pollutant		Total	Process Exhausts	Fugitive	Total	Process Exhausts	Fugitive	Total	Process Exhausts	Fugitive	Total	Process Exhausts	Fugitive	Total	Process Exhausts	Fugitive			
5	PM10	Hourly, lb/hr	0.037	0.025	0.012	0.022	0.000	0.022	0.094	0.067	0.027	0.024	0.000	0.024	0.275	0.164	0.111			
6		Annual, ton/yr	0.082	0.055	0.026	0.049	0.000	0.049	0.205	0.146	0.060	0.052	0.000	0.052	0.602	0.358	0.244			
7	PM2.5	Hourly, lb/hr	0.037	0.025	0.012	0.022	0.000	0.022	0.094	0.067	0.027	0.024	0.000	0.024	0.275	0.164	0.111			
8		Annual, ton/yr	0.082	0.055	0.026	0.049	0.000	0.049	0.205	0.146	0.060	0.052	0.000	0.052	0.602	0.358	0.244			
9	SO2	Hourly, lb/hr	0.003	0.002	0.001	0.002	0.000	0.002	0.007	0.005	0.002	0.002	0.000	0.002	0.022	0.013	0.009			
10		Annual, ton/yr	0.006	0.004	0.002	0.004	0.000	0.004	0.016	0.012	0.005	0.004	0.000	0.004	0.048	0.028	0.019			
11	NOx	Hourly, lb/hr	0.304	0.206	0.098	0.150	0.000	0.150	0.764	0.542	0.222	0.182	0.000	0.182	2.311	1.375	0.936			
12		Annual, ton/yr	0.665	0.452	0.214	0.329	0.000	0.329	1.674	1.188	0.486	0.398	0.000	0.398	5.061	3.010	2.051			
13	CO	Hourly, lb/hr	0.370	0.251	0.119	0.780	0.000	0.780	0.930	0.660	0.270	0.460	0.000	0.460	7.119	4.235	2.885			
14		Annual, ton/yr	0.810	0.550	0.260	1.708	0.000	1.708	2.038	1.446	0.592	1.007	0.000	1.007	15.592	9.274	6.317			
15	VOC	Hourly, lb/hr	0.028	0.019	0.009	0.017	0.000	0.017	0.072	0.051	0.021	0.018	0.000	0.018	0.210	0.125	0.085			
16		Annual, ton/yr	0.062	0.042	0.020	0.037	0.000	0.037	0.157	0.111	0.046	0.040	0.000	0.040	0.460	0.273	0.186			
17	Pb	Hourly, lb/hr	1.3E-06	9.0E-07	4.3E-07	8.0E-07	0.0E+00	8.0E-07	3.3E-06	2.4E-06	9.7E-07	8.5E-07	0.0E+00	8.5E-07	9.8E-06	5.8E-06	4.0E-06			
18		Annual, ton/yr	2.9E-06	2.0E-06	9.3E-07	1.7E-06	0.0E+00	1.7E-06	7.3E-06	5.2E-06	2.1E-06	1.9E-06	0.0E+00	1.9E-06	2.1E-05	1.3E-05	8.7E-06			
19	HCOH	lb/yr	1.8E-04	1.2E-04	5.9E-05	1.1E-04	0.0E+00	1.1E-04	4.6E-04	3.3E-04	1.3E-04	1.2E-04	0.0E+00	1.2E-04	1.36E-03	8.1E-04	5.5E-04		59.48%	40.52%
20	As	lb/yr	4.9E-07	3.3E-07	1.6E-07	2.9E-07	0.0E+00	2.9E-07	1.2E-06	8.8E-07	3.6E-07	3.1E-07	0.0E+00	3.1E-07	3.6E-06	2.2E-06	1.5E-06		59.48%	40.52%
21	Cd	lb/yr	2.7E-06	1.8E-06	8.7E-07	1.6E-06	0.0E+00	1.6E-06	6.8E-06	4.8E-06	2.0E-06	1.7E-06	0.0E+00	1.7E-06	2.0E-05	1.2E-05	8.1E-06		59.48%	40.52%
22	Cr{VI}	lb/yr	1.7E-07	1.2E-07	5.5E-08	1.0E-07	0.0E+00	1.0E-07	4.3E-07	3.1E-07	1.3E-07	1.1E-07	0.0E+00	1.1E-07	1.3E-06	7.5E-07	5.1E-07		59.48%	40.52%
23	Ni	lb/yr	5.1E-06	3.5E-06	1.7E-06	3.1E-06	0.0E+00	3.1E-06	1.3E-05	9.2E-06	3.8E-06	3.3E-06	0.0E+00	3.3E-06	3.8E-05	2.3E-05	1.5E-05		59.48%	40.52%

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
1																					
2																					
3																					
4			PM10		PM2.5		NOx		CO		SO2		VOC		Pb		HCOH	As	Cd	Cr(VI)	Ni
5	Building	Fugitive Source ID	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	lb/yr	lb/yr	lb/yr	lb/yr	lb/yr
6	Main	MAIN_XSTG	0.111	0.244	0.111	0.244	0.936	2.051	2.885	6.317	0.009	0.019	0.085	0.186	4.0E-06	8.7E-06	5.5E-04	1.5E-06	8.1E-06	5.1E-07	1.5E-05
7	Old Boilerhouse	OLD_BLRS	0.022	0.049	0.022	0.049	0.150	0.329	0.780	1.708	0.002	0.004	0.017	0.037	8.0E-07	1.7E-06	1.1E-04	2.9E-07	1.6E-06	1.0E-07	3.1E-06
8	New Boilerhouse	NEW_BLRS	0.012	0.026	0.012	0.026	0.098	0.214	0.119	0.260	0.001	0.002	0.009	0.020	4.3E-07	9.3E-07	5.9E-05	1.6E-07	8.7E-07	5.5E-08	1.7E-06
9	Flake	FLAKE	0.027	0.060	0.027	0.060	0.222	0.486	0.270	0.592	0.002	0.005	0.021	0.046	9.7E-07	2.1E-06	1.3E-04	3.6E-07	2.0E-06	1.3E-07	3.8E-06
10	Receiving	RCVG	0.024	0.052	0.024	0.052	0.182	0.398	0.460	1.007	0.002	0.004	0.018	0.040	8.5E-07	1.9E-06	1.2E-04	3.1E-07	1.7E-06	1.1E-07	3.3E-06

