Statement of Basis

Permit to Construct No. P-2009.0043
Project ID 61536

Blackfoot Facility of Basic American Foods
Blackfoot, Idaho

Facility ID 011-00012

Final

July 27, 2018
Will Tiedemann
Permit Writer

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

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURE

AAC	acceptable ambient concentrations
AACC	acceptable ambient concentrations for carcinogens
acfm	actual cubic feet per minute
ACP	Alternative Compliance Plan
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAS No.	Chemical Abstracts Service registry number
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	CO_2 equivalent emissions
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
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
hr/yr	hours per consecutive 12 calendar month period
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometers
lb/hr	pounds per hour
lb/qtr	pound per quarter
m	meters
MACT	Maximum Achievable Control Technology
mg/dscm	milligrams per dry standard cubic meter
MMBtu	million British thermal units
MMscf	million standard cubic feet
NAAQS	National Ambient Air Quality Standard
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NSPS	New Source Performance Standards
O&M	operation and maintenance
O_2	oxygen
PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
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
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
PW	process weight rate
Rules	*Rules for the Control of Air Pollution in Idaho*
scf	standard cubic feet
SCL	significant contribution limits
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
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

Blackfoot Facility of Basic American Foods (BAF), a division of Basic American, Inc. is a manufacturer of dried food products and is located at 415 West Collins Road, Blackfoot. Basic American Potato Company, Inc. (BAPCI) is a potato processing company and is located at 409 West Collins Road, Blackfoot, Idaho. Because BAPCI and BAF have the same owner, are adjacent, and have same first two digits of Standard Industrial Classification (SIC) code, the two plants are considered as one source or one facility for NSR program and Title V program purposes.

The facility is not classified as an existing PSD major stationary source, as defined in 40 CFR 52.21(b)(1) and, with the exemption of CO , none of the facility's estimated emissions have the potential to exceed major stationary source thresholds of 250 tons per year. However, the facility has voluntarily accepted an enforceable emission limits on CO to stay below 250 tons per year threshold (see permit P-2017.0031 issued 9/12/2017).

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) are integral to the operation of all unit processes in which granules or formulated products are suspended in air.

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.

BAF operations use two boilers. The boilers are subject to enforceable permit conditions included in PTC P-2017.0031.

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 Blackfoot Plant are used at the Blackfoot Plant; occasionally granules are shipped to other BAF plants for use in products produced at those plants. BAF also sells granules as a product.

Formulated dehydrated food products

Formulated products are prepared from various combinations of dried ingredients, fresh and fresh-cooked ingredients, and food additives. BAF dries these formulations to create final products.

Dehydrated whole and piece food products

BAF prepares dehydrated whole and 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.

Animal feed

Animal feed, consisting of food fractions and off-specification materials that are not suitable for use in other products, is produced as a co-product of other plant processes. BAF uses various materials classification processes to segregate, collect, and transport animal feed. Animal feed is transferred directly to load-out operations after collection without further processing.

Alternative Compliance Plan

On January 20, 2011, DEQ issued to BAF PTC, P-2009.0043. This permit includes a compliance plan /schedule that requires BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS. The permit allows BAF to implement an Alternative Compliance Plan (ACP), subject to approval by DEQ. BAF submitted an ACP in January 2014. Due to on-going review and resolution to various complex issues this ACP was finally accepted by the DEQ Air Modeling Dept. on December 22, 2017 by way of Modeling Memorandum (Appendix A). Please see Appendix C for a full discussion and history.

It should be noted the ACP's modeling demonstration reflects the current operating scenario of equipment permitting under this permit at time of permit issuance as well as equipment permitted under Permit P-2017.0011 issued 7/31/2016 and Permit P-2017.0031 issued 9/12/2017.

Permitting History

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

January 20, 2011	P-2009.0043, Permitting previously unpermitted modifications, establishing a Facility Emissions Cap (FEC), and creating additional facility operating requirements needed to demonstrate compliance with ambient air quality standards, Permit status (A, but will become S upon issuance of this permit)
August 29, 2009	PTC P-2009.0042 (S)
September 16, 2005	PTC No. P-050301 (S
March 22, 2004	PTC No. P-040300 (S)
April 27, 1995	PTC No. 011-000012 (S)
November 12, 1982	PTC letter issued (S)
December 27, 1975	PTC letter issued (S)

Application Scope

This PTC revision is to remove the Facility Emissions Cap (FEC) permit conditions requirements as well as incorporate changes outlined in the DEQ approved Revised Alternative Compliance Plan (Content Manager Record Number 2017AAG1588) submitted by the facility August 1, 2017 and received by DEQ August 4, 2017.

Application Chronology

June 16, 2015	DEQ received an application and an application fee.
July 27, 2015	DEQ determined that the application was complete.
September 2, 2015	DEQ made available a draft permit and statement of basis for peer and regional office review.
September 8, 2015	DEQ made available a draft permit and statement of basis for applicant review.
January 5, 2016	DEQ received the permit processing fee.
August 4, 2017	DEQ received Revised Alternative Compliance Plan (Content Manager Record Number 2017AAG1588).
March 22, 2018	DEQ made available updated draft permit and statement of basis for peer and regional office review.
March 29, 2018	DEQ made available updated draft permit and statement of basis for applicant review.

April 19, 2018	DEQ received comments from the applicant on updated draft permit and statement of basis.
May 3 – June 4, 2018	DEQ provided a public comment period on the proposed action.
June 6-July21, 2018	DEQ made available updated draft permit and statement of basis for EPA review, no comments were received
July 27, 2018	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Equipment

Table 1 lists emissions units for which emissions of any criteria air pollutant exceeds 10 per cent (10%) of the levels contained in the definition of "significant" in IDAPA 58.01.01.006.

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

ID No.	Source Description	Control Equipment Description	Emissions Point ID No. and Description
Process A			
DHQ	Cooler	None	DHQ
DHT	Dryer - 7 MMBtu/hr, natural gas-fired	None	DHT
DHU	Dryer - 7 MMBtu/hr, natural gas-fired	None	DHU
DHZ	Dryer - 6 MMBtu/hr, steam heated and natural gas-fired	None	DHZ
Process B			
DUQ	Dryer - 7 MMBtu/hr, natural gas-fired	None	DUQ
DUT	Dryer - 7 MMBtu/hr, natural gas-fired	None	DUT
DUV	Dryers – Two, each rated at 6 MMBtu/hr, steam heated and natural gas-fired	None	DUV
DQA	Dryer - 7 MMBtu/hr, natural gas-fired	None	DQA
DQB	Dryer - 7 MMBtu/hr, natural gas-fired	None	DQB
Process C			
CIR	Dryer – Steam heated	AAF International RotoClone W (Wet Dust Collector)	CIR
CXX/CYY	Dryer – 6.05 MMBtu/hr pre-heater, 4.4 MMBtu/hr front dryer, 6.6 MMBtu/hr rear dryer, all natural gas-fired	None	CXX/CYY
CHX	Dryer – 10.3 MMBtu/hr, steam heated and natural gas-fired, with a 2.9 MMBtu/hr pre-heater, natural gas-fired	None	CHX
HEB	Dryer - 6 MMBtu/hr, natural gas-fired	None	HEB
CBB	Dryer -– 1.5 MMBtu/hr, steam heated and	None	CBB
CNV	Dryer - 12 MMBtu/hr, natural gas-fired	None	CNV
CNW	Dryer - 12 MMBtu/hr, natural gas-fired	None	CNW
CTU	Dryer – Steam heated	None	CTU
CTZ	Dryer – 5.75 MMBtu/hr, natural gas-fired	Lo-NO_X/CO burner	CTZ

Emissions Inventories

As noted above and fully discussed in Appendix B and C, and as part of this current permitting project, the scenarios covered under the facility's Alternative Compliance Plan reduced the facility's maximum average hourly PM_{10} emission levels due to re-evaluated maximum hourly production throughput of Process A, B, and C. Estimated yearly production throughput for Process A, B, and C has not been updated since P-2009.0043 was originally issued January 20, 2011 establishing FEC emission limits. Therefore, this permitting project and the acceptance of the facility's purposed ACP only reduces average hourly PTE for PM_{10} from current facility wide PTE (see Appendix C for full analysis). Aside from average hourly PM_{10}, the PTE from Process A, B, and C have not changed since previous permit. With the removal of FEC emission limits new enforceable emission limits

have been created under this permitting project. $PM_{10}/PM_{2.5}$ lbs/day limits are based in ACP analysis. All other limits are taken from current PTE requested by DEQ and submitted by applicant February 20, 2018 (See Appendix A).

However, since the previous permit was issued January 20, 2011 multiple other permitting projects have affected facility wide PTE in scenarios un-related to those purposed in ACP or sources permitted under this project. See the following permitting projects for history as well as most current facility wide emission inventory for this facility:

- Permit P-2010.0057 Project 61651 issued 1/28/2016
- Permit P-2017.0011 Project 61851 issued 7/31/2016
- Permit P-2017.0031 Project 61894 issued 9/12/2017 (At time of this permit's issuance, contains most up to date facility wide PTE)

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Bingham 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 $\geq$ 10 T/yr or if the aggregate of all HAPS (Total HAPs) has actual or potential emissions $\geq$ 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 $\geq$ 8 T/yr of a single HAP or $\geq$ 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 $\geq$ 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 $\geq$ 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 2 REGULATED AIR POLLUTANT FACILITY CLASSIFICATION

Pollutant	Uncontrolled PTE (T/yr)	Permitted PTE (T/yr)	Major Source Thresholds (T/yr)	AIRS/AFS Classification
PM	>100	>100	**100**	A
PM_{10}	>100	>100	**100**	A
$PM_{2.5}$	>100	>100	**100**	A
SO_2	>100	>100	**100**	A
NO_X	>100	>100	**100**	A
CO	>100	>100	**100**	A
VOC	<100	<100	**100**	B
HAP (single)	<10	<10	**10**	B
HAP (Total)	<25	<25	**25**	B
Pb	<100	<100	**100**	B

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

Originally this PTC revision was to remove the Facility Emissions Cap (FEC) permit conditions requirements, and there were no other changes to permit requested by the Applicant. The reason for the requested permit change was that Basic American, Inc. purchased the contiguous and adjacent Nonpareil Corporation facility resulting in the new combined facility becoming subject to Prevention of Significant Deterioration (PSD) requirements. In accordance with IDAPA 58.01.01.176.02.c, PSD Major Source facilities are not eligible for a FEC permit.

However, during this time the Alternative Compliance Plan outlined in the previous permit (P-2009.0043, issued January 20, 2011) was submitted by the applicant and underwent an extended review. Additionally, since the start of this permitting project, unrelated facility permitting projects have permitted equipment modifications and created enforceable permit limits that insure the facility is not a PSD facility. The permittee has still requested removal of FEC limits. Thus, this PTC modification is to remove those FEC limits and incorporate the scenarios of the approved Alternative Compliance Plan.

Therefore, a permit to construct is required to be issued in accordance with IDAPA 58.01.01.220. This permitting action was processed in accordance with the procedures of IDAPA 58.01.01.200-228.

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

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

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 Visible Emissions

The sources of PM emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity. This requirement is assured by Permit Conditions in the current Tier I operating permit.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676 ..... Standards for New Sources

The fuel burning equipment located at this facility, with a maximum rated input of ten (10) million BTU per hour or more, are subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels and 0.050 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting liquid fuel. Fuel-Burning Equipment is defined as any furnace, boiler, apparatus, stack and all appurtenances thereto, used in the process of burning fuel for the primary purpose of producing heat or power by indirect heat transfer. This requirement is assured by Permit Conditions in the current Tier I operating permit.

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, non-fugitive, facility-wide emissions from this facility have a potential to emit greater than 100 tons per year for PM_{10}/ $PM_{2.5}$, SO_2, NO_X, and 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. The facility currently has a Tier I operating permit for BAF and a Tier I operating permit for BAPCI. Per IDAPA 58.01.01.209.05, the facility will have to apply to modify BAF Tier I operating permit to incorporate the requirements of this PTC.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

With the most recent applicable permitting project for this facility, Permit P-2017.0031 issued 9/12/2017 for installation of Boiler 2A and the retirement of Boilers 1and 2, facility-wide boiler capacity is less than 250 MMBtu/hr, and the only criteria air pollutant with emissions exceeding 250 ton/yr would be carbon monoxide. However, an enforceable limit of 195 ton/yr on facility-wide carbon monoxide was created by that permit. Therefore, since this current permitting project does not affect annual facility wide PTE the facility is still not classified as a PSD major source.

NSPS Applicability (40 CFR 60)

Refer to the facility's current Tier I operating permit for NSPS applicability determinations and discussions. This permitting action does not alter applicable NSPS requirements.

NESHAP Applicability (40 CFR 61)

Refer to the facility's current Tier I operating permit for NESHAP applicability determinations and discussions. This permitting action does not alter applicable NESHAP requirements.

MACT Applicability (40 CFR 63)

Refer to the facility's current Tier I operating permit for MACT applicability determinations and discussions. This permitting action does not alter applicable MACT requirements.

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.

Updated Permit Condition 1.1 establishes the purpose for issuing this PTC permit.

Updated Permit Condition 1.2 notes permit conditions that have been modified or revised by this permitting action will be marked.

Updated Permit condition 1.3 lists the PTC that will be replaced by this PTC.

Updated Permit condition 1.4 Table 1 lists the regulated sources under this permit.

Boilers 1,2 and 3 are no longer regulated under this permit as their modification was incorporated into Permit P-2017.0031 Project 61894 issued 9/12/2017. Therefore, they are no longer listed under Table 1

Previous permit conditions 3.1 to 3.10 were FEC conditions that were deleted at the request of the Applicant.

Previous permit condition 4.1
Boiler 1, Boiler 2, and Boiler 3 Requirements

Reserved (Section 3 of the Tier I operating permit contains the conditions that apply to Boiler 1, Boiler 2, and Boiler 3 located at this facility.)

This permit condition was deleted as boilers are no longer regulated under current permit.

Previous permit condition 5.1

Process A Requirements

Reserved (Section 4 of the Tier I operating permit contains the conditions that apply to Process A located at this facility.)

This permit condition was deleted and replaced by new permit conditions 3.1 to 3.8 as FEC emission limits no longer apply.

New Permit Condition 3.1

This permit condition was add to describe the regulated source Process A.

New Permit Condition 3.2, Table 3.1

This permit condition and table were added to list regulated emission units, control devices, and emission points of regulated source Process A.

New Permit Condition 3.3, Table 3.2

This permit condition was added to establish enforceable emission limits for regulated Process A sources. See Emission Inventory section above detailing source of limits. Additionally, although the Alternative Compliance Plan associated with this permitting project dealt with the reduction of average hourly emission rates of PM_{10}, associated NAAQS compliance demonstration evaluates 24-hour PM_{10} standard (a 24 hour average of applicant listed hourly emission rate). Therefore, emission limit for PM_{10} has been established over an averaged 24-hour (day) period.

New Permit Condition 3.4

This permit condition was added as permittee is required to comply with this opacity limit according to the facility's current Tier 1 operating permit.

New Permit Condition 3.5

This permit condition was added as the permittee has indicated the dryers will only combust natural gas or be heated by steam from plant boilers. These assumptions have been incorporated into their associated ambient air impact analyses.

New Permit Condition 3.6

This permit condition was added to insure, in the event of inspection, proper and timely identification of regulated equipment is possible.

New Permit Condition 3.7

This permit condition was added to insure compliance with permit condition 3.3 emission limits since certain emission factors are based in product throughput.

New Permit Condition 3.8

Since the facility's 24-hour PM_{10} emission are approximately 98% of NAAQS standard (see Appendix B) this permit condition, specific to PM_{10} and $PM_{2.5}$ emissions, was added to insure the assumptions and emission rates used in ambient air impact analysis performed under the Alternative Compliance plan are maintained. A

compliance demonstration for NOx, SO_2, and CO has not been added as compliance is inherently shown since these emission limits are calculated assuming 8760 hours of operation of equipment at full heating rate capacity in MMBtu. In other words, permitted equipment is not capable of violating NOx, SO_2, and CO emission limits without modification to design.

Previous Permit Condition 6.1

Process B Requirements

Reserved (Section 5 of the Tier I operating permit contains the conditions that apply to Process B located at this facility.)

This permit condition was deleted and replaced by new permit conditions 4.1 to 4.8 as FEC emission limits no longer apply.