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
1						AMU Emissions Allocated to Stacks																		
2					% of	PM10		PM2.5		NOx		CO		SO2		VOC		Pb		TAP Emissions, lb/yr				
3	Emission Point	Associated Building	Process Air Source	Stack Exhaust @ 68 ° F	Building AMU Emission	lb/hr	ton/yr	lb/hr	ton/yr	lb/hr	ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	Hourly, lb/hr	Annual, ton/yr	HCOH	As	Cd	Cr(VI)	NI
4	Boiler 1A	New Boilerhouse	Room	23,762	33.9%	0.013	0.028	0.013	0.028	0.103	0.226	0.126	0.275	0.001	0.002	0.010	0.021	4.5E-07	9.9E-07	6.2E-05	1.7E-07	9.2E-07	5.8E-08	1.7E-06
5	Boiler 2A	New Boilerhouse	Room	23,762	33.9%	0.013	0.028	0.013	0.028	0.103	0.226	0.126	0.275	0.001	0.002	0.010	0.021	4.5E-07	9.9E-07	6.2E-05	1.7E-07	9.2E-07	5.8E-08	1.7E-06
6	Kipper Boiler	Old Boilerhouse	Outside	23,519	0.0%	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
7	Boiler 2	Old Boilerhouse	Outside	11,860	0.0%	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00	0.0E+00
8	Flake North	Flake	Room	62,438	35.5%	0.033	0.073	0.033	0.073	0.271	0.594	0.330	0.723	0.003	0.006	0.025	0.056	1.2E-06	2.6E-06	1.6E-04	4.4E-07	2.4E-06	1.5E-07	4.6E-06
9	Flake South	Flake	Room	62,438	35.5%	0.033	0.073	0.033	0.073	0.271	0.594	0.330	0.723	0.003	0.006	0.025	0.056	1.2E-06	2.6E-06	1.6E-04	4.4E-07	2.4E-06	1.5E-07	4.6E-06
10	P4A	Main	Room	16,328	4.8%	0.013	0.029	0.013	0.029	0.111	0.243	0.342	0.749	0.001	0.002	0.010	0.022	4.7E-07	1.0E-06	6.5E-05	1.7E-07	9.6E-07	6.1E-08	1.8E-06
11	P4BCD	Main	Room	16,330	4.8%	0.013	0.029	0.013	0.029	0.111	0.243	0.342	0.749	0.001	0.002	0.010	0.022	4.7E-07	1.0E-06	6.5E-05	1.7E-07	9.6E-07	6.1E-08	1.8E-06
12	7020	Main	Room	6,909	2.0%	0.006	0.012	0.006	0.012	0.047	0.103	0.145	0.317	0.000	0.001	0.004	0.009	2.0E-07	4.4E-07	2.8E-05	7.4E-08	4.0E-07	2.6E-08	7.7E-07
13	7101	Main	Room	22,960	6.8%	0.019	0.041	0.019	0.041	0.156	0.342	0.481	1.053	0.001	0.003	0.014	0.031	6.6E-07	1.4E-06	9.2E-05	2.4E-07	1.3E-06	8.6E-08	2.6E-06
14	7102	Main	Room	22,774	6.7%	0.018	0.040	0.018	0.040	0.155	0.339	0.477	1.044	0.001	0.003	0.014	0.031	6.6E-07	1.4E-06	9.1E-05	2.4E-07	1.3E-06	8.5E-08	2.5E-06
15	7019	Main	Room	16,631	4.9%	0.013	0.029	0.013	0.029	0.113	0.248	0.348	0.763	0.001	0.002	0.010	0.022	4.8E-07	1.1E-06	6.6E-05	1.8E-07	9.7E-07	6.2E-08	1.9E-06
16	7001	Main	Room	2,802	0.8%	0.002	0.005	0.002	0.005	0.019	0.042	0.059	0.129	0.000	0.000	0.002	0.004	8.1E-08	1.8E-07	1.1E-05	3.0E-08	1.6E-07	1.0E-08	3.1E-07
17	7027	Main	Room	2,210	0.6%	0.002	0.004	0.002	0.004	0.015	0.033	0.046	0.101	0.000	0.000	0.001	0.003	6.4E-08	1.4E-07	8.8E-06	2.4E-08	1.3E-07	8.2E-09	2.5E-07
18	7006	Main	Room	1,815	0.5%	0.001	0.003	0.001	0.003	0.012	0.027	0.038	0.083	0.000	0.000	0.001	0.002	5.2E-08	1.1E-07	7.2E-06	1.9E-08	1.1E-07	6.8E-09	2.0E-07
19	5037	Main	Room	9,089	2.7%	0.007	0.016	0.007	0.016	0.062	0.135	0.190	0.417	0.001	0.001	0.006	0.012	2.6E-07	5.7E-07	3.6E-05	9.7E-08	5.3E-07	3.4E-08	1.0E-06
20	5034	Main	Room	941	0.3%	0.001	0.002	0.001	0.002	0.006	0.014	0.020	0.043	0.000	0.000	0.001	0.001	2.7E-08	5.9E-08	3.8E-06	1.0E-08	5.5E-08	3.5E-09	1.1E-07
21	4000	Main	Room	24,063	7.1%	0.019	0.043	0.019	0.043	0.164	0.358	0.504	1.103	0.002	0.003	0.015	0.033	6.9E-07	1.5E-06	9.6E-05	2.6E-07	1.4E-06	9.0E-08	2.7E-06
22	228	Main	Room	14,147	4.2%	0.011	0.025	0.011	0.025	0.096	0.211	0.296	0.649	0.001	0.002	0.009	0.019	4.1E-07	8.9E-07	5.6E-05	1.5E-07	8.3E-07	5.3E-08	1.6E-06
23	234	Main	Room	20,991	6.2%	0.017	0.037	0.017	0.037	0.143	0.312	0.440	0.963	0.001	0.003	0.013	0.028	6.1E-07	1.3E-06	8.4E-05	2.2E-07	1.2E-06	7.8E-08	2.3E-06
24	M33	Main	Room	5,961	1.8%	0.005	0.011	0.005	0.011	0.041	0.089	0.125	0.273	0.000	0.001	0.004	0.008	1.7E-07	3.8E-07	2.4E-05	6.3E-08	3.5E-07	2.2E-08	6.7E-07
25	M44	Main	Room	1,293	0.4%	0.001	0.002	0.001	0.002	0.009	0.019	0.027	0.059	0.000	0.000	0.001	0.002	3.7E-08	8.2E-08	5.2E-06	1.4E-08	7.6E-08	4.8E-09	1.4E-07
26	M56	Main	Room	2,095	0.6%	0.002	0.004	0.002	0.004	0.014	0.031	0.044	0.096	0.000	0.000	0.001	0.003	6.0E-08	1.3E-07	8.4E-06	2.2E-08	1.2E-07	7.8E-09	2.3E-07
27	M62	Main	Room	2,640	0.8%	0.002	0.005	0.002	0.005	0.018	0.039	0.055	0.121	0.000	0.000	0.002	0.004	7.6E-08	1.7E-07	1.1E-05	2.8E-08	1.5E-07	9.8E-09	2.9E-07
28	M86	Main	Room	5,748	1.7%	0.005	0.010	0.005	0.010	0.039	0.086	0.120	0.264	0.000	0.001	0.004	0.008	1.7E-07	3.6E-07	2.3E-05	6.1E-08	3.4E-07	2.1E-08	6.4E-07
29	707	Main	Room	1,073	0.3%	0.001	0.002	0.001	0.002	0.007	0.016	0.022	0.049	0.000	0.000	0.001	0.001	3.1E-08	6.8E-08	4.3E-06	1.1E-08	6.3E-08	4.0E-09	1.2E-07
30	725	Main	Room	764	0.2%	0.001	0.001	0.001	0.001	0.005	0.011	0.016	0.035	0.000	0.000	0.000	0.001	2.2E-08	4.8E-08	3.0E-06	8.1E-09	4.5E-08	2.8E-09	8.5E-08
31	8	Main	Room	2,009	0.6%	0.002	0.004	0.002	0.004	0.014	0.030	0.042	0.092	0.000	0.000	0.001	0.003	5.8E-08	1.3E-07	8.0E-06	2.1E-08	1.2E-07	7.5E-09	2.2E-07
32	5001	Main	Room	596	0.2%	0.000	0.001	0.000	0.001	0.004	0.009	0.012	0.027	0.000	0.000	0.000	0.001	1.7E-08	3.8E-08	2.4E-06	6.3E-09	3.5E-08	2.2E-09	6.7E-08
33	5000	Main	Room	604	0.2%	0.000	0.001	0.000	0.001	0.004	0.009	0.013	0.028	0.000	0.000	0.000	0.001	1.7E-08	3.8E-08	2.4E-06	6.4E-09	3.5E-08	2.3E-09	6.8E-08
34	432	Main	Room	455	0.1%	0.000	0.001	0.000	0.001	0.003	0.007	0.010	0.021	0.000	0.000	0.000	0.001	1.3E-08	2.9E-08	1.8E-06	4.8E-09	2.7E-08	1.7E-09	5.1E-08
35	322	Main	Room	351	0.1%	0.000	0.001	0.000	0.001	0.002	0.005	0.007	0.016	0.000	0.000	0.000	0.000	1.0E-08	2.2E-08	1.4E-06	3.7E-09	2.1E-08	1.3E-09	3.9E-08
36	572	Main	Room	664	0.2%	0.001	0.001	0.001	0.001	0.005	0.010	0.014	0.030	0.000	0.000	0.000	0.001	1.9E-08	4.2E-08	2.6E-06	7.1E-09	3.9E-08	2.5E-09	7.4E-08
37			*sum for Main*	*202,244*	*59.5%*	*0.164*	*0.358*	*0.164*	*0.358*	*1.375*	*3.010*	*4.235*	*9.274*	*0.013*	*0.028*	*0.125*	*0.273*	*5.8E-06*	*1.3E-05*	*8.1E-04*	*2.2E-06*	*1.2E-05*	*7.5E-07*	*2.3E-05*
38	*Retired Stacks*																							
39	Boiler1	0	Outside	10,982																				
40	613/614	0	Room	9,715																				
41	615/616	0	Room	8,040																				
42	638	0	Room	2,206																				

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: **August** 27, 2019

TO: Shawnee Chen, Permit Writer, Air Program

FROM: Thomas Swain, Modeling Review Analyst, Air Program

PROJECT: 2011.0132 PROJ 62264, Rexburg Facility of Basic American Foods, Installation of New Dehydration Line and Air Makeup Units, Replacement of Boiler and One Belt Dryer, and increasing Production, located in Rexburg, Idaho.

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

Contents

Acronyms, Units, and Chemical Nomenclature

REXBAF	Rexburg Facility of Basic American Foods
CCE	Coal Creek Environmental
AAC	Acceptable Ambient Concentration of a non-carcinogenic TAP
AACC	Acceptable Ambient Concentration of a Carcinogenic TAP
acfm	Actual cubic feet per minute
AERMAP	The terrain data preprocessor for AERMOD
AERMET	The meteorological data preprocessor for AERMOD
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
Appendix W	40 CFR 51, Appendix W – Guideline on Air Quality Models
AS	Arsenic
ASOS	Automated Surface Observing System
BPIP	Building Profile Input Program
BRC	Below Regulatory Concern
CCE	Coal Creek Environmental
CD	Cadmium
CFR	Code of Federal Regulations
CMAQ	Community Multi-Scale Air Quality Modeling System
CO	Carbon Monoxide
CR	Chromium (VI)
DEM	Digital Elevation Map
DEQ	Idaho Department of Environmental Quality
DV	Design Values
EL	Emissions Screening Level of a TAP
EPA	United States Environmental Protection Agency
FORM	Formaldehyde
GEP	Good Engineering Practice
hr	hours
Idaho Air Rules	Rules for the Control of Air Pollution in Idaho, located in the Idaho Administrative Procedures Act 58.01.01
ISCST3	Industrial Source Complex Short Term 3 dispersion model
K	Kelvin
lb/hr	Pounds per hour
m	Meters
m/sec	Meters per second
MMBtu	Million British Thermal Units
NAAQS	National Ambient Air Quality Standards
NAD83	North American Datum of 1983
NED	National Elevation Dataset
NI	Nickel
NO	Nitrogen Oxide
NO_2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
NWS	National Weather Service

O_3	Ozone
OLM	Ozone Limiting Method
Pb	Lead
PM_{10}	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 10 micrometers
$PM_{2.5}$	Particulate matter with an aerodynamic particle diameter less than or equal to a nominal 2.5 micrometers
ppb	parts per billion
PRIME	Plume Rise Model Enhancement
PSD	Prevention of Significant Deterioration
PTC	Permit to Construct
PTE	Potential to Emit
PVMRM	Plume Volume Molar Ratio Method
REXBAF	Rexburg Facility of Basic American Foods
SIL	Significant Impact Level
SO_2	Sulfur Dioxide
TAP	Toxic Air Pollutant
tpy	Tons per year
USGS	United States Geological Survey
UTM	Universal Transverse Mercator
VOC	Volatile Organic Compounds
°F	Degrees Fahrenheit
$\mu g/m^3$	Micrograms per cubic meter of air

1.0 Summary

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

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

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

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

Summary of Submittals and Actions

- 07/11/2019: PTC application
  Public comment period requested
- 08/08/2019: Completeness date