New Permit Condition 4.1

This permit condition was add to describe the regulated source Process B.

New Permit Condition 4.2, Table 4.1

This permit condition and table were added to list regulated emission units, control devices, and emission points of regulated source Process B.

New Permit Condition 4.3, Table 4.2

This permit condition was added to establish enforceable emission limits for regulated Process B sources. See Emission Inventory section above detailing source of limits. Additionally, although the Alternative Compliance Plan associated with this permitting project dealt with the reduction of average hourly emission rates of PM_{10}, associated NAAQS compliance demonstration evaluates 24-hour PM_{10} standard (a 24 hour average of applicant listed hourly emission rate). Therefore, emission limit for PM_{10} has been established over an averaged 24-hour (day) period.

New Permit Condition 4.4

This permit condition was added as permittee is required to comply with this opacity limit according to the facility's current Tier 1 operating permit.

New Permit Condition 4.5

This permit condition was added as the permittee has indicated the dryers will only combust natural gas or be heated by steam from plant boilers. These assumptions have been incorporated into their associated ambient air impact analyses.

New Permit Condition 4.6

This permit condition was added to insure, in the event of inspection, proper and timely identification of regulated equipment is possible.

New Permit Condition 4.7

This permit condition was added to insure compliance with permit condition 4.3 emission limits since certain emission factors are based in product throughput.

New Permit Condition 4.8

Since the facility's 24-hour PM_{10} emission are approximately 98% of NAAQS standard (see Appendix B) this permit condition specific to PM_{10} and $PM_{2.5}$ emissions was added to insure the assumptions and emission rates used in ambient air impact analysis performed under the Alternative Compliance plan are maintained. A compliance demonstration for NOx, SO_2, and CO has not been added as compliance is inherently shown since these emission limits are calculated assuming 8760 hours of operation of equipment at full heating rate capacity in MMBtu. In other words, permitted equipment is not capable of violating NOx, SO_2, and CO emission limits without modification to design.

Previous Permit Condition 7.1
Process Description

The following is a narrative description of Process C regulated in this Permit to Construct. This description is for informational purposes only.

Process C produces dehydrated food products. The raw materials put into the process include raw and cooked foods, previously dehydrated foods, and food additives, including sulfites. Process C can operate up to 8,760 hr/yr. There are no alternate operating scenarios.

Emissions units included in Process C include process vents from process equipment. All emissions units associated with this process are potential sources of particulate matter. The process equipment can potentially emit SO_2 from the decomposition of sulfites. Drying heat is provided by steam produced by the plant's boilers and natural gas-fired heaters.

Modifications and changes to Process C that are subject to PTC requirements but for which a PTC has not previously been issued are listed below:

- *1982, Installation of Reyco Slice 13 MMBtu/hr space heater*
- *1973, Installation of dryer and stacks CTQ, CTR, CTS, and CTT*
- *Various dates, "Debottlenecking" of Dryer served by stack CIR*
- *Early 1980s, Installation of dryer served by stack CBB*
- *1995, Replacement of process burners for the dryer serving stacks CHX, CHY, and CHZ*
- *2001, Installation of dryer served by stack CNV*
- *2001, Installation of dryer served by stack CNW*
- *1999, Upgrade of dryer served by stacks CXX and CYY*

Issuance of this Permit to Construct meets the requirement to obtain a PTC for these modifications.

New Permit Condition 5.1

This updated permit condition has removed list of "Modifications and changes to Process C that are subject to PTC requirements but for which a PTC has not previously been issued are listed below" as those sources are now regulated under current permit

Previous Permit Condition 7.2
Emission Control Description

The following table includes emissions units that are not regulated sources as identified and enumerated in Table 1.1. The additional units are included here because their emissions are included in the determinations of process weight limitations.

Table 7.1 EMISSIONS UNITS AND EMISSIONS CONTROL DEVICES

Emissions Unit(s)/Processes	***Emission Control Device***
Process C: *ALT/ALQ/ALB: Dryer – steam heated* *ALX/ALW/ALV/ALY: Dryer – steam heated* *AGQ/AEV/AEW: Dryer – steam heated* *CHV/CIR: Dryer- steam heated* *CXX/CYY: Dryer - 6.05 MMBtu/hr pre-heater, 4.4 MMBtu/hr front dryer, 6.6 MMBtu/hr rear dryer, and a 1.2 MMBtu/hr final heater, natural gas-fired* *CHX: Pre-dryer – 12.2 MMBtu/hr, natural gas-fired* *CHY/CHZ: Dryer – 2.5 MMBtu/hr, natural gas-fired* *CIS: Dryer – steam heated* *CIT: Dryer – steam heated* *HEB/HNL: Dryer – steam heated with optional 14 MMBtu/hr pre-heater, natural gas-fired* *CNV: Dryer - 12 MMBtu/hr, natural gas-fired* *CNW: Dryer - 12 MMBtu/hr, natural gas-fired* *CTU: Dryer - steam heated* *CTZ: Finish dryer - 5.75 MMBtu/hr, natural gas-fired* *CBB: Dryer – 1.5 MMBtu/hr, natural gas-fired* *CTQ/CTR/CTS/CTT: Dryer – 10.8 MMBtu/hr, natural gas-fired and steam heated* *TCD/TCO: Dryer – 2 MMBtu/hr, natural gas-fired and steam heated* *TAC/TAH: Pre-dryer – 2.5 MMBtu/hr, natural gas-fired* *EGS/EGT/CHI/CHK/ENV/DSX/ENR/EDO: Materials transport systems* *IBE/EUW/FIF: Animal feed materials recovery units*	*None* *Except the burners associated with source CTZ are Low-NO_X/CO burner*

This Permit to Construct authorizes the above-listed modifications and changes as being covered by PTCs.

New Permit Condition 5.2

This previous permit condition has been renumbered and modified to only list those sources that require a PTC.

Previous Permit Condition 7.3 and 7.3.1
Particulate Matter – New Equipment Process Weight Limitations

The permittee shall not discharge to the atmosphere from any source operating on or after October 1, 1979, PM in excess of the amount shown by the following equations, where E is the allowable emission from the entire source in pounds per hour, and PW is the process weight in pounds per hour.

- *If PW is less than 9,250 lb/hr,*

  $E = 0.045\ (PW)^{0.60}$

- *If PW is equal to or greater than 9,250 lb/hr,*

  $E = 1.10\ (PW)^{0.25}$

The process weight PM limitation applies to the collection of emissions units/processes identified in Table 7.1. Demonstrating compliance with the visible emissions requirement contained in the Visible Emissions Monitoring

requirement (permit condition 7.9) inherently demonstrates compliance with the process weight PM emissions limitations.

This permit condition was deleted as new more specific and applicable emission limits for each regulated Process C source have been added in current permit.

Previous Permit Condition 7.4
Visible Emissions

The permittee shall not discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625. These provisions shall not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas are the only reason(s) for the failure of the emission to comply with the requirements of this section.

New Permit Condition 5.4

This previous permit condition was updated to reflect current standard. In addition, permittee is required to comply with this opacity limit according to the facility's current Tier 1 operating permit.

Previous Permit Condition 7.5

Emissions Limits

The PM_{10}, SO_2, NO_X, CO, and VOC emissions from the stack of finish dryer CTZ shall not exceed any corresponding emissions rate limits listed in the following Table.

Table 7.2 NATURAL GAS-FIRED FINISH DRYER CTZ EMISSIONS LIMITS[1]

Source Description	PM_{10}		SO_2		NO_X		CO		VOC	
	lb/hr	T/yr[2]	lb/hr	T/yr[2]	lb/hr	T/yr[2]	lb/hr	T/yr[2]	lb/hr	T/yr[2]
Finish Dryer CTZ	0.58	1.63	0.12	0.36	0.20	0.88	1.43	6.24	0.06	0.26

1 In absence of any other credible evidence, compliance is assured by complying with this permit's operating, monitoring and record keeping requirements.

2 Tons per consecutive 12-calendar month period.

New Permit Condition 5.3

This previous permit condition was updated to establish enforceable emission limits for all regulated Process C sources as FEC emission limits no longer apply. See Emission Inventory section above detailing source of limits. Additionally, although the Alternative Compliance Plan associated with this permitting project dealt with the reduction of average hourly emission rates of PM_{10}, associated NAAQS compliance demonstration evaluates 24-hour PM_{10} standard (a 24 hour average of applicant listed hourly emission rate). Therefore, emission limit for PM_{10} has been established over an averaged 24-hour (day) period.

Previous Permit Condition 7.6
Allowable Fuel Types
The CTZ finish dryer shall combust only natural gas as fuel.

New Permit Condition 5.5

This previous permit condition was updated to include all sources under Process C. Additionally the permittee has indicated the dryers will only combust natural gas or be heated by steam from plant boilers. These assumptions have been incorporated into their associated ambient air impact analyses.

New Permit Condition 5.6

This permit condition was added to insure, in the event of inspection, proper and timely identification of regulated equipment is possible.

New Permit Condition 5.7

This permit condition was added require permittee to use and maintain an AAF International, RotoClone W (Wet Dust Collector) on Emission Source CIR in accordance with manufacture's written instructions. Although, the Permittee has voluntarily installed this equipment for this source its control affects have been incorporated into associated ambient air impact analyses.

Previous Permit Condition 7.7
Dehydrated Food Products Hourly Production Weight Rate Limit
The dehydrated food products production rate for the CTZ finish dryer shall not exceed 2,800 lb/hr.

This permit condition has been deleted as the permittee has elected to demonstrate required compliance by monitoring daily equipment throughput and using that information to comply directly with emission limits in Table 5.2

Previous Permit Condition 7.8
Dehydrated Food Products Annual Production Weight Rate Limit
The dehydrated food products production rate for the CTZ finish dryer shall not exceed 15,698,000 lb/yr in any consecutive 12-calendar months.

This permit condition has been deleted as the permittee has elected to demonstrate required compliance by monitoring daily equipment throughput and using that information to comply directly with emission limits in Table 5.2

Previous Permit Condition 7.9
Visible Emissions Monitoring
To demonstrate compliance with the Particulate Matter – New Equipment Process Weight Limitations (permit condition 7.3), the permittee shall conduct a monthly one-minute observation of each affected emissions point, or source, using EPA Method 22 (in 40 CFR 60, Appendix A). If visible emissions in excess of 10% opacity are observed from any emissions point, or source, a six-minute observation, using EPA Method 9, shall be conducted. The visible emissions evaluations shall be performed during daylight hours under normal operating conditions. The results of each evaluation shall be recorded and shall be maintained in accordance with the Recordkeeping General Requirements permit condition

This previous permit condition was deleted as new permit condition 5.4 reflects the current standard. In addition, permittee is required to comply with this opacity limit according to the facility's current Tier 1 operating permit.

Previous Permit Condition 7.10
Dehydrated Food Products Hourly Production Weight Monitoring
To demonstrate compliance with the dehydrated food products hourly production limit the permittee shall monitor and record dehydrated food products production for the CTZ finish dryer daily. Hourly production shall be determined by dividing total daily dehydrated food products production by the actual hours of operation for the day

New Permit Condition 5.8

This previous permit condition was updated to including daily throughput monitoring for *all* regulated Process C sources to insure compliance with permit condition 5.3 emission limits since certain emission factors are based in product throughput.

Previous Permit Condition 7.11
Dehydrated Food Products Annual Production Weight Monitoring
To demonstrate compliance with the dehydrated food products annual production limit the permittee shall monitor and record dehydrated food products production for the CTZ finish dryer monthly and annually. Annual throughput shall be determined by summing total monthly dehydrated food products production over each previous consecutive 12-month period.

This permit condition was deleted as it is now longer needed to show compliance under current permit. Throughout monitoring is address in new permit condition 5.8.

New Permit Condition 5.9

Since the facility's 24-hour PM_{10} emission are approximately 98% of NAAQS standard (see Appendix B) this permit condition specific to PM_{10} and $PM_{2.5}$ emissions was added to insure the assumptions and emission rates used in ambient air impact analysis performed under the Alternative Compliance plan are maintained. A compliance demonstration for NOx, SO_2, and CO has not been added as compliance is inherently shown since these emission limits are calculated assuming 8760 hours of operation of equipment at full heating rate capacity in MMBtu. In other words, permitted equipment is not capable of violating NOx, SO_2, and CO emission limits without modification to design.

Previous Permit Condition 7.12
Recordkeeping
The permittee shall comply with the recordkeeping requirements of General Provision 7.

This permit condition was deleted as it was considered redundant.

Previous Permit Condition 8.1
Process Description
The BAF Blackfoot Facility has natural gas-fired space heaters ranging in size from less than 200,000 Btu/hr to 7.5 MMBtu/hr. At the time of permit issuance total space heater combustion capacity is 59.5 MMBtu/hr. Most of the units provide direct heating; i.e., the combustion air from the unit is discharged directly into the room to provide heating. The only space heater installed at the facility that required a PTC, but for which a PTC has not previously been issued, is the Reyco Slice space heater. This Permit to Construct authorizes the Reyco space heater as being covered by a PTC. The aggregate of all other space heaters at the facility qualifies for a single Category I exemption from PTC permitting under IDAPA 58.01.01.223.05.

New Permit Condition 6.1

This previous permit condition was updated to included added capacity of plant wide space heaters as well as give description to an updated approach to permitting. Through previous permit action (see P-2009.0043 issued January 20, 2011) the permittee demonstrated the space heaters with ratings below 8.8 MMBtu/hr do not require a PTC per IDAPA 58.01.01.220-223. The single facility space heater that does not qualify for a PTC exemption is the 13.0MMBtu/hr Reyco Slice (PL1) space heater (See Appendix A for heat rating of all plant space heaters).

Previous Permit Condition 8.2

Emission Control Description

Table 8.1 EMISSIONS UNITS AND EMISSIONS CONTROL DEVICES

Emissions Unit(s)/Processes	*Emission Control Device*
Reyco Slice: Space heater - 13.0 MMBtu/hr, natural gas-fired	*None*

New Permit Condition 6.2

This previous permit condition was updated to reflect facility wide permitting approach.

Previous Permit Condition 8.3

Emissions Limits

There are no emission limits specifically applicable to the plant space heaters. Emissions from plant space heaters are regulated as part of the facility emissions cap in Permit Section 3.

New Permit Condition 6.3

This previous permit condition was updated as FEC emission limits are no longer applicable. Only a $PM_{10}/PM_{2.5}$ limit has been applied to ensure compliance with 24 hour and annual PM_{10} NAAQS (See appendix B).

Previous Permit Condition 8.4

Visible Emissions

The permittee shall not discharge any air pollutant to the atmosphere from any point of emission for a period or periods aggregating more than three minutes in any 60-minute period which is greater than 20% opacity as determined by procedures contained in IDAPA 58.01.01.625. These provisions shall not apply when the presence of uncombined water, nitrogen oxides, and/or chlorine gas are the only reason(s) for the failure of the emission to comply with the requirements of this section.

This permit condition was removed as permittee is required to comply with this opacity limit according to the facility's current Tier 1 operating permit.

Previous Permit Condition 8.5

Process Description

BAF shall determine the total natural gas usage of plant space heaters on a monthly basis. Natural gas combusted in the plant space heaters will be calculated as the difference between total facility natural gas usage less natural gas combusted in the boilers and process dryers. Emissions shall be calculated using the emission factors in the appendices of the permit.

New Permit Condition 6.4

This previous permit condition was updated to insure compliance with permit condition 6.3 T/yr emission limits. A compliance demonstration for lb/day limit is not required as compliance is inherently shown since lb/day emission limit has been calculated assuming 8760 hours of operation of equipment at full heating rate capacity in MMBtu. In other words, plant space heaters (air makeup units) are not capable of violating lb/day emission limit without modification to design. However, a compliance demonstration based on similar monitoring requirements from the previous FEC permit for T/yr limit has been included to protect annual PM_{10} NAAQS standard. This is due to the fact that previous modeling associated with initial FEC permitting project (P-2009.0043 issued 1/20/2011) assumed a 50% operational rate of plant space heaters (air make up units) for annual PM_{10} modeling. Thus plant space heaters (air makeup units) are physically capable of violating 1.27 T/yr limit. However, under typical plant operations the plant space heaters (air makeup units) typically operate significantly less than 50% of combustion capacity.