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES	
Criteria/Assumption/Result	**Explanation/Consideration**
General Emission Rates. Emission rates used in the air impact analyses, as listed in this memorandum, must represent maximum potential emissions as given by design capacity, inherently limited by the nature of the process or configuration of the facility, or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emission rates greater than those used in the air impact analyses.
Air Impact Analyses for Criteria Pollutant Emissions. The facility is not qualified for a BRC exemption because of proposed increases in permit throughputs. The proposed PTE emissions for the modification are greater than DEQ Level 1 modeling thresholds for annual and 24-hour $PM_{2.5}$[a], 24-hour PM_{10}[b], CO, 1-hour and annual NO_2. Therefore, these pollutants and averaging times are subject to NAAQS Compliance Demonstration requirements.[c]	Project-specific air impact analyses demonstrating compliance with NAAQS, as required by Idaho Air Rules Section 203.02, are required for pollutant increases above BRC thresholds, or for pollutants having an emissions increase that is greater than Level I modeling applicability thresholds (where the BRC exclusion cannot be used).
Air Impact Analyses for TAP Emissions. Allowable emissions of TAPS other than Formaldehyde (FORM), Arsenic (AS), Cadmium (CD), Hexavalent Chromium (CR6+), and Nickel (NI) are either below ELS or not applicable due to NESHAP regulations. Analyses demonstrating compliance with these five TAPS were performed.	A TAP increment compliance demonstration would be required for any TAPs with emissions above ELs.
Revised Building Construction. BPIP PRIME has been utilized for both existing conditions and proposed conditions.	Compliance has been demonstrated for conditions that take into consideration the differences in building wake effects of the new building construction.
Modeling Scenarios. The Kipper Boiler and the existing Boiler 2 are operating exclusively of each other	Compliance has not been demonstrated for operating scenarios when the Kipper Boiler and the existing Boiler 2 are operating at the same time.

[a] Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
[b] Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
[c] CCE selected to use Level II modeling thresholds for its analyses. DEQ is using Level I modeling thresholds,

2.0 Background Information

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

2.1 Project Description

The REXBAF project is for a modification to a potato processing facility located in Rexburg, Idaho. The project includes the following items:

- installation of two new natural gas, low NOx (15 ppmv NOx) boilers
- installation of a potato flake production line with steam-heated drum dryers utilizing wet scrubbing to control particulate emissions

- an existing belt dryer (associated with the existing stacks denoted 613/614, 615/616, and 638) will be replaced with a belt dryer being relocated from the BAF facility in Blackfoot, Idaho.
- Increase in maximum daily production rates from the Process A production line
- Removal of burning coal in the Kipper Boiler; limiting annual usage of the Kipper Boiler as a backup or standby unit
- Removal of Boiler 1; the existing Boiler 2 will be used largely in backup or standby operations and only when the Kipper Boiler is not operating; two modeling scenarios are required
- Installation of seven new NG direct fired air make-up units.
- extensions to the existing building structure to house the new drum dryers and boilers
- relocation of the wood fuel pile (for the Kipper Boiler)

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

2.2 Proposed Location and Area Classification

The facility is located in Rexburg, within Madison county (Northing: 4854,300 m; Easting: 437050 m; UTM Zone 12). This area is designated as an attainment or unclassifiable area for sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), lead (Pb), ozone (O_3), particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers (PM_{10}), and particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers ($PM_{2.5}$). The area is not classified as non-attainment for any criteria pollutants.

2.3 Air Impact Analyses Required for All Permits to Construct

Idaho Air Rules Sections 203.02 and 203.03:

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

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

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

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

If specific criteria pollutant emission increases associated with the proposed permitting project cannot

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

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

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

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.2	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

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

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

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

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. If project-specific impacts are below the SIL, then the project does not have a significant contribution to the specific violations.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) applicable specific criteria pollutant emission increases are at a level defined as BRC, using the criteria established by DEQ regulatory interpretation[1]; or b) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or c) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing

sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or d) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

2.5 Toxic Air Pollutant Analyses

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

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

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

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

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

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

3.0 Analytical Methods and Data

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

3.1 Emission Source Data

Emissions of criteria pollutants and TAPs resulting from operation of the proposed REXBAF modification were estimated by CCE for various applicable averaging periods. The calculation of potential emissions is the responsibility of the DEQ permit writer, and the representativeness and

accuracy of emission estimates is not addressed in this modeling memorandum. DEQ air impact analysts are responsible for assuring that potential emission rates provided in the emission inventory are properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

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

3.1.1 Modeling Applicability and Modeled Criteria Pollutant Emission Rates

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

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

Site-specific air impact modeling analyses may not be necessary for some pollutants, even where such emissions do not qualify for the BRC exemption. DEQ has developed modeling applicability thresholds, below which a site-specific modeling analysis is not required. DEQ generic air impact modeling analyses that were used to develop the modeling thresholds provide a conservative SIL analysis for projects with emissions below identified threshold levels. Project-specific modeling applicability thresholds are provided in the *Idaho Air Modeling Guideline*[2]. These thresholds were based on assuring an ambient impact of less than the established SIL for specific pollutants and averaging periods.

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

NAAQS compliance demonstrations were required for this project since the submitted application demonstrated that the project -related emission increases were above Level I Modeling Applicability Thresholds. Project related emission increases do not qualify for a BRC exemption from NAAQS

compliance demonstration requirements because existing permit restrictions/provisions must be changed.

Table 3 provides a comparison between project allowable emissions and modeling applicability thresholds.

Table 3. SITE-SPECIFIC CRITERIA POLLUTANT MODELING APPLICABILITY

Pollutant	Averaging Period	Emissions	Level I Modeling Thresholds	Level II Modeling Thresholds[a]	Site-Specific Modeling Required?
PM_{10}[b]	24-hour	3.88 lb/hr	0.22	2.6	Yes
$PM_{2.5}$[c]	24-hour	3.86 lb/hr	0.054	0.63	Yes
	Annual	13.0 ton/yr	0.35	4.1	Yes
Carbon Monoxide (CO)	1-hour, 8-hour	35.5 lb/hr	15	175	Yes[d]
Sulfur Dioxide (SO_2)	1-hour, 3-hour, 24-hour	0.21 lb/hr	0.21	2.5	No
	Annual	0.8 ton/yr	1.2	14	No
Nitrogen Oxides (NOx)	1-hour	8.12 lb/hr	0.20	2.4	Yes
	Annual	26.4 ton/yr	1.2	14	Yes
Lead (Pb)	monthly	0.1 lb/month	14		No

a. Level II Modeling Thresholds were not approved by DEQ for this project.
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
d. Modeling was not performed by CCE for CO because emission increases were below Level II Thresholds . DEQ disagrees with this assessment and performed revised modeling analyses for CO impacts because CO emissions are significantly greater than Level I Modeling Thresholds. The impacts from the AMU sources are obviously significant, and the AMU sources are obviously not within the Level II Threshold source criteria range.

Ozone (O_3) differs from other criteria pollutants in that it is not typically emitted directly into the atmosphere. O_3 is formed in the atmosphere through reactions of VOCs, NOx, and sunlight. Atmospheric dispersion models used in stationary source air permitting analyses cannot be used to estimate O_3 impacts resulting from VOC and NOx emissions from an industrial facility. O_3 concentrations resulting from area-wide emissions are predicted by using more complex airshed models such as the Community Multi-Scale Air Quality (CMAQ) modeling system. Use of the CMAQ model is very resource-intensive and DEQ asserts that performing a CMAQ analysis for a particular permit application is not typically a reasonable or necessary requirement for air quality permitting. Addressing secondary formation of O_3 within the context of permitting a new stationary source has been somewhat addressed in EPA regulation and policy. As stated in a letter from Gina McCarthy of EPA to Robert Ukeiley, acting on behalf of the Sierra Club (letter from Gina McCarthy, Assistant Administrator, United States Environmental Protection Agency, to Robert Ukeiley, January 4, 2012):

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

DEQ determined it was not appropriate or necessary to require a quantitative source-specific O_3 impact

analysis because allowable emission estimates of VOCs and NOx are below the 100 tons/year threshold. Additionally, VOC emissions satisfied BRC exemption criteria.

3.1.2 TAPs Modeling Applicability

TAP emission regulations under Idaho Air Rules Section 210 are only applicable for new or modified sources constructed after July 1, 1995.

Facility-wide emissions of Formaldehyde, Arsenic (As), Cadmium (Cd), Hexavalent Chromium (Cr6+), and Nickel (Ni) exceed the applicable emission screening levels (ELs) of Idaho Air Rules Section 586. Air impact modeling analyses were then required to demonstrate that maximum impacts of these five TAPs are below applicable ambient increment standards expressed in Idaho Air Rules Section 585 and 586 as AACs and AACCs.

All the modeled TAPs are carcinogenic and are regulated on a long-term averaging basis. Therefore, the appropriate emission rates for impact analyses are maximum annual emissions, expressed as an average pound/hour value over an 8,760-hour period.

The DEQ permit writer determined emissions from the boilers are not subject to TAP requirements because the boilers are regulated under 40 CFR 60, 61, or 63 (emissions subject to 40 CFR 60, 61, or 63 are excluded from the TAP requirements as described in Section 2.5 of this memorandum).

Table 4 provides a summary of TAP emission increases for the project for those TAPs that had an increase exceeding the ELs of Idaho Air Rules Section 585 or 586.

Table 4. TAP EMISSION INCREASES THAT TRIGGER MODELING

Toxic Air Pollutant	Emissions (lb/hr)[a]	Screening Emissions Level (lb/hr)
Formaldehyde[b]	2.15E-03	5.10E-04
Arsenic[b]	5.72E-06	1.50E-06
Cadmium[b]	3.15E-05	3.70E-06
Chromium (VI)[b]	2.00E-06	5.60E-07
Nickel[b]	6.01E-05	2.70E-05

a. Pounds per hour.
b. Carcinogenic TAP. ELs are annual maximum emissions expressed as pounds/hour. The emissions rate is the annual emissions divided by 8,760 hours/year.

3.1.3 Emission Release Parameters

Table 5 lists emission release parameters, including stack height, stack diameter, exhaust temperature, and exhaust velocity for emission sources modeled in the air impact analyses. Emission point release parameters were based on information provided by the applicant or DEQ assumptions based on similar sources with a margin of conservatism (less favorable dispersion characteristics such as shorter stack heights, lower flow volumes, etc). All emission release parameters appear to be within reasonably expected values for the sources identified.

Table 5. POINT SOURCE STACK PARAMETERS								
Release Point	Description	UTM[a] Coordinates		Stack Height (m)	Stack Gas Flow Temp. (K)[c]	Stack Gas Flow Velocity (m/sec)[d]	Modeled Stack Diameter (m)	Orient. of Release[e]
		Easting-X (m)[b]	Northing-Y (m)					
BLR1A	new boiler	437146.5	4854239.2	24.38	425.37	13.94	1.22	V
BLR2A	new boiler	437146.5	4854229.8	24.38	425.37	13.94	1.22	V
FLK_N	North Flake scrubber	437087.1	4854272.4	24.38	319.26	17.59	1.52	V
FLK_S	South Flake scrubber	437087.1	4854260.2	24.38	319.26	17.59	1.52	V
P4A	new belt dryer	437070.6	4854306.4	12.19	335.93	13.63	0.91	V
P4BCD	new belt dryer	437072.3	4854314.8	12.19	335.93	9.99	1.06	V
KIPPER	existing boiler remove	437101.7	4854362.3	20.12	327.04	10.61	1.22	V
BOILER1	existing – Boiler	437095.6	4854371.5	10.97	533.15	14.35	0.91	V
BOILER2	existing – Boiler	437090.4	4854371.5	19.51	505.37	14.69	0.91	V
7020	Process A Dryer	437044.6	4854326.4	21.95	309.26	16.97	0.51	H
7101	Process A Dryer	437040.5	4854344.9	21.56	352.04	14.21	1.08	V
7102	Process A Dryer	437036.0	4854351.8	21.51	340.37	13.63	1.08	V
7019	Process A Dryer	437043.4	4854324.5	20.24	330.37	18.17	0.79	V
7001	Process A Dryer	437034.7	4854324.5	20.06	305.37	10.62	0.41	V
7027	Process A Dryer	437034.8	4854326.5	20.83	302.59	10.84	0.36	V
7006	Process A Dryer	437034.2	4854333.7	19.96	305.37	15.24	0.27	V
5037	Main Bldg vent	437031.6	4854335.6	20.83	327.59	13.51	0.67	V
5034	Main Bldg vent	437030.2	4854337.4	20.73	338.71	13.69	0.22	V
4000	Main Bldg vent	437066.1	4854336.1	15.57	337.04	22.95	0.85	V
228	Process B Dryer	437065.5	4854314.5	11.58	329.26	5.81	1.28	V
234	Process B Dryer	437066.0	4854302.7	10.58	342.59	10.76	1.17	V
M33	Process B Dryer	437055.2	4854319.6	12.19	344.26	16.44	0.51	V
M44	Process B Dryer	437053.2	4854317.6	12.19	418.15	7.64	0.38	V
M56	Process B Dryer	437054.2	4854304.6	9.75	349.82	16.18	0.30	V
M62	Process B Dryer	437052.2	4854304.6	9.75	333.15	12.42	0.38	V
M86	Main Bldg vent	437047.2	4854294.6	8.23	331.48	15.26	0.51	V
613/614	existing – Belt Dryer	437072.3	4854314.8	8.63	333.15	16.83	0.63	V
615/616	existing – Belt Dryer	437070.6	4854306.4	7.95	362.04	13.76	0.66	V
638	existing – Belt Dryer	437071.0	4854296.2	8.81	345.37	8.83	0.42	V
707	Main Bldg vent	437084.0	4854266.8	5.11	305.37	14.76	0.21	H

725	Main Bldg vent	437084.0	4854260.8	4.22	305.37	32.86	0.12	H
8	Process B Dryer	437026.4	4854310.3	6.61	300.37	7.49	0.41	H
5001	Process B Dryer	437032.9	4854324.5	20.73	297.59	7.62	0.22	V
5000	Process B Dryer	437026.4	4854288.3	8.08	299.82	23.03	0.13	H
432	Process B Dryer	437026.4	4854295.6	7.04	299.82	12.05	0.15	H
322	Process B Dryer	437020.5	4854302.3	3.00	355.37	11.02	0.15	H
572	Process B Dryer	437098.7	4854388.8	4.72	305.37	15.24	0.17	V

a. Universal Transverse Mercator.
b. Meters.
c. Kelvin.
d. Meters per second.
e. Vertical uninterrupted, rain-capped, or horizontal release.

Table 6 shows the volume source parameters as modeled by CCE for the AMU sources. After review, DEQ made some revisions to assure compliance with the NAAQS. The building heights of the AMU sources in the main building and old boiler structures were reduced based upon the structure heights at the sources proposed locations. Also, the horizontal dimensions are calculated by dividing the average building width by either 4.3 (for a single source), or by 2.15 (for a series of sources). CCE used the 2.15 factor for all the volume sources, likely because the sources are grouped together in a bundle of buildings. Because the receiving building is somewhat separated from the main structures, DEQ revised the factor from 2.15 to 4.3. DEQ reran sensitivity modeling with both sets of parameters to assure compliance. The possible revisions by DEQ did not alter the effect of the modeling results.

Table 6. VOLUME AND AREA SOURCE RELEASE PARAMETERS

Source	Description	UTM[a] Coordinates		Release Height (ft)	Horizontal Dimension (ft)	Vertical Dimension (ft)
		Easting - X (m)[b]	Northing - Y (m)			
As Submitted by CCE						
AM_MAIN	existing main plant fugitive amu	437046.72	4854305.62	63	149.5	29.3
AM_RCVG	receiving building fugitive amu	437084.35	4854415.25	23	74.4	10.7
AM_FLAKE	Flake area fugitive amu	437105.24	4854278.79	40	84.0	18.6
AM_BLROLD	old boilerhouse amu	437095.79	4854370.99	60	33.5	27.9
AM_BLRNEW	new boilerhouse amu	437138.61	4854229.42	31	47.0	14.4
AM_HTRS	Exist volume source for heaters	437051.28	4854302.3	31	64.0	29.0
As revised by DEQ						
AM_MAIN	existing main plant fugitive amu	437046.72	4854305.62	**46**[c]	149.5	**21.4**[c]
AM_RCVG	receiving building fugitive amu	437084.35	4854415.25	23	**37.4**[d]	10.7
AM_FLAKE	Flake area fugitive amu	437105.24	4854278.79	40	84.0	18.6
AM_BLROLD	old boilerhouse amu	437095.79	4854370.99	**25**[c]	33.5	**11.6**[c]
AM_BLRNEW	new boilerhouse amu	437138.61	4854229.42	31	47.0	14.4
AM_HTRS	Exist volume source for heaters	437051.28	4854302.3	31	64.0	29.0

[a] Universal Transverse Mercator
[b] Meters
[c] Based on review on building heights with source locations
[d] Based on a division factor of 4.3 vs 2.15

The emission rates for the criteria pollutants as modeled in the SIL analyses are listed in Table 7. These rates are modeled to determine what pollutants and averaging times are then modeled in a cumulative NAAQS impact analysis. CCE elected to select applicability with the Level II modeling thresholds and not assess impacts from CO. DEQ, due to the level of impacts (not the emissions) from the AMU sources, is stating that Level 1 modeling thresholds are the proper level of assessment to consider in this project. Therefore, DEQ also assessed the impacts from CO, and these emissions estimated by DEQ, are listed below. Additionally, the negative (credit) PM emissions from the Kipper Boiler and the existing AMU source are derived from a different (and more negatively conservative) emission factor than when assessing the proposed PTE emissions. Emission factors need to be consistent when taking credit for changes not attributable to proposed emission control equipment. Therefore, the negative credits from these two sources were not included in the revised SIL modeling performed by DEQ.

Table 7. Criteria Emission Rates as Modeled in SIL Analyses

Source ID	Description	24-Hour $PM_{2.5}$ (lb/hr) [a]	Annual $PM_{2.5}$ (lb/hr) [a]	24-hour PM_{10} (lb/hr) [a]	1 and 8 Hour CO (lb/hr) [a]
BLR1A	new boiler	0.042	0.0418	0.051	*7.3719*
BLR2A	new boiler	0.042	0.0418	0.051	*7.3719*
FLK_N	North Flake scrubber	0.454	0.1043	0.455	*0.3301*
FLK_S	South Flake scrubber	0.454	0.1043	0.455	*0.3301*
P4A	new belt dryer	0.415	0.4148	0.415	*1.0666*
P4BCD	new belt dryer	1.726	1.7260	1.726	*1.1655*
KIPPER	existing boiler remove	-2.732	-11.733	-2.732	*8.9149*
BOILER1	existing – Boiler	-0.39	-0.3881	-0.39	*-4.2800*
BOILER2	existing – Boiler	0	0.0000	0	*0.0000*
7020	Process A Dryer	0.031	0.0251	0.031	*0.1447*
7101	Process A Dryer	0.186	0.1836	0.186	*0.4808*
7102	Process A Dryer	0.186	0.1836	0.186	*0.4769*
7019	Process A Dryer	0.099	0.0989	0.099	*0.3443*
7001	Process A Dryer	0.019	0.0142	0.019	*0.0587*
7027	Process A Dryer	0.003	0.0023	0.003	*0.0463*
7006	Process A Dryer	0.01	0.0068	0.01	*0.0380*
5037	Main Bldg vent	0	2.28E-04	0.001	*0.0197*
5034	Main Bldg vent	0	0	0	*0.1903*
4000	Main Bldg vent	0.001	4.57E-04	0.001	*0.5039*