Previous Permit Condition 9.1 to 9.5

These permit condition were deleted as Compliance Schedule is no longer applicable with acceptance of Alternative Compliance Plan

Previous "Permit to Construct General Provisions" Permit Conditions 1 to 13

New "General Provisions" Permit Conditions 7.1 to 7.16

These previous permit conditions were updated to reflect changes to and the current standard of IDAPA 58.01.01

Public Comment Period

A public comment period was made available to the public in accordance with IDAPA 58.01.01.209.05.c. During this time, comments were submitted in response to DEQ's proposed action. Refer to the chronology for public comment period dates.

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

APPENDIX A – EMISSIONS INVENTORIES

Crtieria Air Pollutant Emissions Summary

Production Process	Stack Identification	Estimated Annual Emissions, tons					
		CO	NOX	SO2	PM-10	VOC	Lead
Boilers	Boiler 2A	29.6	14.6	0.2	2.99	2.2	1.96E-04
Boilers	Boiler 3	2.2	17.9	1.8	1.53	0.9	3.23E-04
A	DHQ	-	-	-	1.38		-
A	DHT	12.3	2.4	0.3	5.06	0.2	1.50E-05
A	DHU	12.3	2.4	0.3	5.06	0.2	1.50E-05
A	DHZ	6.8	1.3	0.5	7.63	0.1	1.29E-05
A	DKV	-	-	-	1.08	-	-
A	DKW	-	-	-	0.03	-	-
B	DXS	-	-	-	0.76	-	-
B	DUO	-	-	-	0.76	-	-
B	DPY	-	-	-	0.76	-	-
B	DPZ	-	-	-	0.76	-	-
B	DUQ	12.3	2.4	0.3	5.06	0.2	1.50E-05
B	DUT	12.3	2.4	0.3	5.06	0.2	1.50E-05
B	DUV	13.7	2.7	1.0	3.58	0.3	2.58E-05
B	DQA	12.3	2.4	0.3	5.06	0.2	1.50E-05
B	DQB	12.3	2.4	0.3	5.06	0.2	1.50E-05
B	DUY	-	-	-	0.07	-	-
B	DUZ	-	-	-	0.07	-	-
B	DSO	-	-	0.1	1.06	-	-
B	DSK	-	-	-	0.18	-	-
B	DRY	-	-	-	0.09	-	-
C	ALB	-	-	0.1	0.44	-	-
C	ALT	-	-	-	0.03	-	-
C	ALQ	-	-	0.1	0.28	-	-
C	ALY	-	-	-	0.01	-	-
C	ALX	-	-	-	0.05	-	-
C	ALV	-	-	0.1	0.72	-	-
C	ALW	-	-	0.1	0.46	-	-
C	AEV	3.8	0.7	0.1	0.48	0.1	7.09E-06
C	AEW	-	-	0.1	0.34	-	-
C	AGQ	-	-	-	0.01	-	-
C	CIR_RTC	-	-	4.1	1.72	-	-
C	CHV	-	-	-	0.03	-	-
C	CXX	11.9	2.6	1.4	7.51	0.3	2.30E-05
C	CYY	10.3	1.5	1.4	7.16	0.2	1.62E-05
C	CHX	6.2	2.7	0.2	1.49	0.2	1.68E-05
C	CHY	3.7	1.6	0.1	0.50	0.1	9.92E-06
C	CHZ	1.8	0.8	0.0	0.26	0.1	4.85E-06
C	TEE	-	-	0.0	0.07	-	-
C	TEM			0.0	0.07		
C	HEB	2.0	1.3	1.1	6.17	0.3	2.31E-05
C	HNL	0.6	0.4	0.2	1.37	0.1	6.91E-06
C	CBB	1.7	0.3	0.4	0.79	0.0	3.22E-06
C	CTQ	4.6	0.9	0.3	0.63	0.1	8.60E-06
C	CTR	7.5	1.5	0.3	0.61	0.2	1.41E-05
C	CTS	10.0	2.0	0.2	0.19	0.2	1.89E-05
C	CTT	11.0	2.2	0.2	0.16	0.2	2.08E-05
C	CNV	13.7	2.7	0.2	0.58	0.3	2.58E-05
C	CNW	13.7	2.7	0.2	0.59	0.3	2.58E-05
C	CTU	-	-	0.5	3.96	-	-
C	CTZ	0.7	0.5	0.4	1.00	0.3	2.32E-05
C	TCD	2.3	0.4	0.5	0.15	0.0	4.29E-06
C	TCO	-	-	-	0.15	-	-
C	TAC	1.4	0.3	0.1	0.69	0.0	2.68E-06
C	TAH	1.4	0.3	0.1	0.69	0.0	2.68E-06
C	NND	2.9	1.1	0.1	0.95	0.2	1.72E-05
C	NNG	1.8	0.5	0.1	0.57	0.1	1.07E-05
C	C-8 AMU	1.8	-	-	-	0.1	5.37E-06
C	EUW	-	-	-	0.02	-	-
C	SUF	-	-	-	0.02	-	-
C	DSX	-	-	-	0.04	-	-
C	EGS	-	-	-	0.04	-	-
C	EGT	-	-	-	0.04	-	-
C	FIF	-	-	-	0.13	-	-
Total - Point Sources		**240.6**	**77.6**	**18.2**	**94.24**	**7.7**	**9.39E-04**
Plant	Heaters	14.0	16.7	0.4	1.27	0.9	8.33E-05
Plant	Fugitive Dust	-	-		3.07		-
Total - Fugitive Sources		**14.0**	**16.7**	**0.4**	**4.3**	**0.9**	**8.33E-05**

HAP Emissions Summary

Combustion Units	Fuel Combusted				Total HAP Emission, tons
	#2 Oil		Natural Gas		
	Maximum Usage, gal/yr	Total HAP emission factor, lb/kgal	Maximum Usage, MMBtu/yr	Total HAP emission factor, lb/MMBtu	
Boiler 2 (91.5 MMBtu)	-	-	801,540	1.85E-03	0.7
Boiler 3[a]	393,120	5.80E-02	801,540	1.85E-03	0.8
All process burners (284.6 MMBtuh)	-	-	2,493,096	1.85E-03	2.3
Air make-up Units (77.58 MMBtuh)[b]	-	-	339,800	1.85E-03	0.3

[a] Boiler 3 fuel usage is for scenario with boiler operating at maximum rate, and with maximum permitted usage of #2 oil. Boiler assumed to operate the remainder of the year at maximum rate combusting natural gas.

[b] Air makeup assumed to operate at 50% of firing capacity on an annual basis.

Table B-1
Potential Sources of Air Pollutant Emissions

Production Process	Stack Identification Code	POTENTIAL EMISSION GENERATING ACTIVITY					
		CO	NOx	SO2	PM 10, PM 2.5	VOC	Hazardous Air Pollutants
Boiler	Boiler 2A	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion
Boiler	Boiler B	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion
A	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
A	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
A	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
A	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
B	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
B	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	None	None	Conversion of sulfur to SO2	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	None	None
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
C	[illegible]	Fuel combustion	Fuel combustion	Conversion of sulfur to SO2; Fuel combustion	Entrainment of particulates in unit process exhaust and volatilization of condensable compounds	Fuel combustion	Fuel combustion
D	[illegible]	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
D	[illegible]	None	None	None	Entrainment of particulates in unit process exhaust	None	None
Plant	Heaters	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion	Fuel combustion
Plant	Fugitive Dust	None	None	None	Vehicle traffic	None	None

Table B-9
Estimated PM-10 Emissions

Production Process	Stack Identification Code	Annual Emissions				
		Emission Factor	Emission Factor Units	Operating Rate	Operating Units	Annual Emissions, tpy
Boilers	Boiler 2A	2.990	ton/yr	1	-	2.99
Boilers	Boiler 3	1.530	ton/yr	1	-	1.53
A	DHQ	0.015	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	1.38
A	DHT	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
A	DHU	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
A	DHZ	0.083	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	7.63
A	DKV	0.094	lb PM-10/ 000 lb unit process throughput	22,995	000 lbs throughput/yr	1.08
A	DKW	0.003	lb PM-10/ 000 lb unit process throughput	22,995	000 lbs throughput/yr	0.03
B	DXS	0.008	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	0.76
B	DUO	0.008	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	0.76
B	DPY	0.008	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	0.76
B	DPZ	0.008	lb PM-10/ 000 lb unit process throughput	183,960	000 lbs throughput/yr	0.76
B	DUQ	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
B	DUT	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
B	DQA	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
B	DQB	0.110	lb PM-10/ 000 lb unit process throughput	91,980	000 lbs throughput/yr	5.06
B	DUV	0.019	lb PM-10/ 000 lb unit process throughput	367,920	000 lbs throughput/yr	3.58
B	DSO	0.046	lb PM-10/ 000 lb unit process throughput	45,990	000 lbs throughput/yr	1.06
B	DSK	0.008	lb PM-10/ 000 lb unit process throughput	45,990	000 lbs throughput/yr	0.18
B	DUY	0.003	lb PM-10/ 000 lb unit process throughput	45,990	000 lbs throughput/yr	0.07
B	DUZ	0.003	lb PM-10/ 000 lb unit process throughput	45,990	000 lbs throughput/yr	0.07
B	DRY	0.004	lb PM-10/ 000 lb unit process throughput	45,990	000 lbs throughput/yr	0.09
C	ALB	0.055	lb PM-10/ 000 lb unit process throughput	16,057	000 lbs throughput/yr	0.44
C	ALQ	0.035	lb PM-10/ 000 lb unit process throughput	16,057	000 lbs throughput/yr	0.28
C	ALT	0.004	lb PM-10/ 000 lb unit process throughput	16,057	000 lbs throughput/yr	0.03
C	ALY	0.001	lb PM-10/ 000 lb unit process throughput	16,057	000 lbs throughput/yr	0.01
C	ALV	0.055	lb PM-10/ 000 lb unit process throughput	26,280	000 lbs throughput/yr	0.72
C	ALW	0.035	lb PM-10/ 000 lb unit process throughput	26,280	000 lbs throughput/yr	0.46
C	ALX	0.004	lb PM-10/ 000 lb unit process throughput	26,280	000 lbs throughput/yr	0.05
C	AEV	0.055	lb PM-10/ 000 lb unit process throughput	17,520	000 lbs throughput/yr	0.48
C	AEW	0.039	lb PM-10/ 000 lb unit process throughput	17,520	000 lbs throughput/yr	0.34
C	AGQ	0.001	lb PM-10/ 000 lb unit process throughput	17,520	000 lbs throughput/yr	0.01
C	CIR_RTC	0.046	lb PM-10/ 000 lb unit process throughput	74,460	000 lbs throughput/yr	1.72
C	CHV	0.001	lb PM-10/ 000 lb unit process throughput	74,460	000 lbs throughput/yr	0.03
C	CXX	0.343	lb PM-10/ 000 lb unit process throughput	43,800	000 lbs throughput/yr	7.51
C	CYY	0.327	lb PM-10/ 000 lb unit process throughput	43,800	000 lbs throughput/yr	7.16
C	CHX	0.190	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	1.49
C	CHY	0.063	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.50
C	CHZ	0.033	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.26
C	TEE	0.009	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.07
C	TEM	0.009	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.07
C	HEB	0.640	lb PM-10/ 000 lb unit process throughput	19,272	000 lbs throughput/yr	6.17
C	HNL	0.142	lb PM-10/ 000 lb unit process throughput	19,272	000 lbs throughput/yr	1.37
C	CBB	0.101	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.79
C	CTQ	0.081	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.63
C	CTR	0.078	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.61
C	CTS	0.024	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.19
C	CTT	0.020	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.16
C	CNV	0.074	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.58
C	CNW	0.075	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	0.59
C	CTU	0.505	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	3.96
C	CTZ	0.128	lb PM-10/ 000 lb unit process throughput	15,698	000 lbs throughput/yr	1.00
C	TCD	0.034	lb PM-10/ 000 lb unit process throughput	8,760	000 lbs throughput/yr	0.15
C	TCO	0.034	lb PM-10/ 000 lb unit process throughput	8,760	000 lbs throughput/yr	0.15
C	TAC	0.391	lb PM-10/ 000 lb unit process throughput	3,504	000 lbs throughput/yr	0.69
C	TAH	0.391	lb PM-10/ 000 lb unit process throughput	3,504	000 lbs throughput/yr	0.69
C	NND	0.950	ton/yr (PM2.5)	1	-	0.95
C	NNG	0.570	ton/yr (PM2.5)	1	-	0.57
C	C-8 AMU	0.000	-	1	-	0.00
C	EUW	0.000	lb PM-10/ 000 lb unit process throughput	351,282	000 lbs throughput/yr	0.02
C	SUF	0.000	lb PM-10/ 000 lb unit process throughput	351,282	000 lbs throughput/yr	0.02
C	DSX	0.009	lb PM-10/ 000 lb unit process throughput	8,760	000 lbs throughput/yr	0.04
C	EGS	0.002	lb PM-10/ 000 lb unit process throughput	55,684	000 lbs throughput/yr	0.04
C	EGT	0.002	lb PM-10/ 000 lb unit process throughput	55,684	000 lbs throughput/yr	0.04
C	FIF	0.038	lb PM-10/ 000 lb unit process throughput	6,899	000 lbs throughput/yr	0.13
Plant	Heaters	0.007	lb PM-10/MM Btu	339,781	MMBtu	1.27
Plant	Fugitive Dust	3.220	lb PM-10/hr	7,621 (see note)	hr/yr	3.07

Note: Fugitive Dust annual hours adjusted to incorporate net effects of precipitation corrections calculated per AP-42, Section 13.2

Table B-3
Estimated Carbon Monoxide Emissions

Production Process	Stack Identification Code	Annual Emissions				
		Emission Factor	Emission Factor Units	Operating Rate	Operating Units	Annual Emissions, tpy
Boilers	Boiler 2A	29.64	ton/yr	1	-	29.64
Boilers	Boiler 3	2.16	ton/yr	1	-	2.16
A	DHT	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
A	DHU	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
A	DHZ	0.26	lbs CO/ MM Btu	52,560	MMBtu	6.8
B	DUQ	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
B	DUT	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
B	DQA	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
B	DQB	0.40	lbs CO/ MM Btu	61,320	MMBtu	12.3
B	DUV	0.26	lbs CO/ MM Btu	105,120	MMBtu	13.7
C	AEV	0.26	lbs CO/ MM Btu	28,908	MMBtu	3.8
C	CXX	0.25	lbs CO/ MM Btu	93,951	MMBtu	11.9
C	CYY	0.31	lbs CO/ MM Btu	65,919	MMBtu	10.3
C	CHX	0.18	lbs CO/ MM Btu	68,503	MMBtu	6.2
C	CHY	0.18	lbs CO/ MM Btu	40,471	MMBtu	3.7
C	CHZ	0.18	lbs CO/ MM Btu	19,798	MMBtu	1.8
C	HEB	0.04	lbs CO/ MM Btu	94,433	MMBtu	2.0
C	HNL	0.04	lbs CO/ MM Btu	28,207	MMBtu	0.6
C	CBB	0.26	lbs CO/ MM Btu	13,140	MMBtu	1.7
C	CTQ	0.26	lbs CO/ MM Btu	35,097	MMBtu	4.6
C	CTR	0.26	lbs CO/ MM Btu	57,715	MMBtu	7.5
C	CTS	0.26	lbs CO/ MM Btu	76,931	MMBtu	10.0
C	CTT	0.26	lbs CO/ MM Btu	84,971	MMBtu	11.0
C	CNV	0.26	lbs CO/ MM Btu	105,120	MMBtu	13.7
C	CNW	0.26	lbs CO/ MM Btu	105,120	MMBtu	13.7
C	CTZ	0.01	lbs CO/ MM Btu	94,608	MMBtu	0.7
C	NND	0.08	lbs CO/ MM Btu	70,080	MMBtu	2.9
C	NNG	0.08	lbs CO/ MM Btu	43,800	MMBtu	1.8
C	C-8 AMU	0.08	lbs CO/ MM Btu	43,800	MMBtu	1.8
C	TCD	0.26	lbs CO/ MM Btu	17,520	MMBtu	2.3
C	TAC	0.26	lbs CO/ MM Btu	10,950	MMBtu	1.4
C	TAH	0.26	lbs CO/ MM Btu	10,950	MMBtu	1.4
Plant	Heaters	0.08	lb CO/MMBTU	339,781	MMBtu	14.0