228	Process B Dryer	0.001	2.28E-04	0.001	*0.2962*
234	Process B Dryer	0.001	4.57E-04	0.001	*0.4396*
M33	Process B Dryer	0	2.28E-04	0	*0.1248*
M44	Process B Dryer	0	0	0	*0.0271*
M56	Process B Dryer	0	0	0	*0.0439*
M62	Process B Dryer	0	0	0	*0.0553*
M86	Main Bldg vent	0	2.28E-04	0	*0.1204*
613/614	existing – Belt Dryer	-0.85	-0.8539	-0.85	*0.0000*
615/616	existing – Belt Dryer	-0.24	-0.2397	-0.24	*0.0000*
638	existing – Belt Dryer	-1.09	-1.0959	-1.09	*0.0000*
707	Main Bldg vent	0	0	0	*0.0225*
725	Main Bldg vent	0	0	0	*0.0160*
8	Process B Dryer	0	4.57E-04	0	*0.0421*
5001	Process B Dryer	0.002	0.0021	0.003	*0.0125*
5000	Process B Dryer	0	4.57E-04	0	*0.0127*
432	Process B Dryer	0	4.57E-04	0	*0.0095*
322	Process B Dryer	0.002	0.0023	0.002	*0.0074*
572	Process B Dryer	0.001	6.85E-04	0.001	*0.0139*
AM_MAIN	existing main plant fugitive amu	7.56E-04	0.014	0.008	*2.8845*
AM_RCVG	receiving building fugitive amu	1.26E-04	0.003	0.002	*0.4600*
AM_FLAKE	Flake area fugitive amu	2.52E-04	0.003	0.002	*0.2703*
AM_BLROLD	old boilerhouse amu	1.26E-04	0.003	0.002	*0.7800*
AM_BLRNEW	new boilerhouse amu	1.26E-04	0.001	0.001	*0.1187*
AM_HTRS	Exist volume source for heaters	-0.328	-0.715	-0.328	

[a] Pounds/hour.
[b] Modeled as negative rates for SIL modeling assessment only (removed sources).

Emissions used in the cumulative NAAQS modeling analyses are listed in Table 8. It should be noted that these values are identical to those listed in Table 23 (and in the Emission Inventory) of the submitted Ambient Impact Analyses report, as well as in the modeling files for the "Boiler 2 " scenario. The rates in the "Kipper Boiler" scenario modeling files were slightly less in magnitude. DEQ replaced the data in the "Kipper Boiler" version with the data listed in Table 8 for its revised modeling analyses, again, to assure compliance with the NAAQS.

3.2 Background Concentrations

Background concentrations are used if a cumulative NAAQS impact analysis is needed to demonstrate compliance with applicable NAAQS. Background design values (DV) for annual and 24-hour $PM_{2.5}$, 24-hour PM_{10}, annual and 1-hour NO_2 , 1-hour and 8-hour CO, and 3-hour SO_2 were obtained from NW-AIRQUEST (http://lar.wsu.edu/nw-AIRQUEST/lookup.html) using the project site coordinates. These background air pollutant levels are based on regional scale air pollution modeling of pollutants in Washington, Oregon, and Idaho, with modeling results adjusted according to available monitoring data.

The values from NW-AIRQUEST are listed in Table 9.

Table 8. Criteria Emission Rates as Modeled in NAAQS Analyses

Source ID	Description	1-hour NO_2 (lb/hr) [a]	Annual NO_2 (TPY) [b]
BLR1A	new boiler	1.889	8.046
BLR2A	new boiler	1.889	8.046
FLK_N	North Flake scrubber	0.271	0.596
FLK_S	South Flake scrubber	0.271	0.596
P4A	new belt dryer	0.378	1.415
P4BCD	new belt dryer	0.378	1.415
KIPPER[c]	existing boiler remove	21.580	31.510
BOILER2[c]	existing – Boiler	4.890	21.419
7020	Process A Dryer	0.047	0.101
7101	Process A Dryer	0.488	1.796
7102	Process A Dryer	0.486	1.791
7019	Process A Dryer	0.450	1.721
7001	Process A Dryer	0.019	0.044
7027	Process A Dryer	0.015	0.035
7006	Process A Dryer	0.012	0.026
5037	Main Bldg vent	0.062	0.136
5034	Main Bldg vent	0.006	0.013
4000	Main Bldg vent	0.164	0.359
228	Process B Dryer	0.576	2.330
234	Process B Dryer	0.463	1.721
M33	Process B Dryer	0.121	0.429
M44	Process B Dryer	0.089	0.368
M56	Process B Dryer	0.064	0.232
M62	Process B Dryer	0.068	0.241
M86	Main Bldg vent	0.039	0.088
707	Main Bldg vent	0.006	0.018
725	Main Bldg vent	0.004	0.013
8	Process B Dryer	0.011	0.031
5001	Process B Dryer	0.003	0.009
5000	Process B Dryer	0.003	0.009
432	Process B Dryer	0.002	0.009
322	Process B Dryer	0.002	0.004
572	Process B Dryer	0.004	0.009

AM_MAIN	existing main plant fugitive amu	0.936	2.050
AM_RCVG	receiving building fugitive amu	0.182	0.399
AM_FLAKE	Flake area fugitive amu	0.222	0.486
AM_BLROLD	old boilerhouse amu	0.150	0.329
AM_BLRNEW	new boilerhouse amu	0.098	0.215

[a] Pounds/hour.
[b] Tons per year.
[c] The Kipper Boiler and Boiler 2 are not operated concurrently; therefore, two separate scenarios were modeled.

Table 9. DEQ-RECOMMENDED AMBIENT BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a,b]
$PM_{2.5}$[c]	24-hr	16.8
	Annual	6.2
PM_{10}[d]	24-hr	70.1
NO_2[e]	1-hr	44.9 (23.9ppb[f])
	Annual	8.6 (4.6 ppb)
CO[g]	1-hr	2257 (1980 ppb)
	8-hr	1197 (1050 ppb)
SO_2[h]	1-hr	13.1 (5 ppb)
	3-hr	17.2 (5.6 ppb)

a. Micrograms per cubic meter, except where noted otherwise.
b. NW AIRQUEST ambient background lookup tool, 2014-2017.
c. Particulate matter with an aerodynamic diameter of 2.5 microns or less.
d. Particulate matter with an aerodynamic diameter of 10 microns or less.
e. Nitrogen dioxide.
f. Parts per billion by volume.
g. Carbon monoxide.
h. Sulfur dioxide.

3.3 *Impact Modeling Methodology*

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

3.3.1 General Overview of Impact Analyses

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

Table 10 provides a brief description of parameters used in the modeling analyses.

Table 10. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
General Facility Location	Rexburg, Idaho	The area is an attainment or unclassified area for all criteria pollutants.
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 18081.
Meteorological Data	Rexburg surface data; Boise upper air data	See Section 3.3.4 of this memorandum for additional details of the meteorological data.
Terrain	Considered	1 arc second National Elevation Dataset (NED) was acquired from the USGS for the surrounding area. AERMAP version 18081 was used to process terrain elevation data for all buildings and receptors. See Section 3.3.5 for more details.
Building Downwash	Considered	Considered in a generic method. See Section 3.3.6.
NOx Chemistry	Tier 2 / Tier32	Tier 2 Ambient Ratio Method (ARM2) assumes default minimum (0.5) and maximum (0.9) ambient ratios of NO_2/NOx. See Section 3.3.7. Used for cumulative NAAQS analyses CCE used Tier 3 PVMRM with NSR/NO2 ratios set to 0.3 values, below the default of 0.5. DEQ reran with default of 0.5
Receptor Grid	**SIL Analysis** The selection of receptors for use in the SIL Analyses is as follows (see Section **3.3.9**):	
	Grid 1	25-meter spacing along the ambient air boundary, extending out to 100 meters from the boundary
	Grid 2	100-meter spacing in a 1000 meter (easting) by 1000 meter (northing) grid centered on the facility
	Grid 3	250-meter spacing in a 3000 meter (easting) by 3000 meter (northing grid centered on the facility
	Cumulative NAAQS Impact Analyses The same receptor grid was used for the NAAQS Analyses as for the Significant Impact Level Analyses.	
	TAPs Analyses The same receptor grid was used for the TAPs Analyses as for the Significant Impact Level Analyses.	

3.3.2 Modeling Methodology

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

3.3.3 Model Selection

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

AERMOD version 18081 was used by DEQ for the modeling analyses to evaluate impacts of the facility. This version was the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

DEQ processed a meteorological dataset from Rexburg, Idaho (KXRE; station ID 726818-94194) covering the years 2011-2016. The year 2013 was not utilized because of significant missing ASOS data for that period. The upper air soundings required by AERMET were obtained from the Boise airport

station (site ID 24131). Surface characteristics were determined by DEQ staff using AERSURFACE version 13016. DEQ modeling staff evaluated annual moisture conditions for the AERSURFACE runs based on THIRTY years of Rexburg, Idaho airport precipitation data. Conditions were determined to be "wet" for 2011, 2014, and 2016,. The years 2012 and 2015 were determined to be "average" for precipitation. Average moisture content is defined as within a 30 percentile of the 30-year mean of 11.2 inches. Calms were relatively low at less than 1 percent, and less than 1 percent of the data were missing from the 5-year record. AERMINUTE version 15272 was used to process Automated Surface Observing Systems (ASOS) wind data for use in AERMET. AERMET version 18081 was used to process surface and upper air data and to generate a model-ready meteorological data input file. The "adjust u star" (ADJ_U*) option was applied in AERMET to enhance model performance during low wind speeds under stable conditions. DEQ determined that these data are adequately representative of the meteorology at the BAF Rexburg facility for minor source permitting.

3.3.5 Effects of Terrain on Modeled Impacts

Submitted ambient air impact analyses used terrain data extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files.

The terrain preprocessor AERMAP version 18081 was used by CCE to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

3.3.6 Facility Layout and Downwash

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

Potential downwash effects on emission plumes were accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Included in the project are projected changes to the existing building structures. Therefore, detailed analyses were required to demonstrate the effective differences to modeling results of the existing building structures versus the proposed building additions. These changes are highlighted in Figure 1. Dimensions and orientation of proposed buildings were used as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME version 04274) to calculate direction-specific dimensions and Good Engineering Practice (GEP) stack height information for input to AERMOD for both existing structures (and modified or removes sources) and proposed structures (and new and remaining sources) .

3.3.7 NOx Chemistry

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

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

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

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

CCE used the Tier3 conversion approach to assess NO_x impacts for the NAAQS analyses to determine if the cumulative modeling impacts were protective of the 1 hour and annual NAAQS. CCE selected to not perform SIL analyses for NO_2. CCE elected to use the the Plume Volume Molar Ratio Method (PVMRM) method. They also submitted a methodology which utilized non-default minimum and maximum NO_2/NO_x ratios of 0.3 and 0.9, respectively. Because these are not the default values, and there are not existing matching source data in EPA's "NSR in-stack ratio database", CCE provided documentation to support justifying their usage. Per modeling guidelines, DEQ would need to assess the data (in detail) and approve the non-standard approach. DEQ had discussed this approach directly with CCE and in comments to the emails from Steven Nelson, dated July 2019. DEQ agreed to consider the approach, and noted that the data looked promising. After the preliminary modeling review, which incorporated some revisions by DEQ to the modeling inputs, DEQ reran the NO_2 modeling files. DEQ initially ran the files using EPA's default ARM2 approach, with default 0.5 and 0.9 NO_2/NO_x ratios. The results of the modeling analyses showed compliance with NO_2 NAAQS for both modeling scenarios (with Kipper Boiler only, and with Boiler2 only). Therefore, DEQ is accepting the modeling using the EPA defaults of ARM2 as showing compliance with NO_2 NAAQS. DEQ appreciates the inclusion of the NO_2/NO_X ratio data, but elects at this time to not go through the process of accepting it for this application, as it is not required.

3.3.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." To exclude areas of the site from consideration as ambient air, the permittee must have the legal and practical ability to control access to such areas of the site. The applicant uses fencing and signage to exclude access from the general public.

3.3.9 Receptor Network

The receptor grid used in DEQ's analyses met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[2] and DEQ determined that it was adequate to resolve maximum modeled impacts.

Table 10 describes the receptor network used in the submitted modeling analyses. The receptor grids used in the model provided good resolution of the maximum design concentrations for the project and provided extensive coverage. The full receptor grid was used for SIL, NAAQS, and TAPs ambient air impact analyses. DEQ determined that the receptor network was effective in reasonably assuring compliance with applicable air quality standards at all ambient air locations.

3.3.10 Good Engineering Practice Stack Height

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

H = S + 1.5L, where:

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

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

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

All sources from REXBAF are below GEP stack height. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 NAAQS and TAPs Impact Modeling Results

4.1 Results for NAAQS Analyses

A NAAQS impact analysis was performed for REXBAF. Idaho Air Rules Section 203.02, requiring air impact analyses demonstrating compliance with NAAQS, is applicable to pollutants having project emissions increase that are greater than Level I modeling thresholds.

4.1.1 Significant Impact Level Analyses

Table 11 provides results for the significant impact level (SIL) analyses. Maximum predicted impacts from the facility for those pollutants assessed were all below the SILs for each pollutant. CCE did not model NO_2 for SIL analyses. A cumulative NAAQS impact analysis was performed for this criteria pollutant.

4.1.2 Cumulative NAAQS Impact Analyses

Table 12 provides results for the Cumulative NAAQS Impact analysis. For each modeled pollutant, the total impact was calculated by adding the design value (DV) of the impact to the ambient background value. The sum was then compared to the NAAQS. Ambient impacts for the facility, when combined with approved ambient backgrounds, were below the NAAQS at all receptors where the facility-modeled impacts exceeded the SIL. The annual ambient impact was not correctly included in the modeling report submitted with the application. The value has been correctly added in these results. Both the results from DEQ's revised sensitivity modeling and those from the submitted report are listed.

Table 11. RESULTS FOR SIGNIFICANT IMPACT LEVEL ANALYSES

Pollutant	Averaging Period	Maximum Modeled Concentration ($\mu g/m^3$)[a]	Significant Contribution Level ($\mu g/m^3$)	Impact Percentage of Significant Contribution Level	Cumulative NAAQS Analysis Required?	UTM[b,c] Easting (m)	UTM[c] Northing (m)
$PM_{2.5}$[d]	24-hour	0.78(0.3)[g]	1.2	65%	No	436740	4854095
	Annual	0.0 (0.0)[g]	0.2	0%	No		
PM_{10}[e]	24-hour	0.9(0.4)[g]	5.0	18%	No	437320	4854433
CO[f]	1-hour	303(NA)	2,000	15%	No	437207	4854244
	8-hour	143(NA)	500	29%	No	436765	4854094

a. Micrograms per cubic meter.
b. Universal Transverse Mercator, NAD83, Zone 12
c. Location of maximum modeled impacts.
d. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
f. Carbon monoxide.
g. Results in parantheses are from submitted Ambient Impact Report, July 2019

Table 12. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES						
Pollutant	**Averaging Period**	**Modeled Design Value Concentration ($\mu g/m^3$)[a]**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**	**Percent of NAAQS**
NO_2[b]	1-hour					
Kipper Boiler Scenario		133.3	44.9	178.2(143)[c]	188	94.7%
Boiler 2 Scenario		89.2	44.9	134.1	188	71.3%
NO_2[b]	Annual	9.1(9.4)	8.6	17.7	100	18%

a. Micrograms per cubic meter.
b. Nitrogen dioxide
c. Results in parantheses are from submitted Ambient Impact Report, July 2019

4.2 Results for TAPs Impact Analyses

Dispersion modeling was required to demonstrate compliance with TAP increments specified by Idaho Air Rules Section 585 and 586 for those TAPs with project-related emission increases exceeding screening emission levels (ELs). Table 11 lists the maximum modeled impacts for specific TAPs. All modeled impacts are below applicable AACs and AACCs.

Table 11. TAP AIR IMPACT ANALYSIS RESULTS			
TAP	**Maximum Modeled Impact ($\mu g/m^3$)[a]**	**AAC or AACC ($\mu g/m^3$)**	**Percent of AAC/ AACC**
Formaldehyde	0.0026	0.077	3.3%
Arsenic	6.8E-06	2.3E-04	3.0%
Cadmium	3.7E-05	5.6E-04	6.7%
Chromium (VI)	2.4E-06	8.3E-05	2.9%
Nickel	7.2E-05	4.2E-03	1.7%

d. Micrograms per cubic meter.
e. Carcinogenic TAP. Modeled impact and AACC represent annual or period-average concentration.

5.0 Conclusions

The information submitted with the PTC application, combined with DEQ air impact analyses, demonstrated to DEQ's satisfaction that emissions from REXBAF will not cause or significantly contribute to a violation of any applicable ambient air quality standard or TAP increment.

References

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

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

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

Figure 1. BPIP-PRIME Layouts

BAF Rexburg - BPIP-PRIME with existing Buildings

BAF Rexburg - BPIP-PRIME with proposed Buildings

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on October 8, 2019:

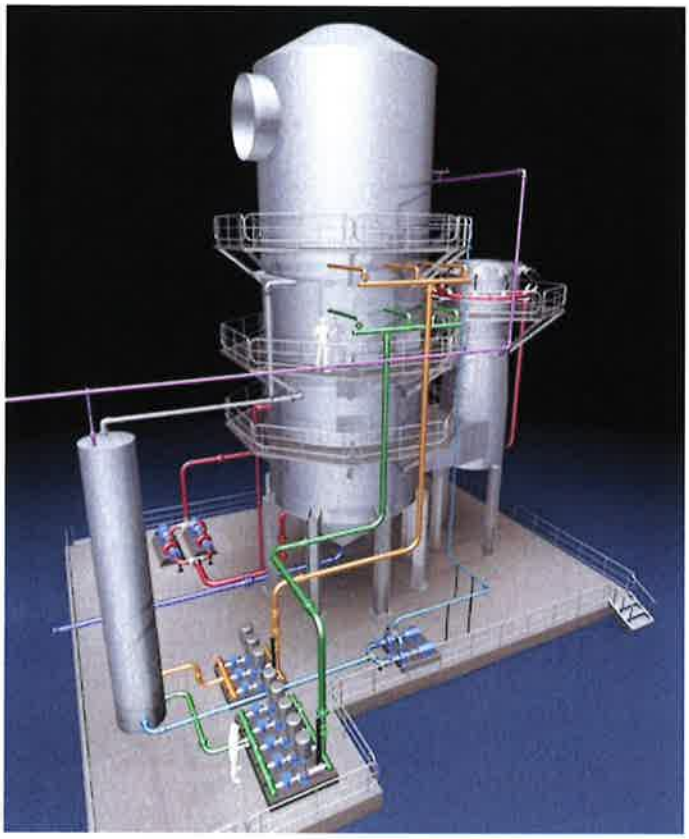
Permit Condition	Existing Language	Proposed Change	Justification	DEQ's Response
3.7	issueance	issuance	Spelling error.	corrected
3.10	shall not be operating	Shall not operate	Grammar correction.	corrected
3.12 through 6.11 (7 occurrences)	"Error! Reference source not found."	Remove	Correction.	removed
4.7	Conduct performance tests to measure $PM_{2.5}$ and PM_{10}.	Remove $PM_{2.5}$ and PM_{10} testing requirement.	Permit writer comment [A1] *Applicant:* *Recently, DEQ received a source test report for a natural gas-fired boiler. The EF from that test is about 1/3 of the AP-42 EF; it is definitely higher that the EF taken from the EPA spreadsheet that is used to estimate emissions for Boiler 1A and 2A here.* *I asked Tom to look at the impact when using AP-42 EF for Boiler 1A and 2A, the impact still < SIL.* *So I am open to remove $PM_{2.5}$ and PM_{10} test requirement if the facility chooses to submit a revise EI spreadsheet using AP-42 EF for $PM_{2.5}$ and PM_{10}. I will then be able to revise the $PM_{2.5}$ and PM_{10} emissions limits in PC 4.3 according to the revised EI if the facility chooses so.* BAF concurs. Revised EI spreadsheets were sent to DEQ permit writer on 10/7/19.	Revised $PM_{2.5}$ and PM_{10} emissions limits in PC 4.3 and removed $PM_{2.5}$ and PM_{10} testing requirement. Revised PTE table and PTE change table in the SOB.
6.8	***Venturi Scrubber Operating Parameters*** Each scrubber's operating parameters shall be maintained as follows: • The pressure drop across the Venturi scrubber throat shall be maintained between 17 inches of water. • The pressure drop across	***Venturi Scrubber Operating Parameters*** Each scrubber's operating parameters shall be maintained as follows: • The pressure drop across the Venturi scrubber throat shall be maintained between 17 inches of water or greater.	Clarification and consistency. See section 2.9.2 and 2.13 of Permit P-2017.0011. See also attached correspondence from the scrubber manufacturer (EnviroCare) regarding these operating parameters.	Permit Condition 6.8 in the draft permit is revised to add parameters and operating ranges taken from the scrubber proposal provided in the application and to address facility's comments, such as using the same approach as the ones in PTC No. P-2017.0011 issued on January 18, 2019 to Blackfoot Facility of Basic American Foods. As a result of the changes to PC 6.8, Permit Conditions 6.10 and 6.12 are also revised. Please refer to the revised Permit Conditions 6.8, 6.10 and 6.12 in the proposed permit.