Table B-7
Estimated Sulfur Dioxide Emissions

Production Process	Stack Identification Code	Process Emissions			Combustion Emissions								Combined Hourly Emission Rate, lb/hr	Combined Annual Emissions, tpy
		Emission Factor	Emission Factor Units	Annual Operating Rate	Emission Factor	Emission Factor Units	Operating Rate	Operating Units	Emission Factor	Emission Factor Units	Operating Rate	Operating Units		
Boilers	Boiler 2A	0.00000	NA	-	0.05	lb/hr	1.00	-	0.24	lb/hr	1.00	-	0.05	0.24
Boilers	Boiler 3	0.00000	NA	-	1.90	lb/hr	1.00	-	1.75	lb/hr	1.00	-	1.90	1.75
A	DHT	0.005	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
A	DHJ	0.0050	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
A	DHZ	0.005	lbs SO2/000 lbs unit process throughput	183,960	0.0024	lb SO2/MMBtu	6.0	MMBtu/hr	0.0024	lb SO2/MMBtu	52,560	MMBtu	0.16	0.52
B	DUC	0.005	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
B	DUT	0.005	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
B	DOA	0.005	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
B	DOB	0.005	lbs SO2/000 lbs unit process throughput	91,980	0.0024	lb SO2/MMBtu	7.0	MMBtu/hr	0.0024	lb SO2/MMBtu	61,320	MMBtu	0.09	0.30
B	DUV	0.005	lbs SO2/000 lbs unit process throughput	367,920	0.0024	lb SO2/MMBtu	12.0	MMBtu/hr	0.0024	lb SO2/MMBtu	105,120	MMBtu	0.33	1.05
B	DSO	0.005	lbs SO2/000 lbs unit process throughput	45,990	-	-	-	-	-	-	-	-	0.04	0.11
C	ALB	0.011	lbs SO2/000 lbs product	16,057	-	-	-	-	-	-	-	-	0.03	0.06
C	ALQ	0.011	lbs SO2/000 lbs product	16,057	-	-	-	-	-	-	-	-	0.03	0.08
C	ALV	0.011	lbs SO2/000 lbs product	26,280	-	-	-	-	-	-	-	-	0.04	0.14
C	ALW	0.011	lbs SO2/000 lbs product	26,280	-	-	-	-	-	-	-	-	0.04	0.14
C	AEV	0.011	lbs SO2/000 lbs product	17,520	0.0024	lb SO2/MMBtu	3.3	MMBtu/hr	0.0024	lb SO2/MMBtu	28,908	MMBtu	0.04	0.13
C	AEW	0.011	lbs SO2/000 lbs product	17,520	-	-	-	-	-	-	-	-	0.02	0.09
C	CIR_RTC	0.110	lbs SO2/000 lbs product	74,460	-	-	-	-	-	-	-	-	1.21	4.10
C	CXX	0.058	lbs SO2/000 lbs product	43,800	0.0024	lb SO2/MMBtu	10.7	MMBtu/hr	0.0024	lb SO2/MMBtu	93,951	MMBtu	0.42	1.38
C	CYY	0.061	lbs SO2/000 lbs product	43,800	0.0024	lb SO2/MMBtu	7.5	MMBtu/hr	0.0024	lb SO2/MMBtu	65,989	MMBtu	0.44	1.42
C	CHX	0.019	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	7.8	MMBtu/hr	0.0024	lb SO2/MMBtu	68,503	MMBtu	0.08	0.23
C	CHY	0.007	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	4.6	MMBtu/hr	0.0024	lb SO2/MMBtu	40,471	MMBtu	0.03	0.10
C	CHZ	0.003	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	2.3	MMBtu/hr	0.0024	lb SO2/MMBtu	19,798	MMBtu	0.02	0.05
C	TFE	0.001	lbs SO2/000 lbs product	15,698	-	-	-	-	-	-	-	-	0.00	0.01
C	TEM	0.001	lbs SO2/000 lbs product	15,698	-	-	-	-	-	-	-	-	0.00	0.01
C	HEB	0.102	lbs SO2/000 lbs product	19,272	0.0024	lb SO2/MMBtu	10.8	MMBtu/hr	0.0024	lb SO2/MMBtu	94,433	MMBtu	0.37	1.16
C	HNE	0.017	lbs SO2/000 lbs product	19,272	0.0024	lb SO2/MMBtu	3.2	MMBtu/hr	0.0024	lb SO2/MMBtu	28,207	MMBtu	0.06	0.20
C	CBB	0.044	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	1.5	MMBtu/hr	0.0024	lb SO2/MMBtu	13,140	MMBtu	0.11	0.36
C	CTQ	0.028	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	4.0	MMBtu/hr	0.0024	lb SO2/MMBtu	35,097	MMBtu	0.09	0.27
C	CTR	0.024	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	6.6	MMBtu/hr	0.0024	lb SO2/MMBtu	57,715	MMBtu	0.08	0.25
C	CTS	0.010	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	8.8	MMBtu/hr	0.0024	lb SO2/MMBtu	76,931	MMBtu	0.05	0.17
C	CTT	0.012	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	9.7	MMBtu/hr	0.0024	lb SO2/MMBtu	84,871	MMBtu	0.05	0.20
C	CNV	0.019	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	12.0	MMBtu/hr	0.0024	lb SO2/MMBtu	105,120	MMBtu	0.07	0.21
C	CNW	0.019	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	12.0	MMBtu/hr	0.0024	lb SO2/MMBtu	105,120	MMBtu	0.07	0.21
C	CTU	0.067	lbs SO2/000 lbs product	15,698	-	-	-	-	-	-	-	-	0.25	0.55
C	CTZ	0.032	lbs SO2/000 lbs product	15,698	0.0024	lb SO2/MMBtu	10.8	MMBtu/hr	0.0024	lb SO2/MMBtu	54,606	MMBtu	0.14	0.36
C	TCD	0.119	lbs SO2/000 lbs product	8,760	0.0024	lb SO2/MMBtu	2.0	MMBtu/hr	0.0024	lb SO2/MMBtu	17,520	MMBtu	0.12	0.54
C	TAC	0.040	lbs SO2/000 lbs product	3,504	0.0024	lb SO2/MMBtu	1.0	MMBtu/hr	0.0024	lb SO2/MMBtu	10,950	MMBtu	0.02	0.08
C	TAH	0.040	lbs SO2/000 lbs product	3,504	0.0024	lb SO2/MMBtu	1.3	MMBtu/hr	0.0024	lb SO2/MMBtu	10,950	MMBtu	0.02	0.08
C	NNG	0.013	lb/hr	8,760	Included in process emissions enforceable limit				Included in process emissions enforceable limit				0.01	0.06
C	NNC	0.020	lb/hr	8,760	Included in process emissions enforceable limit				Included in process emissions enforceable limit				0.02	0.10
C	C-8 AMG	0.000		4,380	Included in process emissions enforceable limit				Included in process emissions enforceable limit				0.00	0.00
Plant	Heaters	0.00000	NA		0.0024	lb SO2/MMBtu	77.8	MMBtu/hr	0.0024	lb SO2/MMBtu	339,781	MMBtu	0.19	0.41

Table B-5
Estimated Nitrogen Oxides Emissions

Production Process	Stack Identification Code	Annual Emissions				
		Emission Factor	Emission Factor Units	Operating Rate	Operating Units	Annual Emissions, tpy
Boilers	Boiler 2A	14.61	ton/yr	1	-	14.61
Boilers	Boiler 3	17.93	ton/yr	1	-	17.93
A	DHT	0.077	lbs NOx/MM Btu	61,320	MMBtu	2.4
A	DHU	0.08	lbs NOx/MM Btu	61,320	MMBtu	2.4
A	DHZ	0.05	lbs NOx/MM Btu	52,560	MMBtu	1.3
B	DUQ	0.08	lbs NOx/MM Btu	61,320	MMBtu	2.4
B	DUT	0.08	lbs NOx/MM Btu	61,320	MMBtu	2.4
B	DQA	0.08	lbs NOx/MM Btu	61,320	MMBtu	2.4
B	DQB	0.08	lbs NOx/MM Btu	61,320	MMBtu	2.4
B	DUV	0.05	lbs NOx/MM Btu	105,120	MMBtu	2.7
C	AEV	0.05	lbs NOx/MM Btu	28,908	MMBtu	0.7
C	CXX	0.05	lbs NOx/MM Btu	93,951	MMBtu	2.6
C	CYY	0.05	lbs NOx/MM Btu	65,919	MMBtu	1.5
C	CHX	0.08	lbs NOx/MM Btu	68,503	MMBtu	2.7
C	CHY	0.08	lbs NOx/MM Btu	40,471	MMBtu	1.6
C	CHZ	0.08	lbs NOx/MM Btu	19,798	MMBtu	0.8
C	HEB	0.03	lbs NOx/MM Btu	94,433	MMBtu	1.3
C	HNL	0.03	lbs NOx/MM Btu	28,207	MMBtu	0.4
C	CBB	0.05	lbs NOx/MM Btu	13,140	MMBtu	0.3
C	CTQ	0.05	lbs NOx/MM Btu	35,097	MMBtu	0.9
C	CTR	0.05	lbs NOx/MM Btu	57,715	MMBtu	1.5
C	CTS	0.05	lbs NOx/MM Btu	76,931	MMBtu	2.0
C	CNV	0.05	lbs NOx/MM Btu	105,120	MMBtu	2.7
C	CNW	0.05	lbs NOx/MM Btu	105,120	MMBtu	2.7
C	CTZ	0.01	lbs NOx/MM Btu	94,608	MMBtu	0.5
C	CTT	0.05	lbs NOx/MM Btu	84,971	MMBtu	2.2
C	TCD	0.05	lbs NOx/MM Btu	17,520	MMBtu	0.4
C	TAC	0.05	lbs NOx/MM Btu	10,950	MMBtu	0.3
C	TAH	0.05	lbs NOx/MM Btu	10,950	MMBtu	0.3
C	NND	1.14	ton/yr	1	-	1.14
C	NNG	0.47	ton/yr	1	-	0.47
C	C-8 AMU	0.00	-	1	-	0.00
Plant	Heaters	0.10	lb NOx/MMBTU	339,781	MMBtu	16.7
				Total		94.2

Table B-11
Estimated VOC Emissions

Production Process	Stack Identification Code	Annual Emissions				
		Emission Factor	Emission Factor Units	Operating Rate	Operating Units	Annual Emissions, tpy
Boilers	Boiler 2A	0.0054	lbs VOC/ MM Btu	801,540	MMBtu	2.16
Boilers	Boiler 3	0.0054	lbs VOC/ MM Btu	341,640	MMBtu	0.92
A	DHT	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
A	DHU	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
A	DHZ	0.0054	lbs VOC/ MM Btu	52,560	MMBtu	0.1
B	DUQ	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
B	DUT	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
B	DQA	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
B	DQB	0.0054	lbs VOC/ MM Btu	61,320	MMBtu	0.2
B	DUV	0.0054	lbs VOC/ MM Btu	105,120	MMBtu	0.3
C	AEV	0.0054	lbs VOC/ MM Btu	28,908	MMBtu	0.1
C	CXX	0.0054	lbs VOC/ MM Btu	93,951	MMBtu	0.3
C	CYY	0.0054	lbs VOC/ MM Btu	65,919	MMBtu	0.2
C	CHX	0.0054	lbs VOC/ MM Btu	68,503	MMBtu	0.2
C	CHY	0.0054	lbs VOC/ MM Btu	40,471	MMBtu	0.1
C	CHZ	0.0054	lbs VOC/ MM Btu	19,798	MMBtu	0.1
C	HEB	0.0054	lbs VOC/ MM Btu	94,433	MMBtu	0.3
C	HNL	0.0054	lbs VOC/ MM Btu	28,207	MMBtu	0.1
C	CBB	0.0054	lbs VOC/ MM Btu	13,140	MMBtu	0.0
C	CTQ	0.0054	lbs VOC/ MM Btu	35,097	MMBtu	0.1
C	CTR	0.0054	lbs VOC/ MM Btu	57,715	MMBtu	0.2
C	CTS	0.0054	lbs VOC/ MM Btu	76,931	MMBtu	0.2
C	CTT	0.0054	lbs VOC/ MM Btu	84,971	MMBtu	0.2
C	CNV	0.0054	lbs VOC/ MM Btu	105,120	MMBtu	0.3
C	CNW	0.0054	lbs VOC/ MM Btu	105,120	MMBtu	0.3
C	CTZ	0.0054	lbs VOC/ MM Btu	94,608	MMBtu	0.3
C	TCD	0.0054	lbs VOC/ MM Btu	17,520	MMBtu	0.0
C	TAC	0.0054	lbs VOC/ MM Btu	10,950	MMBtu	0.0
C	TAH	0.0054	lbs VOC/ MM Btu	10,950	MMBtu	0.0
C	NND	0.0054	lbs VOC/ MM Btu	70,080	MMBtu	0.2
C	NNG	0.0054	lbs VOC/ MM Btu	43,800	MMBtu	0.1
C	C-8 AMU	0.0054	lbs VOC/ MM Btu	21,900	MMBtu	0.1
Plant	Heaters	0.0054	lbs VOC/ MM Btu	339,781	MMBtu	0.9

Table B-14. HAPs Emission Factors for Natural Gas Combustion

Pollutant		Emission Factor lb/MMScf	Emission Factor lb/MMBtu
Lead		5.00E-04	4.90E-07
POM (sum of POM consituuents listed below)		8.82E-05	8.65E-08
2-Methylnaphthalene	2.40E-05		
3-Methylchloranthrene	1.80E-06		
7,12-Dimethylbenz(a)anthra	1.60E-05		
Acenaphthene	1.80E-06		
Acenaphthylene	1.80E-06		
Anthracene	2.40E-06		
Benz(a)anthracene	1.80E-06		
Benzo(a)pyrene	1.20E-06		
Benzo(b)fluoranthene	1.80E-06		
Benzo(g,h,i)perylene	1.20E-06		
Benzo(k)fluoranthene	1.80E-06		
Chrysene	1.80E-06		
Dibenzo(a,h)anthracene	1.20E-06		
Fluoranthene	3.00E-06		
Fluorene	2.80E-06		
Indeno(1,2,3-cd)pyrene	1.80E-06		
Phenanathrene	1.70E-05		
Pyrene	5.00E-06		
Benzene		2.10E-03	2.06E-06
Dichlorobenzene		1.20E-03	1.18E-06
Formaldehyde		7.50E-02	7.35E-05
Hexane		1.80E+00	1.76E-03
Naphthalene		6.10E-04	5.98E-07
Toluene		3.40E-03	3.33E-06
Arsenic		2.00E-04	1.96E-07
Beryllium		1.20E-05	1.18E-08
Cadmium		1.10E-03	1.08E-06
Chromium		1.40E-03	1.37E-06
Cobalt		8.40E-05	8.24E-08
Manganese		3.80E-04	3.73E-07
Mercury		2.60E-04	2.55E-07
Nickel		2.10E-03	2.06E-06
Selenium		2.40E-05	2.35E-08
		Total HAP Emission Factor:	1.85E-03
		Largest Emisson Factor (Hexane):	1.76E-03

Emission factors from AP-42, Chapter 1.4. Based on 1020 BTU/scf.
HHV for Natural Gas = 1020 Btu/scf

Table B-15. HAPs Emission Factors for #2 Oil Combustion

Air Pollutant	#2 Oil, lb/1000 gal	
	Uncontrolled	Reference
POM	3.30E-03	AP-42, Table 1.3-8
Formaldehyde	4.80E-02	AP-42, Table 1.3-8 (average)
Arsenic	5.48E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Beryllium	4.11E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Cadmium	4.11E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Chromium	4.11E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Chromium (VI)	2.06E-05	AB 2588 Guidance. Cr(VI) 5% of Cr total.
Lead	1.23E-03	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Manganese	8.22E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Mercury	4.11E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Nickel	4.11E-04	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Selenium	2.06E-03	AP-42, Table 1.3-10 and assuming 0.137 MMBTU/gal
Total HAP Emission	**5.80E-02**	