Permit Condition	Existing Language	Proposed Change	Justification	DEQ's Response
	the Venturi scrubber shall be maintained between 17 to 25 inches of water. • The scrubbing liquid flow rate shall be equal to or greater than 380 gallons per minute.	• The scrubbing liquid flow rate (which includes both the venturi inlet water and the venturi throat water combined) shall be equal to or greater than 328 gallons per minute.		Note: I am open to revise the operating ranges if the manufacturer recommends difference ranges with explanations. I am aware of the following statement in p.2 of the scrubber proposal: "*All design numbers shown are for the future capacity process data, and turn down or optimization can occur for the current loading to meet guarantees a lower water flow and blow down limits.*"
6.11	rovisions	revisions	Spelling error.	Did not find it.
6.12	• The throughput from Process B and from the specific unit (i.e., flake drum dryer, Proctor 4 belt dryer) tested in tons of product per hour (T/hr) during each test run.	• The from the specific Process B unit (i.e., flake drum dryers or Proctor 4 belt dryer) tested in tons of product per hour (T/hr) during each test run.	Clarification.	Revised
8.1 through 8.4	Facility-Wide CO Emission Limit.	Remove all of Section 8, Facility-Wide CO Emission Limit.	Previously, the potential CO emissions for the facility exceeded 250 tons/yr. Accordingly, the facility-wide CO emissions limit of 249 tons/yr was created so that the facility would be a minor source for purposes of New Source Review. With the modifications included in this permit, the facility CO PTE is now less than 250 ton/yr. (See Statement of Basis Table 3 "POST PROJECT POTENTIAL TO EMIT FOR REGULATED AIR POLLUTANTS".) Accordingly, there is no longer a need to have a specific 249 ton/yr limit on CO emissions.	The section is revised. Refer to discussions under FACILITY-WIDE CO EMISSION LIMIT section.

APPENDIX D – WET SCRUBBING EMISSION CONTROL SYSTEM PROPOSAL

ENVIROCARE SCRUBBER QUOTE

EnviroCare International



Wet Scrubbing Emission Control System Proposal

To:
Basic American Foods
Rexford, Idaho

For:
Off-Gas from
Potato Drying Facility
Project ID: Rexford, Idaho

EnviroCare MicroMist™ Scrubber
Proposal Number 4054 Rev. 1
Submitted September 14th, 2018

EnviroCare International, Inc, 507 Green Island Road American Canyon, CA 94503 USA
(707) 638.6800 * Fax (707) 638.6898

PROPOSAL SCOPE

This proposal offers (1) MicroMist Scrubber System by EnviroCare International, Inc. The proposed scrubber is complete with equipment necessary for a new pollution control system. The scrubber system will be designed to meet 75% removal efficiency for particulate using front half EPA Method 5 testing and back half EPA Method 202.

The scrubber will be designed such that it can meet the performance guarantees at the current dryer loading and can also perform successfully at the future loading after a 40% production increase. All design numbers shown are for the future capacity process data, and turn down or optimization can occur for the current loading to meet guarantees at lower water flow and blow down limits.

The advantages of the EnviroCare offering are as follows:

- Demonstrated high collection efficiency of submicron particulate
- Ease of installation
- Ability to meet new MACT standards in many industries
- Flexibility to meet future, more stringent emission requirements
- Service and Parts support, typically within 24 hours

EnviroCare research into conventional scrubber designs has led to the development of the MicroMist™ wet scrubber technology.

The MicroMist approach to wet scrubbing utilizes a multi-tube venturi stage where each venturi tube is preceded by a MicroMist™ atomizer. MicroMist™ scrubbing is characterized by extreme relative motion between the injected micro-fine scrubbing droplets and the sub-micron particles, resulting in exceptionally high capture efficiencies at all gas flow rates.

EnviroCare's MicroMist™ wet scrubbers incorporate the latest technological advances in wet scrubbing and atomization technologies and are protected under U.S. patents 5,279,646, 5,512,085, 5,759,233, 6,383,260 and 6,719,829 (other U.S. and foreign patents pending). Each component is designed for durability and is integrated into a state-of-the-art air pollution control system.

Outstanding features of the EnviroCare Scrubber system:

- Maximum achievable capture efficiency
- Best available turndown ratio
- Low-pressure drop for improved operating economy
- Preassembled skid-mounted scrubber pumps for lower installation costs
- High quality, low maintenance components

EnviroCare has a long history of successful projects.

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DESIGN CRITERIA

Fuel:	Steam	
Inlet Gas Flow:	68,000 ACFM	2 Drums
Inlet Gas Temp:	140°F	
System ΔP:	20" WC	Can be optimized to lower ΔP
Filterable Particulate:	0.233 lb/hr	Future Condition
Condensible Particulate:	0.326 lb/hr	Future Condition
Quench Flow:	~315 GPM	Recycled Water
Make-Up Water:	~8 - 16 GPM	Can be optimized to lower GPM
Blow Down	~8 - 16 GPM	Can be optimized to lower GPM

Note: The EnviroCare water balance can be adjusted to meet most plant requirements. Above make-up water rates are based on quench stage evaporation, Venturi Stage condensed water, a solids discharge concentration of < 7.0%, and water required for cleaning of the Mist Eliminator stage.

Below are the recommended quality parameters required for the make-up water.

		Total (Mg/L)
Chloride ion	Cl	< 20
Magnesium+Calcium ions	Mg+Ca	< 28
pH @ 25°C		6.0 – 8.0
Suspended Solids		< 100
Dissolved Solids		< 500
Hardness (as CaCO3)		< 80
Maximum Solid Size[1]		< 1/32"
Organics (HPC[2]/ml)		< 100

PERFORMANCE GUARANTEE

MicroMist Scrubber	Efficiency	MMV Stage ΔP	Overall ΔP	Method
Particulate Loading	75%	17" WC	20" WC	EPA Method 5 & 202

NOTE: The contingency to reach higher efficiency, if not met with the above stated pressure drop, would be to increase the available pressure drop for the MicroMist Scrubber up to 25" WC. Additionally, EnviroCare would work in partnership with BAF to improve conditioning of particulate with use of trays and/or atomizing conditioners upstream of the Venturi stage.

[1] EnviroCare M.E. lances for mesh M.E.s are usually equipped with 1/32" inch Ø perf. s/s strainer baskets.
[2] HPC = Heterotrophic Plate Count

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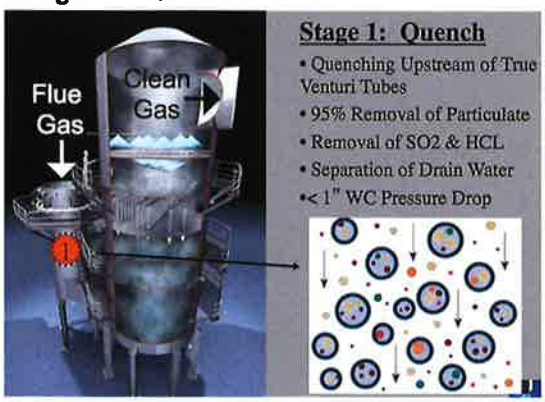
THE MICROMIST SCRUBBER DESIGN

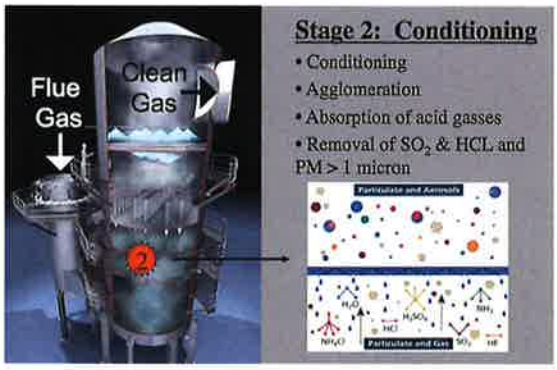
The MMV Scrubber system will be provided with the following stages.