Table B-18. Space Heater Inventory

index	Location	Model	BTU in	BTU out
1	Plant Furnace Room	Trane	100,000	76,000
2	Plant Furnace Room	Trane	100,000	76,000
3	Plant Furnace Room	Trane	100,000	76,000
6	Plant Furnace Room	Lennox Pulse Hei	125,000	?
7	Sunspiced Office	Carrier	125,000	102,500
8	Sunspiced Office	Carrier	125,000	102,500
11	Shop	Rapid	1,925,000	0
12	Engineering	Carrier	80,000	64,000
13	Engineering	Carrier	80,000	64,000
16	Engineering	Lennox	67,500	0
17	Engineering	Lennox Carrier	80,000	64,800
18	Shop	Sears Heil	135,000	0
21	Screener House	Reznor	135,000	0
22	Screener House	Reznor	135,000	0
23	Screener House	Modine	250,000	192,500
26	Mobile Shop	E Cello	250,000	200,000
27	Mobile Shop	Grinnel	130,000	104,000
28	Mobile Shop	Reznor	130,000	104,000
38	Packaging	Modine	240,000	199,200
39	Packaging	Modine	240,000	199,200
40	Packaging	Modine	240,000	199,200
43	Packaging	Modine	240,000	199,200
44	Packaging	Modine	240,000	199,200
45	Packaging	Modine	240,000	199,200
48	Packaging	Modine	240,000	199,200
49	Packaging	Modine	240,000	199,200
53	Warehouse I	Modine	240,000	199,200
54	Warehouse I	Modine	240,000	199,200
55	Warehouse I	Modine	240,000	199,200
58	Warehouse I	Modine	240,000	199,200
59	Warehouse I	Modine	240,000	199,200
69	Warehouse II	Ecello Modine	250,000	200,000
70	Warehouse II	Ecello Modine	250,000	200,000
71	Warehouse II	Ecello Modine	250,000	200,000
74	Warehouse II	Modine	240,000	199,200
75	Warehouse II	Modine	240,000	199,200
76	Warehouse III	Hartzell8L-44LM	2,000,000	0
79	New Slab	Rapid Engineerin	1,250,000	0
80	New Slab	Rapid Engineerin	1,250,000	0
81	USDA	Eceelo	250,000	200,000
84	USDA	Nespit	130,000	104,000
85	Filter House	Modine	130,000	117,000
86	Filter House	Modine	78,000	67,500
89	New Offices	Carrier	115,000	93,150
90	New Offices	Carrier	115,000	91,000
91	Sunspiced	Modine	130,000	117,000
94	Sunspiced	Modine	250,000	192,500
95	Sunspiced	Modine	90,000	74,700
96	Sunspiced	Modine	90,000	74,700
99	Sunspiced	Modine	90,000	74,700
100	Sunspiced	Modine	90,000	74,700

index	Location	Model	BTU in	BTU out
101	Sunspiced	Modine	90,000	74,700
105	Sunspiced	Modine	90,000	74,700
106	Sunspiced	Modine	90,000	74,700
107	Sunspiced	Modine	90,000	74,700
115	Sunspiced	Lennox	110,000	88,000
116	Sunspiced	Lennox	110,000	88,000
117	Sunspiced	Lennox	110,000	88,000
120	Sunspiced	Lennox	110,000	88,000
121	Sunspiced	Lennox	250,000	
127	Shipping	Modine	90,000	74,000
130	Sunspiced Roof	Carrier	125,000	102,000
131	Sunspiced Roof	Carrier	125,000	102,000
132	Receiving	Modine	90,000	74,700
135	Receiving	Modine	110,000	74,700
136	Receiving	Modine	90,000	74,700
137	Shipping	Modine	90,000	74,700
141	Lab	Intercity	150,000	119,000
142	Office Computer Room	Heil	80,000	64,000
143	RO Office	Bryant	115,000	92,000
146	RO Roof	Reyco	3,000,000	0
147	Old Slab	Reyco	7,500,000	0
148	Old Slab	Reyco	7,500,000	0
151	Prep	Reyco	7,500,000	0
152	B6-MG Roof	Reyco	6,000,000	0
153	Drex III	Reyco	6,000,000	0
156	PL1	Reyco	13,000,000	0
157	B6 West	Reyco	4,000,000	0
158	Pl1 Storage	Reyco	2,000,000	0
161	USDA	Advance Dist	230,000	207,000
	Engrg/Technology Building	Reznor	1,500,000	
	B6 Line #3		2,750,000	
		total	**77,575,500**	

APPENDIX B – AMBIENT AIR QUANITY IMPACT ANALYSIS

MEMORANDUM

DATE: December 22, 2017

TO: Darrin Pampaian, Permit Writer, Air Program

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

PROJECT: Blackfoot Facility of Basic American Foods, in Blackfoot, Idaho, a Revised Alternative Compliance Plan (ACP) regarding (PTC) P-2009.0043, Facility ID No. 011-00012

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

1.0 Summary

Basic American Foods (BAF) of Blackfoot, Idaho, submitted a Revised Alternative Compliance Plan (ACP) application for a Permit to Construct (PTC) on September11, 2017, for a demonstration of NAAQS compliance for a permit to an existing facility located in Blackfoot, Idaho, denoted as PTC P-2009.0043.

BAF is a manufacturing facility producing a variety of dried vegetable products. On January 20, 2011, DEQ issued to BAF a PTC, P-2009.0043. This permit includes a compliance plan /schedule that required BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS. The permit allows BAF to implement an Alternative Compliance Plan (ACP), subject to approval by DEQ. BAF submitted an ACP in January 2014. This submittal, per DEQ requests, included modeling impacts from a nearby facility, Nonpareil Corporation. Responding to further questions from DEQ, BAF submitted updates to the analyses in June 2014, August 2014, and April 2015. DEQ, on December 21, 2015, disapproved the ACP, based on the following items:

- The ACP listed criteria that must be satisfied includes one of the following: a) demonstrate compliance with the PM_{10} 24-hour NAAQS when assessing all emissions sources and an approved background concentration; b) demonstrate that the alternate plan does not result in concentrations greater than those associated with the original compliance plan (which included raising stack heights of numerous sources); or c) demonstrate that the impact from BAF is less than the Significant Impact Level (SIL) for 24-hr PM_{10}. These conditions, when assessed at all receptors, were not reached with the submitted analyses.
- Errors in the original analyses supporting P-2009.0043 were identified in the process of refining and reviewing the ACP. These errors resulted in substantial underestimation of impacts. Emissions from the nearby Nonpareil facility were not included in the analyses used to support the initial FEC PTC. When emissions were included for these nearby sources, per DEQ request, total impacts greatly exceeded the PM_{10} 24-hour NAAQS. Some modeled concentrations were several times the standard of 150 $\mu g/m^3$.
- Emissions used in the ACP were based on a probabilistic assessment of historical throughput, and should be based on either a maximum design capacity or those listed in an enforceable permit condition. It was not demonstrated that the emissions used represent worst case short term scenarios.
- The ACP does not represent a configuration that has less or equal air quality impacts than the permit-required plan of raising stacks. Rather, the reduced impacts are the result of emission factor refinements and a probabilistic approach to selection of throughput values.

DEQ and BAF met on March 1, 2016, to discuss resolution of these issues. BAF provided information supporting the statement that the emission rates, as modeled, exceeded potential operating rates. DEQ stated that because documented impacts show significant concentrations from BAF sources at exceedances of the 24-hour PM_{10} NAAQS, additional analyses with the ACP would need to show compliance using the original 3-prong test as listed above. Additionally, a future new Tier II permit would need to address the modeled exceedances from the Nonpareil site, as BAF has purchased that facility (this facility has been denoted as BAPCI). During the meeting, BAF discussed the possibility of performing a wind tunnel study, or Equivalent Building Dimension (EBD) study, to lessen the possible conservativeness of the effect of building downwash on the modeling impacts. DEQ stated their willingness to consider an EBD study as an acceptable solution.

BAF proceeded to retain CPP, Inc., to conduct a site-specific EBD study. This study[2] was completed in October, 2016, and resulted in design concentrations of much lesser magnitude, indicating that the source building setup for this facility produced overly conservative modeled concentrations when processed through BPIP-Prime, EPA's default building downwash processor. The study was submitted both to DEQ and EPA

for review. EPA responded with generally positive recommendations in a letter dated May 24, 2017, and on July 18, 2017, DEQ approved the CPP study[2] for use with this project. Because BAF is not a major PSD source, EPA's Modeling Clearing House (MCH) did not provide official approval to the study.

During the interim period between the meeting with BAF and DEQ on March 1, 2016, and the approval of the EBD study, BAF submitted two additional applications to DEQ for this facility. The first, PTC P-2017.0011, proposed construction of an additional production line, denoted C-8. The final permit was issued on July 31, 2017.

On May 26, 2017, BAF submitted an application proposing to replace two dual-fired boilers with a new NG fired boiler. This application was assigned permit number P-2017.0031, and the permit was issued on September 12, 2017. Because of these changes to the facility, the submittal herein addresses the concerns of the ACP, utilizing the results of the EBD study, and also incorporates the changes to the facility as documented in both permits P-2017.0011 and P-2017.0031. Therefore, the results and analyses are more encompassing than the scope of the original ACP. A revised ACP application was submitted on August 1, 2017. Responding to some minor comments about changes to a handful of minor sources, Coal Creek Environmental Associates LLC (CCEA), on behalf of BAF, submitted a final revision of this application on September 20, 2017. This document is essentially the approval of the ACP by the DEQ modeling staff.

Details of the entire process are discussed in the main body of the DEQ Statement of Basis supporting the issued proposed PTC. This modeling review memorandum provides a summary and approval of the ambient air impact analyses submitted to support the permit application. It also describes DEQ's review of those analyses, DEQ's verification analyses, additional clarifications, and conclusions.

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

CCEA performed the ambient air impact analyses for this project on behalf of BAF. The analyses were performed to demonstrate compliance with applicable air quality standards. The DEQ review summarized by this memorandum addressed only the rules, policies, methods, and data pertaining to the air impact analyses used to demonstrate that the estimated emissions associated with the project will not cause or significantly contribute to a violation of any applicable air quality standard. This review did not evaluate compliance with other rules or analyses that do not pertain to the air impact analyses. Evaluation of emissions estimates is the responsibility of the permit writer and is addressed in the main body of the Statement of Basis. The accuracy of emissions estimates was not evaluated as part of DEQ's review of the air impact analyses submitted and described in this modeling review memorandum.

The final submitted air quality impact analyses: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data (review of emissions estimates was addressed by the DEQ permit writer); 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) in accordance with the criteria for the ACP, showed either a) compliance with the PM_{10} 24-hour NAAQS when assessing all emissions sources and an approved background concentration; b) that the alternate plan does not result in concentrations greater than those associated with the original compliance plan (which included raising stack heights of numerous sources); or c) that the impact from BAF is less than the Significant Impact Level (SIL) for 24-hr PM_{10}.

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

Air impact analyses are required by Idaho Air Rules to be conducted according to methods outlined in 40 CFR 51, Appendix W (*Guideline on Air Quality Models*). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition. The submitted information and analyses demonstrated to the satisfaction of the Department that the propose ACP will meet the criteria established by DEQ, provided the key conditions in Table 1 are representative of facility design capacity or operations as limited by a federally enforceable permit condition.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
General Emissions Rates. Emissions rates used in the modeling analyses, as listed in this memorandum, represent maximum potential emissions as given by design capacity or as limited by the issued permit for the specific pollutant and averaging period.	Compliance has not been demonstrated for emissions rates greater than those used in the modeling analyses.
Criteria Pollutant Emissions. Maximum short-term emissions of the criteria pollutant PM_{10} associated with the proposed ACP, along with associated emissions with the NonPareil (BAPCI) facility were used in the demonstration of compliance with NAAQS. Included in the analyses were modifications from two recent projects, #61851and #61894.	The ACP was only needed for 24-hour PM_{10}; therefore, the scope of this project is limited to 24-hour PM_{10}.
TAPS Modeling. TAPS modeling was not required for this ACP demonstration, as Idaho Air Rules Section 585 and 586 are not applicable.	Air impact analyses demonstrating compliance with TAPS, as required by Idaho Air Rules Section 203.03, is required for pollutants having an emissions rate greater than ELs. TAP emissions were not affected by the ACP and a demonstration of compliance with TAPs AACs and AACCs was not required.
EBD Analyses. BAF utilized data from an Equivalent Building Dimension (EBD) assessment to refine the effect of building downwash on the modeled resultant concentrations.	Analyses not utilizing refined EBD data has not been done and compliance with NAAQS for PM_{10} has not been demonstrated with downwash data derived entirely from BPIP-Prime, EPA's default building downwash processor.

2.0 Background Information

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

2.1 Project Description

BAF is a manufacturing facility producing a variety of dried vegetable products. On January 20, 2011, DEQ issued to BAF a PTC, P-2009.0043. This permit includes a compliance plan /schedule that required BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS. The permit allows BAF to implement an Alternative Compliance Plan (ACP), subject to approval by DEQ. BAF submitted an ACP in January 2014. This submittal, per DEQ requests, included modeling

impacts from a nearby facility, Nonpareil Corporation. Responding to further questions from DEQ, BAF submitted updates to the analyses in June 2014, August 2014, and April 2015. DEQ disapproved the ACP on December 21, 2015, based on numerous items described in Section 1 of this memorandum. DEQ and BAF met on March 1, 2016, to discuss resolution of the permit issues. As discussed in Section 1, BAF utilized results from an EBD study (approved by DEQ) in the air impact modeling analyses. BAF also made other revisions to the data and provided further justification of emission rates.

The scope of the project as included in the revised ACP for P-2009.0043 includes:

- Stack removals for the following sources at BAF: CHI, CHK, DUU, IBE, EDO, ENV, and ENR
- Stack removals for the following sources at BAPCI (NonPareil): EU-03, EU_04, EU_05, EU_22, EU_23, EU_29, EU_29, and EU_30.
- Elimination of using oil as a fuel in BAPCI boilers.
- Reassessment of potential maximum production line operating rates at existing BAF production lines.
- Installation of a Rotoclone device on stack CI to control particulates.

Two additional permits have been issued for this facility since the initial application for P-2009.0043 was submitted with an option for an ACP. Permit P-2017.011 proposed construction of an additional production line (C-8), which includes a two-stage pre-dryer and a dryer operating in series. It is estimated to operate full time (ie, 365 days per year) and have a maximum production rate of 70,000 pounds of product per day.

The dryer will be natural gas (NG) fired and have installed burner capacities of 6.0 MMBtu/hr for the first pre-dryer stage, 2.0 MMBtu/hr for the second pre-dryer stage, and 5.0 MMBtu/hr for the dryer stage. Particulate emissions from the dryer will be controlled by a Venturi scrubber. Also included in the project will be a 5 MMBtu/hr air make-up unit (AMU). Emissions from the AMU will be vented through the dryer stacks. Low-NOx burners will be used for the dryers and AMU. Steam from the existing boiler is needed for preparation of the dryer feed materials. The existing Boiler 1 currently has two stacks: a 47-foot stack is used when combusting with natural gas, and a 100-foot stack is used when combusting with oil. As part of this project, Boiler 1 will now use only the taller 100-foot stack. This permit was issued on May 26, 2017.

The changes in the facility from this project are summarized as:

- increased emissions of $PM_{2.5}$, PM_{10}, and SO_2 from the new production line operation
- increased emissions of products of NG combustion
- increased emissions from boilers due to increased steam demands

- Permit P-2017.0031 proposed replacement of two existing boilers with one new boiler, and is summarized below: Existing Boiler 1 and existing Boiler 2 are not capable of reliable operation and are to be disabled and removed from service. Boilers 1 and 2 are capable of firing on three fuel types and each fuel type has a unique heat input capacity:

  Boiler 1: Natural gas – 55.2 MMBtu/hr
  #2 Distillate fuel oil – 34.8 MMBtu/hr
  #6 Residual fuel oil – 34.8 MMBtu/hr

  Boiler 2: Natural gas – 73.5 MMBtu/hr
  #2 Distillate fuel oil – 71.0 MMBtu/hr
  #6 Residual fuel oil – 58.6 MMBtu/hr

- Proposed Boiler 2A will be fired exclusively on natural gas and will have a rated heat input capacity of 91.5 MMBtu/hr, and replaces Boilers 1 and 2 in the facility's high-pressure steam header that supplied steam to the facility's process units.

Permit P-2017.0031 was issued on September 12, 2017.

Because of these changes to the facility, the final analyses submitted for the ACP, addressing the concerns of the ACP and utilizing the results of the EBD study, also incorporated the changes to the facility included in permits P-2017.0011 and P-2017.0031. CCEA submitted a final revision of this application on September 20, 2017. This document is essentially the approval of the ACP by the DEQ modeling staff.

2.2 Proposed Location and Area Classification

The BAF facility is located at 415 West Collins Road, Blackfoot, Idaho. 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

Criteria Pollutant and TAP Impact Analyses for a PTC are addressed in Idaho Air Rules Sections 203.02 and 203.03:

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

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

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

2.4 Significant Impact Level and Cumulative NAAQS Impact Analyses

The Significant Impact Level (SIL) analysis for a new facility or proposed modification to a facility involves modeling estimated criteria air pollutant emissions from the facility or modification to determine the potential impacts to ambient air. Air impact analyses are required by Idaho Air Rules to be conducted using

methods and data as outlined in 40 CFR 51, Appendix W (Guideline on Air Quality Models). Appendix W requires that facilities be modeled using emissions and operations representative of design capacity or as limited by a federally enforceable permit condition.

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

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

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

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

If the cumulative NAAQS impact analysis indicates a violation of the standard, the permit may not be issued if the proposed project has a significant contribution (exceeding the SIL) to the modeled violation. This evaluation is made specific to both time and space. If the SIL analysis indicates the facility/modification has an impact exceeding the SIL, the facility might not have a significant contribution to a violation if impacts are below the SIL at the specific receptor showing the violation during the time periods when a modeled violation occurred.

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[j]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 $\mu g/m^3$)	75 ppb[p] (196 $\mu g/m^3$)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 $\mu g/m^3$)	100 ppb[s] (188 $\mu g/m^3$)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]

Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	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. The O_3 standard was revised (the notice was signed by the EPA Administrator on October 1, 2015) to 70 ppb.

Compliance with Idaho Air Rules Section 203.02 is generally demonstrated if: a) all modeled impacts of the SIL analysis are below the applicable SIL or other level determined to be inconsequential to NAAQS compliance; or b) modeled design values of the cumulative NAAQS impact analysis (modeling all emissions from the facility and co-contributing sources, and adding a background concentration) are less than applicable NAAQS at receptors where impacts from the proposed facility/modification exceeded the SIL or other identified level of consequence; or c) if the cumulative NAAQS analysis showed NAAQS violations, the impact of proposed facility/modification to any modeled violation was inconsequential (typically assumed to be less than the established SIL) for that specific receptor and for the specific modeled time when the violation occurred.

This project is an ACP and does not have the same approval criteria as other facility modification projects. The approval criteria are those specified by DEQ in the protocol approval, as described in Section 1 of this memorandum.

2.5 Toxic Air Pollutant Analyses

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

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

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

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

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

Idaho Air Rules Section 210.20 states that if TAP emissions from a specific source are regulated by the Department or EPA under 40 CFR 60, 61, or 63, then a TAP impact analysis under Section 210 is not required for that TAP. Because this is an ACP with reference to PM_{10} only, no TAPS analysis is required.

3.0 Analytical Methods and Data

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

3.1 Emission Source Data

Emissions rates of 24-hour PM_{10} for the project were provided by the applicant for various applicable averaging periods. Review and approval of estimated emissions was the responsibility of the DEQ permit writer, and is not addressed in this modeling memorandum. DEQ modeling review included verification that the application's potential emissions rates were properly used in the model. The rates listed must represent the maximum allowable rate as averaged over the specified period.

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

The submitted modeling report evaluated modeling results based on required compliance with PM_{10} NAAQS, per the requirements of the ACP. Modeled PM_{10} emissions rates are listed in Table 3.

Table 3. MODELED EMISSION RATES FOR PM_{10}		
Source ID	**Description**	**Emissions PM_{10} (lb/hr)**
BAF Blackfoot Sources		
BLR3[a]	New Boiler	0.3000
BLR2A	Boiler 2 NG	0.6819
AGQ	B-6, Line 3 Product Scalper	0.0024
AEV	B-6, Line 3 Primary Dryers	0.1791
AEW	B-6, Line 3 Packout Dryers	0.1270
ALB	B-6 1-A Primary Drying Exhaust Stack	0.1357
ALQ	B-6 1-B Primary Drying Exhaust Stack	0.0863
ALT	B-6 1-C Cooling Exhaust Stack	0.0099
ALV	B-6 2-A Primary Drying Exhaust Stack	0.2008
ALW	B-6 2-B Primary Drying Exhaust Stack	0.1278
ALX	B-6 2-C Cooling Exhaust Stack	0.0146
ALY	B-6 PO Recycle Material Exhaust Stack	0.0019
CBB	DREX-3 Pre-Dryer	0.2531
CHV		0.0083
CHX	DREX 1 Pre Drying Exhaust Stack	0.6087
CHY	DREX 1 #5 Drying Exhaust Stack	0.2033
CHZ	DREX 1 #6 Drying Exhaust Stack	0.1046
CIR_RTC	D-1 Drying Exhaust Stack	0.5090
TEE	DREX-1 Proctor #2 Exhaust Stack	0.0287
TEM	DREX-1 Proctor #3 Exhaust Stack	0.0287
CNV	PL-2 WPS Dryer Stage 2 Cyclone Exhaust	0.2780
CNW	PL-2 WPS Dryer Stage 3 Cyclone Exhaust	0.2818
CTQ	DREX 3 Drying A Proctor Exhaust Stack	0.2013
CTR	DREX 3 Drying Proctor A / B Exhaust Stack	0.1945
CTS	DREX 3 Drying B Proctor Exhaust Stack	0.0596
CTT	DREX 3 Drying Proctor B/C Exhaust Stack	0.0506
CTU	PL-2 FEC Shred Predryer Exhaust Stack	1.8930
CTZ	PL-2 Shred Dryer Exhaust Stack	0.4796
CXX	MG Drying Exhaust Stack #1	2.3581
CYY	MG Drying And Cooling Exhaust Stack #2&3	2.2481
DHQ	A- Primary Cooling Exhaust Stack	0.4507
DHT	A-1 Primary Drying Exhaust Stack	1.6500
DHU	A-2 Primary Drying Exhaust Stack	1.6500
DHZ	A - Secondary Drying Exhaust Stack	2.4900
DKV	A - Line PO Cooling Exhaust Stack	0.3506
DKW	A - Line Material Recovery Exhaust Stack	0.0112
DPY	C- Primary Cooling Exhaust Stack	0.2472
DPZ	C- Secondary Cooling Exhaust Stack	0.2472
DQA	C-1 Primary Drying Exhaust Stack	1.6500

Table 3. MODELED EMISSION RATES FOR PM_{10}		
Source ID	**Description**	**Emissions PM_{10} (lb/hr)**
DQB	C-2 Primary Drying Exhaust Stack	1.6500
DRY	B-C Packout Drying Elevator Exhaust Stack	0.0300
DSK	B-C Packout Cooling Exhaust Stack	0.0600
DSO	B-C Packout Drying Exhaust Stack	0.3450
DSX	B-C Granule Blend Back Exhaust Stack	0.0090
DUO	B- Secondary Cooling Exhaust Stack	0.2472
DUQ	B-1 Primary Drying Exhaust Stack	1.6500
DUT	B-2 Primary Drying Exhaust Stack	1.6500
DUV		1.1676
DUY	B-C +30 Aspir Material Recovery Exhaust Stack	0.0225
DUZ	B-C +10 Aspir Material Recovery Exhaust Stack	0.0225
DXS	B- Primary Cooling Exhaust Stack	0.2472
EGS	SBS Material Transfer Exhaust Stack	0.0169
EGT	SBS Reclaim Materialtransfer Exhaust Stack	0.0169
EUW	PKG 10-Line Material Recovery Exhaust Stack	0.0043
FIF	Animal Feed Exhaust Stack	0.5700
HEB	Pl-1 Drying Exhaust Stack	2.1333
TAC	RD2 PreDryer South Stack	0.1560
TAH	RD2 PreDryer North Stack	0.1560
HNL	Pl-1 Drying Exhaust Stack	0.4733
NND[b]	Predryer	0.2329
NNG[b]	Dryer	0.1632
TCD	RD1 Dryer First Stack	0.0342
TCO	RD1 Dryer Second Stack	0.0342
SUF	PKG Single Tube Material Recovery Exhaust Stack	0.0043
Heaters	Heaters	0.578
BAPCI Sources		
EU_01_NG	Processing East Boiler	0.4000
EU_02_NG	Processing West Boiler	0.3018
EU_10	Process Peeler exhaust	0.1600
EU_11	Flaker #1	2.5000
EU_12	Flaker #2	2.5000
EU_13	Flaker #3	2.0000
EU_14	Flaker #4	2.0000
EU_15	Flaker #5	2.0000
EU_16	Grinding Circuit #1 baghouse	0.0004
EU_18	Grinding Circuit #2 baghouse	0.0006
EU_19	Flaker Baghouse	0.0012
EU_20	Dehy North Boiler	0.0782
EU_21	Dehy South Boiler	0.0626
EU_24	Dehy Dryer #2A-stage	1.0900
EU_25	Dehy Dryer #2B-stage	0.4800
EU_26	Dehy Dryer #3A-stage	1.0900
EU_27	Dehy Dryer #3B-stage	0.4800

Table 3. MODELED EMISSION RATES FOR PM_{10}		
Source ID	**Description**	**Emissions PM_{10} (lb/hr)**
EU_31	Dehy Dryer #5A-stage	1.0300
EU_32	Dehy Dryer #5B-stage	0.4500
EU_33	Dehy Dryer #5C-stage	0.4500
EU_34	Dehy Bin Dryer - New Burner	0.6400
EU_39	Dehydration Research Dryer	0.1816
EU_40	Packaging Baghouse #1	0.0001
EU_41	Packaging Baghouse #2	0.0003
EU_42	Crush Room Baghouse #1	0.0001
EU_43	Crush Room Baghouse #2	0.0003
EU_44	Dehy Steam Peeler	0.1600
EU_45	Dehy Dryer #6A-stage	0.6696
EU_46	Dehy Dryer #6B-stage	0.1473
EU_47	Dehy Dryer #6C-stage	0.1473
EU_06	Reblend Rm Air Makeup	0.01
EU_07	Scratch Match Air Makeup	0.04
EU_08	Bld #3 Air Makeup	0.02
EU_09	Process Peeler exhaust	0.08
EU_35	West Area Air Makeup	0.03
EU_36	S. Dryer Rm 4&5 Air Makeup	0.04
EU_37	S. Dryer Rm 4&5 Roof Air Makeup	0.04
EU_38	Inspection Rm Roof Air Makeup	0.03
EU_48[c]	Dryer #6 Air Makeup Unit	0.03
EU_68[c]	New Air Makeup Unit	0.03

[a] Permitted in PTE P-2017.031
[b] Permitted in PTE P-2107.011
[c] Units were not included in modeling files but were assessed by DEQ in sensitivity modeling and shown to contribute insignificant impacts.

Secondary Particulate Formation

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

3.1.2 Emission Release Parameters

Table 4 provides emissions release parameters for the BAF sources, including stack height, stack diameter, exhaust temperature, and exhaust velocity for facility sources as used in the final modeling assessment. Table 5 provides emissions release parameters for the BAPCI (NonPareil) sources.

Stack parameters used in the modeling analyses were largely documented/justified adequately in this application, and the ensuing applications. Derivation of stack parameters in past projects for this facility were based on field testing at similar facilities for BAF. Parameters for the sources in PTC P-2017.0011 were adjusted from what was used in that application, and were based on refined but more conservative data.

Table 4. Source Parameters							
BAF Blackfoot Point Sources							
Source ID	Description	Easting (X) (meters)	Northing (Y) (meters)	Stack Height (meters)	Temp. (°F)[a]	Exit Vel. (fps)[b]	Stack Dia. (feet)
BLR3[c]	New Boiler #3	387736.5	4784168	44.00	475.0	50.57	2.83
BLR2A	Boiler # 2 NG	387767.3	4784172	100.0	300.0	57.03	3.50
AGQ	B-6, Line 3 Product Scalper	387732.5	4784137	33.24	77.0	22.16	0.50
AEV	B-6, Line 3 Primary Dryers	387705.8	4784128	50.92	80.0	55.21	2.67
AEW	B-6, Line 3 Packout Dryers	387705.8	4784126	50.92	80.0	51.98	2.17
ALB	B-6 1-A Primary Drying Exhaust Stack	387729.7	4784136	34.58	169.0	53.78	1.62
ALQ	B-6 1-B Primary Drying Exhaust Stack	387728.4	4784135	26.33	101.0	87.72	1.08
ALT	B-6 1-C Cooling Exhaust Stack	387725.8	4784135	26.33	115.0	100.62	1.08
ALV	B-6 2-A Primary Drying Exhaust Stack	387721.9	4784139	28.66	159.0	57.37	1.97
ALW	B-6 2-B Primary Drying Exhaust Stack	387720.1	4784139	33.58	112.0	48.94	1.97
ALX	B-6 2-C Cooling Exhaust Stack	387717.9	4784139	33.16	104.0	40.59	1.97
ALY	B-6 PO Recycle Material Exhaust Stack	387748.2	4784141	32.33	107.0	62.01	0.33
CBB	DREX-3 Pre-Dryer	387740.6	4784112	38.50	130.0	40.19	1.92
CHV		387739.1	4784134	29.83	125.0	116.79	0.50
CHX	DREX 1 Pre Drying Exhaust Stack	387718.4	4784124	48.33	164.3	31.15	3.19
CHY	DREX 1 #5 Drying Exhaust Stack	387722.9	4784124	31.41	145.2	33.63	2.07
CHZ	DREX 1 #6 Drying Exhaust Stack	387728.8	4784124	35.83	158.0	26.57	1.82
CIR_RTC	D-1 Drying Exhaust Stack	387728.5	4784144	48.64	116.3	38.89	2.00
TEE	DREX-1 Proctor #2 Exhaust Stack	387736.4	4784128	36.50	168.8	35.65	1.50
TEM	DREX-1 Proctor #3 Exhaust Stack	387741.4	4784127	36.41	168.8	35.65	1.50
CNV	PL-2 WPS Dryer Stage 2 Cyclone Exhaust	387767.1	4784106	64.00	400.0	87.48	3.00
CNW	PL-2 WPS Dryer Stage 3 Cyclone Exhaust	387760.2	4784106	64.00	400.0	87.48	3.00
CTQ	DREX 3 Drying A Proctor Exhaust Stack	387737.0	4784110	36.67	159.0	39.90	1.95
CTR	DREX 3 Drying Proctor A / B Exhaust Stack	387734.0	4784110	35.50	135.0	69.09	1.30
CTS	DREX 3 Drying B Proctor Exhaust Stack	387730.8	4784109	35.50	133.0	38.60	1.11
CTT	DREX 3 Drying Proctor B/C Exhaust Stack	387723.9	4784109	35.50	122.0	44.72	1.11
CTU	PL-2 FEC Shred Predryer Exhaust Stack	387766.6	4784112	45.00	160.0	41.37	3.09
CTZ	PL-2 Shred Dryer Exhaust Stack	387729.6	4784101	53.17	142.0	57.04	2.55
CXX	MG Drying Exhaust Stack #1	387765.8	4784131	56.25	104.0	76.99	2.67
CYY	MG Drying And Cooling Exhaust Stack #2&3	387766.9	4784122	61.08	107.0	66.31	4.00
DHQ	A- Primary Cooling Exhaust Stack	387721.7	4784154	37.10	84.0	23.48	2.50
DHT	A-1 Primary Drying Exhaust Stack	387701.8	4784160	65.83	140.0	73.42	3.00
DHU	A-2 Primary Drying Exhaust Stack	387707.3	4784160	65.83	140.0	73.42	3.00
DHZ	A - Secondary Drying Exhaust Stack	387709.8	4784163	65.83	135.0	44.33	3.00
DKV	A - Line PO Cooling Exhaust Stack	387689.7	4784159	54.83	74.0	37.69	2.00
DKW	A - Line Material Recovery Exhaust Stack	387684.4	4784155	38.25	86.0	67.84	0.42
DPY	C- Primary Cooling Exhaust Stack	387725.0	4784160	32.93	92.0	39.08	2.00
DPZ	C- Secondary Cooling Exhaust Stack	387722.8	4784159	33.23	100.0	24.43	1.75
DQA	C-1 Primary Drying Exhaust Stack	387707.0	4784144	63.83	140.0	46.43	3.50
DQB	C-2 Primary Drying Exhaust Stack	387698.8	4784144	63.83	140.0	46.43	3.50
DRY	B-C Packout Drying Elevator Exhaust Stack	387691.3	4784154	51.16	74.0	15.28	0.83
DSK	B-C Packout Cooling Exhaust Stack	387690.3	4784146	51.58	85.0	36.00	0.94
DSO	B-C Packout Drying Exhaust Stack	387692.1	4784153	50.50	100.0	78.73	0.94
DSX	B-C Granule Blend Back Exhaust Stack	387692.1	4784145	52.25	75.0	50.00	0.25
DUO	B- Secondary Cooling Exhaust Stack	387722.8	4784162	29.13	100.0	24.43	1.75
DUQ	B-1 Primary Drying Exhaust Stack	387707.0	4784150	62.42	140.0	49.20	3.50
DUT	B-2 Primary Drying Exhaust Stack	387698.8	4784150	62.42	140.0	49.20	3.50
DUV		387710.5	4784145	68.83	125.8	36.61	4.00
DUY	B-C +30 Aspir Material Recovery Exhaust Stack	387697.5	4784141	37.08	86.0	67.85	0.42
DUZ	B-C +10 Aspir Material Recovery Exhaust Stack	387698.0	4784141	37.08	86.0	67.85	0.42
DXS	B- Primary Cooling Exhaust Stack	387725.0	4784162	30.43	92.0	39.08	2.00
EGS	SBS Material Transfer Exhaust Stack	387698.9	4784075	68.83	93.0	14.89	1.00

Table 4. Source Parameters							
EGT	SBS Reclaim Materialtransfer Exhaust Stack	387693.4	4784075	67.83	73.0	28.33	1.00
EUW	PKG 10-Line Material Recovery Exhaust Stack	387685.0	4784116	33.00	97.0	48.89	0.76
FIF	Animal Feed Exhaust Stack	387719.2	4784058	48.00	70.0	32.63	1.17
HEB	Pl-1 Drying Exhaust Stack	387766.8	4784086	65.17	171.0	90.54	3.00
TAC	RD2 PreDryer South Stack	387553.2	4784214	45.00	450.0	46.15	1.27
TAH	RD2 PreDryer North Stack	387553.2	4784217	45.00	450.0	40.00	1.36
HNL	Pl-1 Drying Exhaust Stack	387751.0	4784080	51.17	158.0	84.80	1.67
NND[d]	Predryer	387740.5	4784028	60.00	160.0	38.11	3.50
NNG[d]	Dryer	387745.8	4784033	70.00	87.0	42.88	4.00
TCD	RD1 Dryer First Stack	387567.0	4784242	32.50	148.0	36.68	2.25
TCO	RD1 Dryer Second Stack	387576.7	4784242	35.50	100.0	17.51	2.00
SUF	PKG Single Tube Material Recovery Exhaust Stack	387662.4	4784077	34.50	70.0	43.08	1.31

BAF Blackfoot -Volume Sources						
Source ID	**Description**	**Easting (meters)**	**Northing (meters)**	**Release Height (feet)**	**Initial Horizontal Dimension (feet)**	**Initial Vertical Dimension (feet)**
Heaters	Heaters	387995	4784141	48.8	122.83	22.70

[a] degrees Fahrenheit
[b] feet per second
[c] permitted in PTC P-2017.0031
[d] permitted in PTC P-2107.0011

Table 5. Source Parameters							
BAPCI (NonPareil) Sources – Point Sources							
Source ID	**Description**	**Easting (X) (meters)**	**Northing (Y) (meters)**	**Stack Height (meters)**	**Temp. (°F)[a]**	**Exit Vel. (fps)[b]**	**Stack Dia. (feet)**
EU_01_NG	Processing East Boiler	388250	4784294	60.00	410.00	37.70	2.30
EU_02_NG	Processing West Boiler	388255	4784294	60.00	410.00	22.20	3.00
EU_10	Process Peeler exhaust	388266.5	4784276	24.00	190.00	0.20	2.00
EU_11	Flaker #1	388266	4784308	54.00	120.00	47.20	3.00
EU_12	Flaker #2	388270.6	4784308	54.00	120.00	47.20	3.00
EU_13	Flaker #3	388274.4	4784308	54.00	120.00	47.20	3.00
EU_14	Flaker #4	388278.3	4784308	54.00	120.00	47.20	3.00
EU_15	Flaker #5	388286.8	4784308	54.00	120.00	47.20	3.00
EU_16	Grinding Circuit #1 baghouse	388296.2	4784309	20.00	70.00	0.00	0.00
EU_18	Grinding Circuit #2 baghouse	388350.8	4784309	16.50	70.00	59.00	1.10
EU_19	Flaker Baghouse	388290.2	4784308	20.00	70.00	103.20	1.20
EU_20	Dehy North Boiler	387996.9	4784158	28.00	379.99	20.20	1.60
EU_21	Dehy South Boiler	387995.7	4784154	28.00	379.99	4.60	3.00
EU_24	Dehy Dryer #2A-stage	388014.5	4784140	41.50	187.00	40.80	2.50
EU_25	Dehy Dryer #2B-stage	388022.3	4784134	41.50	150.01	18.90	3.00
EU_26	Dehy Dryer #3A-stage	388011.1	4784131	41.50	187.00	40.80	2.50
EU_27	Dehy Dryer #3B-stage	388020.7	4784127	41.50	150.01	27.20	2.50
EU_31	Dehy Dryer #5A-stage	388009.3	4784117	41.50	160.00	47.80	3.40
EU_32	Dehy Dryer #5B-stage	388028.2	4784113	41.34	150.01	34.50	2.60
EU_33	Dehy Dryer #5C-stage	388031.1	4784113	41.34	129.99	37.20	2.00
EU_34	Dehy Bin Dryer - New Burner	388051.6	4784124	41.34	90.00	6.00	1.40
EU_39	Dehydration Research Dryer	388071.6	4784027	24.00	95.00	6.00	0.50
EU_40	Packaging Baghouse #1	388059.9	4784092	20.00	70.00	53.50	0.50

Table 5. Source Parameters							
EU_41	Packaging Baghouse #2	388065	4784093	20.00	70.00	148.60	0.50
EU_42	Crush Room Baghouse #1	388044.5	4784088	16.00	70.00	0.00	0.00
EU_43	Crush Room Baghouse #2	388042.3	4784082	16.00	70.00	0.00	0.00
EU_44	Dehy Steam Peeler	387995.8	4784145	24.00	190.00	0.30	2.00
EU_45	Dehy Dryer #6A-stage	388008.9	4784104	41.50	160.00	58.63	3.07
EU_46	Dehy Dryer #6B-stage	388023.4	4784100	27.00	150.01	34.77	2.59
EU_47	Dehy Dryer #6C-stage	388026.7	4784099	27.00	129.99	39.95	1.93
BAPCI – Volume Sources							
Source ID	**Description**	**Easting (X) (meters)**	**Northing (Y) (meters)**	**Release Height (feet)**	**Initial Horizontal Dimension (feet)**	**Initial Vertical Dimension (feet)**	
HEATERS	HEATERS	387994.9	4784141	48.82	122.83	22.70	
EU_06	AMU	388246.8	4784294	32.81	2.33	7.68	
EU_07	AMU	388246.8	4784294	32.81	2.33	7.68	
EU_08	AMU	388246.8	4784294	32.81	2.33	7.68	
EU_09	AMU	388246.8	4784285	32.81	2.33	7.68	
EU_35	AMU	388246.8	4784285	32.81	2.33	7.68	
EU_36	AMU	388246.8	4784285	32.81	2.33	7.68	
EU_37	AMU	388246.8	4784285	32.81	2.33	7.68	
EU_38	AMU	388246.8	4784285	32.81	2.33	7.68	

a. degrees Fahrenheit
b. feet per second

3.2 Background Concentrations

Background concentrations were required for this project, and were unchanged from the values used in the original PTC application of 2013. The values are listed in Table 7.

3.3 Impact Modeling Methodology

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

3.3.1 General Overview of Analyses

CCEA performed project-specific air impact analyses that were determined by DEQ to be reasonably representative of the proposed facility as described in the application. Results of the submitted analyses demonstrate compliance with applicable air quality standards to DEQ's satisfaction, provided the facility is operated as described in the submitted application and in this memorandum.

Table 6 provides a brief description of parameters used in the modeling analyses.

Table 6. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
General Facility Location	Blackfoot, Idaho	The facility is located in an area that is attainment or unclassified for all criteria air pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 16216r
Meteorological Data	2002-2006 onsite data from INL/Mt View School site in Blackfoot, ID, NWS from Pocatello, ID, and upper air data from Boise, ID	See Section 3.3.4 for a detailed discussion on the meteorological data.
Terrain	Considered	See Section 5.3 below.
Building Downwash	Considered	Because there are substantial buildings at the BAF facility, BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD. Wind tunnel analyses were also used to develop Equivalent Building Dimensions (EBD) to more accurately account for building downwash.
Receptor Grid	Grid 1	5-meter spacing along the areas of maximum impact,
	Grid 2	25-meter spacing out to distances of 250 meters with respect to the facility
	Grid 3	100-meter spacing out to approximately 3500 meters

3.3.2 Modeling protocol and Methodology

DEQ issued PTC P-2009.0043 to BAF on January 20, 2011. This permit includes a compliance plan/schedule that required BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS. The permit also allows BAF to implement an Alternative Compliance Plan (ACP), subject to approval by DEQ. CCEA submitted a modeling protocol for an ACP on August 12, 2013. After additional clarifications were submitted to DEQ on December 24, 2013, the protocol was approved. BAF submitted an ACP in January 2014. This submittal, per DEQ requests, included modeling impacts from a nearby facility, Nonpareil Corporation. Responding to further questions from DEQ, BAF submitted updates to the analyses in June 2014, August 2014, and April 2015. DEQ, on December 21, 2015, disapproved the ACP, based on numerous items as discussed in Section 1 of this memorandum.

BAF and DEQ worked together on numerous issues identified with the ACP, including DEQ's approval of a submitted EBD study. A final revised ACP was submitted on September 20, 2017, and has been approved by DEQ.

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

3.3.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. AERMOD retains the single straight-line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD version 16216r was used by the applicant for the air impact modeling analyses to evaluate impacts of the facility. This version is the current version at the time the application was received by DEQ.

3.3.4 Meteorological Data

CCEA used meteorological data collected at the nearby INL monitoring site at the Mt. View Middle School in Blackfoot, Idaho, for the period 2002-2006. This data was supplemented with NWS airport data from the Pocatello, Idaho, station KPIH. Upper air data was taken from the Boise, Idaho, airport. DEQ determined the meteorological data used in the submitted analyses was representative for modeling for this permit in the locale of BAF.

3.3.5 Effects of Terrain on Modeled Impacts

Terrain data were extracted from United States Geological Survey (USGS) National Elevation Dataset (NED) files in the WGS84 datum (approximately equal to the NAD83 datum). CCEA used 1 Arc Second resolution data, which is adequate for this analysis.

The terrain preprocessor AERMAP Version 11103 was used to extract the elevations from the NED files and assign them to receptors in the modeling domain in a format usable by AERMOD. AERMAP also determined the hill-height scale for each receptor. The hill-height scale is an elevation value based on the surrounding terrain which has the greatest effect on that individual receptor. AERMOD uses those heights to evaluate whether the emissions plume has sufficient energy to travel up and over the terrain or if the plume will travel around the terrain.

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

3.3.6 Facility Layout

DEQ compared the facility layout used in the model to that indicated in aerial photographs on Google Earth. The modeled layout was consistent with aerial photographs in Google Earth as well as from those in the ARCGIS 2013 NAIP database.

3.3.7 Effects of Building Downwash on Modeled Impacts

Potential downwash effects on emissions plumes are usually accounted for in the model by using building dimensions and locations (locations of building corners, base elevation, and building heights). Dimensions and orientation of proposed buildings were needed as input to the Building Profile Input Program for the Plume Rise Model Enhancements downwash algorithm (BPIP-PRIME) because there are existing structures affecting the emissions plumes at the facility. As discussed in sections 1 and 2, BAF retained a company, CPP, Inc. to conduct a site-specific wind tunnel study, or Equivalent Building Dimension (EBD) analysis, to lessen the possible conservativeness of the effect of building downwash on the modeling impacts. This study[2] was completed in October, 2016, and resulted in design concentrations of much lesser magnitude, indicating that the source building setup for this facility produced overly conservative modeled concentrations when processed through BPIP-Prime. The study was submitted both to DEQ and EPA for review, and on July 18, 2017, DEQ approved the CPP study[2] for usage with this project. Therefore, the analyses in the ACP utilized this enhanced building information.

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." Public access to the BAF facility is limited by either an existing fence-line or a physical building structure on the edge of the facility property. This approach is adequate to preclude public access to areas excluded from the air impact assessment.

3.3.9 Receptor Network

Table 6 describes the receptor grid used in the submitted analyses. The receptor grid met the minimum recommendations specified in the *Idaho Air Quality Modeling Guideline*[1]. DEQ determined this grid assured maximum impacts were reasonably resolved by the model considering: 1) types of sources modeled; 2) modeled impacts and the modeled concentration gradient; 3) conservatism of the methods and data used as inputs to the analyses; 4) potential for continual exposures or exposure to sensitive receptors. Additionally, DEQ performed sensitivity analyses using a finer grid-spaced receptor network to assure that maximum concentrations were below all applicable standards.

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.

Buildings exist in the vicinity of all point sources modeled. Therefore, consideration of downwash caused by nearby buildings was required.

4.0 Impact Modeling Results

4.1 Results for NAAQS Significant Impact Level Analyses

Because of the requirements stated in the ACP for PTC-2009.0043, air quality dispersion modeling was necessary for PM_{10} only. The ambient air impact analyses submitted with the PTC application demonstrated to DEQ's satisfaction that emissions as modeled did not exceed the NAAQS for PM_{10}. These results are listed in Table 7.

Table 7. MODELING RESULTS FOR PM_{10} NAAQS COMPLIANCE

Pollutant	Averaging Period	Modeled Conc. ($\mu g/m^3$)[a]	Background Conc. ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
PM_{10}	24-hour	80.0	67	147.0	150
	Annual	28.3	17.6	45.9	50[b]

a. Micrograms per cubic meter.
b. Annual NAAQS for PM_{10} is longer an applicable standard in Idaho Air Rules.

4.2 Results for TAPs Impact Analyses

Because there are no TAPs emissions of consideration in this project, modeling analyses were not needed to demonstrate compliance with those AACs and AAACs.

5.0 Conclusions

The ambient air impact analyses and other air quality analyses submitted with the ACP demonstrated to DEQ's satisfaction that the established criteria for the ACP were met.

References:

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

2. CPP, Final Report. Equivalent Building Determination for Basic American Foods, October 28, 2016.

APPENDIX C – ALTERNATIVE COMPLIACE PLAN

BASIC AMERICAN FOODS™

415 West Collins Rd., Blackfoot, ID 83221 • 208.785.3200 • f 208.785.8392 • baf.com

August 1, 2017

BAF-BF-17-10

Mike Simon
Department of Environmental Quality
1410 North Hilton
Boise, Idaho 83706

RE: Revised Alternative PM 10 Compliance Plan

Dear Mr. Simon:

Basic American Foods is submitting a revised Alternate Compliance Plan for your review. This submittal includes:

- Revised Alternate PM10 Compliance Plan
- Reassessment of Potential Maximum Production Rates
- Ambient Impact Analysis

Electronic files are available at the following DropBox address:

https://www.dropbox.com/s/0878qcqkv5sh9xx/BAF%20Blfkt%20ACP%20Jul%202017.zip?dl=0

Please contact me at (208) 785-8778 or John Kirkpatrick at (208) 785-8572 if you have any questions or need further information.

Sincerely,

Steven G. Brockett
Idaho Campus Environmental Manager

CC: Todd Peretti, VP Operations
Brent Struhs, Blackfoot Facility Manager

BASIC AMERICAN FOODS

REVISED ALTERNATE PM10 COMPLIANCE PLAN

BLACKFOOT FACILITY OF BASIC AMERICAN FOODS
(A DIVISION OF BASIC AMERICAN INC.)

FACILITY ID NO. 011-00012

August 2017

Coal Creek Environmental Associates
Bellevue, WA
Project 170101.31

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BACKGROUND

PTC No. P-2009.0043 (*"the permit"*), issued to Basic American Foods (*"BAF"*) on January 20, 2011 for BAF's Blackfoot Facility (*"the BAF facility"*), includes a compliance schedule that requires that BAF implement certain specified stack changes (the *"current compliance plan"*). These permit conditions were deemed necessary to ensure that PM10 emissions from the Blackfoot Facility do not cause or significantly contribute to a violation of NAAQS for PM10. These changes are to be implemented within three years of permit issuance, which would be January 20, 2014. The permit conditions also allow BAF to implement an alternatePM10 compliance plan, subject to Idaho Department of Environmental Quality (*"DEQ"*) approval. Since the permit was issued BAF has worked to develop a viable alternate compliance plan for DEQ approval.

In January 2014 BAF submitted an Alternate Compliance Plan (*"ACP"*). As required by DEQ, this ACP included impacts from the BAF Blackfoot Facility and an adjacent potato dehydration facility that had been operated by Nonpareil Corporation. In response to questions raised by DEQ, BAF provided supplemental information and updates to the proposed plan in June 2014, August 2014, and April 2015.

On December 21, 2015 DEQ disapproved BAF's ACP, and requested that BAF submit a revised 24-hour PM10 ambient impact analysis showing compliance with the 24-hour PM NAAQS at all ambient air locations. In response to this letter, BAF met with DEQ on March 1, 2016 to discuss options to respond to DEQ's notice of denial. At the meeting BAF suggested that the modeled exceedances of the PM10 NAAQS indicated in the ACP modeling analyses were likely the result of extreme conservatism built into the AERMOD preprocessor that generates building downwash parameters. BAF proposed conducting an Equivalent Building Dimension (*"EBD"*) analysis of downwash effects in a boundary layer wind tunnel to aid in developing more realistic downwash inputs for AERMOD.

DEQ stated that conducting an EBD study was an acceptable option and BAF retained CPP, Inc., a firm experienced in conducting EBD studies, to conduct a study at the Blackfoot Facility. CPP completed its work and issued a study report in October 2016. Preliminary modeling conducted using the CPP study results demonstrated that modeled PM10 impacts did comply with the PM10 NAAQS, supporting BAF's presumptions that the previously modeled high ambient impacts were due to overly-conservative downwash assumptions in the AERMOD preprocessor.

DEQ requested that the US EPA Region 10 Office assist in reviewing the CPP report. EPA concurred with the approach and procedures used by CPP, and provided comments and recommendations on several aspects of the study. BAF and CPP responded to EPA's comments in a letter dated May 24, 2017, and on July 18, 2017 DEQ approved the CPP study report.[1]

This revised ACP incorporates the results of the CPP EBD study. It also includes a general update of the AERMOD model for the site based on field verifications of model parameters and changes in

[1] Email from Thomas Swaine, DEQ, to Stephen Nelson, Coal Creek Environmental Associates.

facilities and operations that have occurred or that are currently underway. Thus, this revised ACP reflects conditions as they currently exist, not as they existed in 2009, when the permit was issued, nor as in 2013, when the original ACP was submitted.

GENERAL PLANT INFORMATION

The BAF facility is located south of U.S. Highway 26 and about two miles northwest of Blackfoot. The BAF facility includes the following activities:

- A food drying and dehydrating plant; and
- A co-located research and development laboratory related to vegetable dehydrating and product development.

A portion of the Blackfoot facility property is leased to Idaho Fresh Cooperative as a fresh potato packing operation. This portion of the plant is operated by Idaho Gold and Liberty Produce, both of whom are district members of the Idaho Fresh Cooperative.

In 2013, after the current compliance plan was approved during the issuance of permit P-2009-0043, the adjacent Nonpareil facility was acquired by BAF. BAF now operates that facility separately as Basic American Potato Co., Inc. ("*BAPCI*"). To distinguish between the two operations, the legacy BAF facility is "*the BAF facility*" and the acquired BAPCI operation is the "*BAPCI facility*".

Figure 1 shows the plant location on a USGS map. Figure 2 is a site plan of the BAF facilities.

Plant Products

The BAF facility produces a variety of dehydrated food products for both internal use and for customers. BAF uses a variety of dehydration technologies to produce products to meet exacting customer specifications.

Plant products are described below.

1. 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 Blackfoot Plant are used at the Blackfoot Plant; occasionally granules are shipped to other BAF plants for use in products produced at those plants. BAF can also sell granules as a product.

2. Formulated dehydrated food products.

   Formulated products are prepared from various combinations of dried ingredients, fresh and fresh-cooked ingredients, and food additives. BAF dries these formulations to create final products.

3. Dehydrated whole and piece food products

BAF prepares dehydrated whole and 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.

4. Animal feed.

   Animal feed, consisting of food fractions and off-specification materials that are not suitable for use in other products, is produced as a co-product of other plant processes. BAF uses various materials classification processes to segregate, collect, and transport animal feed. Animal feed is transferred directly to load out operations after collection without further processing.

Plant Activities

Raw Materials Handling

Plant raw materials include uncooked food products, dehydrated food products produced at this or other locations and various additives and flavorings used in plant products. BAF receives fresh potatoes both directly and from Idaho Gold and Liberty Produce.

Fresh potatoes can be either processed directly or stored in cellars on-site, pending packing or processing.

Production Processes

BAF uses a variety of drying and dehydration processes. Products are dried by contact with heated air. Drying air is heated either by direct-firing with natural gas or indirectly using steam heat exchangers. Air suspension unit processes are also used to classify materials and to remove unsuitable fractions from the production stream.

Materials Transport activities

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) are integral to the operation of all unit processes in which granules or formulated products are suspended in air.

Packaging

The BAF facility operates equipment to package products produced at the facility and to prepare them for shipment.

Shipping and Receiving

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 on-site cellars.

Fuel Usage

Fuel usage at the plant is primarily for steam production, for operation of direct fired product dryers, and for space heating. Plant steam boilers can operate on natural gas, distillate (#2) oil, and residual (#6) oil. Direct fired product dryers and plant space heaters are fired by natural gas.

PROPOSED ALTERNATE PM10 COMPLIANCE PLAN

BAF's alternate compliance plan includes the following components:

- Stack removals at both the BAF and BAPCI facilities.
- Eliminating oil-firing capacity from dual-fuel fired BAPCI boilers
- More precise quantification of PM10 emissions at the BAF facility based on actual production capacity limits. and the development of improved emission factors
- Installation of one control device.

In addition, changes proposed in Permit to Construct Applications for the BAF facility that are currently under review by DEQ are included in the plan.

These components are described below.

1. REMOVAL OF BAF FACILITY STACKS

BAF will remove from service the following stacks:

- CHI
- CHK
- DUU
- IBE
- EDO
- ENV
- ENR

CHI, CHK, AND DUU are among the seven stacks listed for removal in Condition 9.2 of the permit. The other four stacks have been removed from service due to on-going BAF process engineering modifications.

2. REMOVAL OF BAPCI FACILITY STACKS

The following BAPCI stacks have been permanently removed from service:

- EU_03
- EU_04
- EU_05
- EU_22
- EU-23
- EU_28
- EU_29
- EU_30

3. ELIMINATION OF OIL FIRING OPTION FOR BAPCI BOILERS

The BAPCI Processing East and Processing West boilers in the past have been permitted to combust both natural gas and fuel oil. The fuel oil injection guns for these boilers have been removed, and the boilers are no longer capable of combusting oil.

4. REASSESSMENT OF POTENTIAL MAXIMUM PRODUCTION LINE OPERATING RATES AT BAF FACILITY

Most of BAF's production lines use custom built equipment for which there are no "design" or "nameplate" operating rates. Given this situation BAF has estimated maximum operating rates based on interviews with production personnel as to what they considered the maximum capacity of a line might be, with an arbitrary (and often generous) safety factor added to that estimate. BAF has deliberately attempted to err conservatively high to minimize potential issues associated with underestimating facility emissions.

As part of its review of facility emissions in preparing an alternate compliance plan BAF scrutinized plant production capability at the BAF facility in greater detail. BAF first noted that the summation of individual production line operating rates greatly exceeded the BAF facility's ability to manage raw material inputs and product outputs; it was clearly impossible for the plant to operate in the manner it was assumed to be operating under the current compliance plan. BAF next assembled production data for the last 20 years of BAF facility operations for the various facility production lines. This 20-year operating record provides a much more accurate basis for estimating maximum operating rates than the previous procedure for estimating maximum production rates.

Using the 20-year production data BAF identified true maximum line operating rates, and then added realistic operating contingency factors to those rates to revise maximum process operating rates. These rates were then used in calculating a revised emissions inventory for compliance demonstration purposes.

Details of this assessment of maximum line operating rates are presented in Appendix A.

5. PM10 EMISSIONS FACTORS

Because BAF's production lines use custom built equipment, there are few relevant published emission factors. Accordingly, facility emissions are based on emissions tests conducted by BAF, supplemented with engineering judgment. Table 1 presents emission factors used in this analysis, including information on the prior DEQ review of emission factors. Attachment A provides backup information for emission factors that have not previously been reviewed and approved by DEQ,

6. INSTALLATION OF ROTOCLONE PARTICULATE REMOVAL DEVICE ON STACK CIR

As a test of technology, BAF installed a RotoClone on stack CIR to control particulates. BAF conducted emissions tests of the stack after installation and has updated emissions from this stack based on the emissions test results. This testing was also documented in the source testing report mentioned in the preceding paragraph in BAF's submittal to DEQ, "*Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised*

Emission Factors, April 2012". Appendix B provides technical information on the RotoClone technology.

7. PERMIT TO CONSTRUCT APPLICATIONS CURRENTLY BEING REVIEWED BY DEQ

The BAF facility currently has two applications for Permits to Construct that are under review by DEQ. The first, for construction of production line C-8, is being prepared for public review. The second, for replacement of dual oil- and gas-fired Boilers 1 and 2 with gas-fired Boiler 2A, has been determined to be complete and a facility-draft review permit is being prepared. The ambient impacts analysis for this project includes these projects so that the information in this application is current.

FACILITY EMISSIONS DATA

Potential PM10 emissions for the BAF facility and the BAPCI facility are presented below.

BAF FACILITY

Table 1 presents information on PM10 emission factors for the BAF facility. All process PM10 emission factors have been approved by DEQ in previous final permitting actions or in permitting actions that are nearly complete (and that will be finalized before review of this ACP is completed.) The PM10 emission factor for Boiler 2A uses the AP-42 PM10 emission factors for NG combustion in boilers. Since Boiler 3 has an enforceable PM10 emission limit, the PM10 emission factor for Boiler 3 is simply the enforceable PM10 emission limit. Table 1 shows the PM10 emissions factor used for each stack and the basis for the emission factor, and identifies the DEQ permitting action in which the emission factor was used by DEQ in a permitting emission inventory.

Table 2 contains information on maximum operating rates for each stack, including changes in operating rates between the original compliance plan and the alternates plan. Table 2 includes information on the operating rate to be used in the alternate compliance plan and the basis by which the operating rate was determined. Note that for most production lines, the operating rates are the rates identified in Appendix A. For Process C-8 the operating rate is the same as proposed in permit P-2017.0011 (in preparation).

Table 3 presents potential emissions rates for each stack at the BAF facility, based on the information presented in Tables 1 and 2, as well as summarizing the change in PM10 emissions associated with the alternate compliance plan.

BAPCI

Table 4 presents emissions data for BAPCI stacks. These emission rates are the same as the emission rates used in the issuance of Permit P-2010.0057 except as follows:

- The option to combust #2 oil in boilers has been removed. PM10 emissions from dual-fired boilers are reduced accordingly.

- Certain stacks have been permanently removed from service.
- Emission factors have been reduced for Flakes and dehydrators.

Table 4 also identifies these changes.

As noted in our meeting with DEQ in December 2016, BAF has reviewed emissions factors that were prepared. BAF believes the emission factors are disproportionately conservative.

Flaker Emissions

In its emissions estimates, Nonpareil used a flaker PM10 emission factor of 6.07 lbs. PM10/ton produced. This emission factor is referenced to a 2004 stack test of Flaker #2, which reported an emission factor of 5.78 lbs. PM10/ton produced. The reason for the difference between these two factors is not clear.

This emission factor is noticeably higher than other available PM10 emissions data for flakers. A summary of emissions factors from other Flaker operations is presented below.

Comparison of Emissions Data from Flaker Dryers

Emissions Reference	PM10 Emissions, lbs. PM10/ton	Comments/Discussion
March 2004 stack test of Nonpareil Flaker #2	5.78	Data appear anomalously high.
February 2003 stack of Basic American Foods Shelley stack 9-1	0.86	Snifter exhaust included in stack
October 2005 stack test of Nonpareil Flaker #5	0.93	Snifter not tested. 10% added to results to account for snifter emissions.
PTC Gem State EF	0.65	See Statement of Basis for PTC P-2010.0183.
Idahoan, Idaho Falls	0.70	See Statement of Basis for P-2012.0020. Also, note that in the discussion of the basis for emission factor the March 2004 test results from Nonpareil are ignored because they are not considered reliable.
Idahoan Lewisville	0.77	See Statement of Basis for P-2010.0061. Emission factor in permit is 1.15 lbs. PM/ton, including a 50% contingency.

Based on this information, BAF has selected an emission factor of 4 lbs. PM10/ton produced (2 lbs. PM/1000 lbs. produced). This is still a conservative (high) emissions estimate. As additional data are obtained on flaker emissions, BAF might request a reduction in emissions in the future.

Dehydration Dryer Emissions

In its emissions estimates, Nonpareil used dehydration dryer PM10 emission factor of 4.09 lbs. PM10/ton produced for Dehydration Dryers Nos. 1 through 5. This emission factor is referenced to a 2004 stack test of Dehydration Dryer #1, which reported that emission factor.

This emission factor is noticeably higher than other available PM10 emissions data for similar dryers. A summary of emissions factors from similar dryer operations is presented below.

Comparison of Emissions Data from Dehydration Dryers

Emissions Reference	PM10 Emissions, lbs. PM10/ton	Comments/Discussion
March 2004 stack test of Nonpareil Dehydration #2	4.06	Data appear anomalously high.
December 2008 stack test of Stacks 311 and 312 at BAF Rexburg facility	2.0	
November 2011 stack test of production line at BAF Blackfoot facility (Stacks CHX, CHY, XHZ, and TEE)	0.61	See Statement of Basis for Permit T1-2012.0030
PTC Gem State EF	0.61	See Statement of Basis for PTC P-2010.0183.
Idahoan Lewisville	0.56	See Statement of Basis for P-2010.0061. Emission factor in permit is 1.15 lbs. PM/ton, including a 50% contingency.

Based on this information, BAF has selected an emission factor of 3 lbs. PM10/ton produced. (1.5 lbs. PM10/1000 lbs. produced) This is still a conservative (high) emissions estimate. As additional data are obtained on dehydration dryer emissions, BAF might request a reduction in emissions in the future.

Except as indicated above and in Table 4, all emissions rates for BAPCI are unchanged from potentials to emit that have been used in previous permitting actions for the facility.

DEMONSTRATION OF COMPLIANCE WITH PM10 STANDARD

Appendix B presents the ambient impacts analysis using the revised ACP. Impacts from the revised ACP are presented below:

Pollutant	Averaging Period	Modeled Design Concentration (µg/m3)	Background Concentration (µg/m3)	Total Impact, (µg/m3)	NAAQS, (µg/m3)
PM10	24-hour	79.7	67	146.7	150
	Annual	27.4*	17.6	45	50

*** BAF Facility sources only, per modeling protocol.**

As indicated, the revised ACP will comply with the ambient PM10 standards applicable to the initial compliance plan.

By implementing the revised ACP described above, the remaining uncompleted stack modification provisions of Condition 9.2 would no longer be applicable. The remaining 3 stacks scheduled for removal would remain in service (CHI, CHK, and DUU), and the 10 stacks for which stack height extensions are required would remain at their current stack heights (CHX, CXX, DHT, DHU, DHZ, DQA, DQB, DUQ, DUT, and DUV).

REMOVAL OF OPERATING RATE LIMITS FOR STACK CTZ

Stack CTZ operates subject to production limits of 2800 lbs./hr. and 15,698,000 lbs./yr. that were created when Permit No. P-2009.0042 was issued authorizing the