Stage 1 – Quench



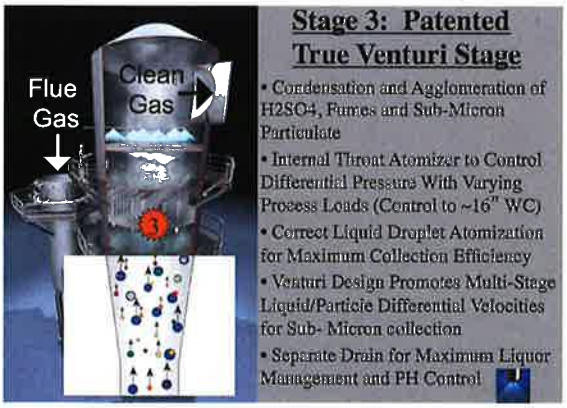
EnviroCare design will utilize inlet duct work to the scrubber to provide a low (<1" WC) pressure drop high efficiency SpiralMist quench stage, where significant scrubbing of particulate from the gas stream occurs. Through quenching, the generation of fine droplets, and creation of relative droplet/particle motion, the gas becomes saturated and coarse particulate is removed from the gas stream.

Stage 2 – Conditioning & Acid Absorption [Contingency Stage, not initially installed]



A Dual-Orifice Impingement (DOI) tray is located after the quench stage and below the MicroMist Venturi (MMV) stage and functions to absorb residual acid gas and condition the flue gas. Tray irrigator spray lances continuously wash the trays from below. Conditioning the flue gas reduces the particulate/dirty droplet loading in the gas stream and primes the remaining sub-micron particulate for increased collection efficiencies in the MicroMist Venturi stage.

Stage 3 - MicroMist Venturi (MMV) Stage [sub-micron particulate removal]



Multiple parallel MicroMist Venturi (MMV) tubes are installed vertically on a diaphragm in the new MicroMist Scrubber. A MicroMist atomization nozzle is located at the entrance of each venturi element and in the throat. In this stage, gas entrained aerosols and fine particulate will collide with MicroMist droplets resulting in high capture efficiencies of submicron particulate.

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Stage 4 – Separation

A Dual-Orifice Impingement (DOI) tray stage is located just downstream of the MMV Stage. The DOI tray further reduces the particulate loading in the gas stream by separating the dirty droplets from the clean gas. A high efficiency mist eliminator designed to collect remaining droplet carryover follows the impingement tray. Fresh (clean) water will continuously spray the mist eliminator and the separator tray to wash out any dirty particles. This is the source of the scrubber make up water.

PROPOSED SCOPE OF SUPPLY – MicroMist VENTURI SCRUBBER

The new MicroMist Scrubber will be supplied by EnviroCare and installed by a contractor.
Proposal based on the scrubber shell (11'-6" ID) fabricated with 3/16" THK 304 SS.

ITEM 1 – Scrubber Stages

Stage 1 – SpiralMist Quench

The gases exiting the dryer will enter the new scrubber. EnviroCare will supply mounting boxes and spray lances as required for appropriate layout in the bottom of the new scrubber shell. The scrubber vessel sump will be utilized for circulation supply. Part of the recycled water/slurry is made up by blow-down from the later stages in the scrubber. This lowers the solids content going to the quench sprays improving efficiency and decreasing the mechanical wear. A quench recycle pump skid is utilized to provide the proper flow and pressure to the spray lances. Reference supplied drawing P100.

Materials of Construction:	304 SS Materials
Water Flow & Pressure:	315 GPM @ 50 PSI (Sprays)
Pumps:	1 Operating, 1 Standby

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Stage 2 – Conditioning [contingency stage, trays not initially installed]

Dual-Orifice Impingement (DOI) trays are located in the bottom of the new scrubber vessel. The DOI trays will be installed on a diaphragm stage constructed inside the new scrubber. The trays will be flooded with recycled water from the new MMV recycle tank. The trays will be irrigated from below, keeping the trays flushed. The tray irrigator sprays will drain to the quench stage, providing the quench stage with relatively clean make-up water. Conditioning the flue gas will remove the remaining particulate that is greater than 1.5 micron while conditioning the sub-micron particulate for optimum collection efficiencies in the MicroMist Venturi Stage.

Stage 3 – MicroMist Venturi (MMV) Stage

A MMV Stage* is installed on a diaphragm in the spool. The MMV Stage consists of two integral elements: 6 – 8" Ø 'True Venturi' tubes operating in parallel and equal number of high-pressure liquid MicroMist atomizers. Gas flow and injected droplets are in an up-flow direction. The two components, in tandem, affect a high differential motion between the micro-fine scrubbing droplets and the fine (submicron Ø) particles that have escaped capture in the lower stages. The preceding stages promote growth of the smallest particles, resulting in more efficient capture of the submicron particles and condensed aerosols.

Each venturi tube is also equipped with a 'throat spray' to improve the scrubbing of fine submicron PM at low gas flows (low DPs) with a controlled counter-flow atomized spray**. A VFD controls the water flow to the throat sprays based on maintaining a specified pressure drop across the venturi stage (Typically ~12" – 18" WC).

***US Patent #5,279,646, **US Patent #6,719,829**

Materials of Construction:	304 SS Materials
(Inlet) Water Flow & Pressure:	340 GPM @ 260 PSI [per design w/ 12 MMV Tubes]
(Throat) Water Flow & Pressure:	40 – 270 GPM @ 40 PSI – 180 PSI [per design w/ 6 MMV Tubes]

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Stage 4 – Separation Stage

The next stage is a high-efficiency mist eliminator section. The mist eliminator is comprised of a Dual-Orifice Impingement (DOI) separation tray and a Chevron style mist eliminator (ME). A DOI Tray Stage is installed just above the MMV tubes in the scrubber spool. The DOI trays will wash away the collected particulate from the MMV stage. The tray elements are mounted on a support diaphragm and are flooded with clean make-up water. The mist eliminator will be the final device to collect any residual water droplets from the gas stream. The mist eliminator is washed continuously from below and intermittently back washed from above with clean makeup water. This wash water will drain to the MMV stage providing make-up water to the scrubber system.

ME Irrigator Water:	8 - 16 gpm @ 50 psig (Source of Make-Up Water)
ME Backwash:	30 gpm @ 3 psig (intermittent)
Number of Irrigator Sprays:	(1) Internal Spray Grid, Nozzle Layout TBD
Number of Wash Sprays:	(1) Internal Spray Grid, Nozzle Layout TBD

ITEM 2 - Quench Recycle Pump Skid

The quench recycle pump skid will be supplied assembled, pre-piped with a skid mounted junction box (if required or specified) to monitor the quench recycle water supply. Recycle

pumps will be horizontal industrial service type. Starters, disconnects, and wiring for the pumps will be provided by others and all installation of the pump skid is by the contractor. The quench recycle pump skid will include all the necessary equipment and instrumentation to monitor supply water flow and pressure quench stages. Piping and fittings shall be 304 SS and sandblasted to commercial specification SSPC-SP6 for a uniform finish. Structural steel will be A36 CS and painted with grey PPG Pithane paint.

Each quench recycle skid will include the following:

a. Skid mounted junction box (Specification to be determined)
b. Magnetic flowtube with integral mounted transmitter
c. Inlet & Outlet pressure gauges
d. Isolation valves as required
e. Inlet simplex basket strainer for each pump

Quench Recycle Pumps:	1 Operating, 1 Standby (~25 HP)
Water Flow & Pressure:	315 GPM @ 50 PSI (Sprays)

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ITEM 3 – MMV Stage Booster Pump Skid

The MMV pump skid will be factory assembled, to include a pre-piped valve rack and it will include a stand alone junction box. Starters, disconnects, VFD, and wiring for the pumps will be provided by others. The booster pump skids will include all the necessary equipment and instrumentation to monitor the scrubber system and to control flow to the MicroMist Venturi tube stage. Piping and fittings shall be 304 SS and sandblasted to commercial specification SSPC-SP6 for a uniform finish. Structural steel will be A36 CS and painted with grey PPG Pithane paint.

The MMV Stage components will include the following:

a. 480V/3ph/60hz (wiring by others)
b. Magnetic flowtubes with integral mounted transmitter
c. Inlet & Outlet pressure gauges
d. Isolation valves as required
e. Inlet simplex basket strainers
f. Pumps (Total of 3 pumps described below)

Materials of Construction:	304 SS Materials (minimum)
MMV Inlet Pumps:	2 Operating, 1 Standby (~ 50 HP each)
MMV Throat Pump:	1 Operating (~50 HP)

ITEM 4 - Recycle Tank – MMV Stage

One (1) new MMV recycle tank is provided to receive drain water from the MMV Stages and supply the MMV Stage pump(s). The overflow from the MMV tank can flow to the quench stage sump providing the quench with relatively clean makeup water. The MMV recycle tank will be fabricated of 304 SS.

ITEM 5 - Field Equipment – Supplied Loose
The following field equipment will be supplied:

a. (2) **Endress & Hauser** differential pressure transmitters
    I. (1) Scrubber System
    II. (1) MMV Stage
b. (2) **Endress & Hauser** Temperature Transmitters
c. (1) **Dwyer** Capsu-helic differential pressure indicator
    I. (1) Mist Eliminator
d. (1) Scrubber Sump Level Indicating Transmitter
e. (1) Mist Eliminator PRV and electrically automated ball valve

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APPENDIX E – 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:
Address:
City:
State:
Zip Code:
Facility Contact:
Title:
AIRS No.:

N Does this facility qualify for a general permit (i.e. concrete batch plant, hot-mix asphalt plant)? Y/N

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205.04)

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	0.0	78.74	-78.7
SO_2	0.0	212.16	-212.2
CO	0.0	0.7	-0.7
PM10	0.0	40.23	-40.2
VOC	0.0	3.63	-3.6
Total:	0.0	335.46	**-335.5**
Fee Due	**$ 1,000.00**		

Comments: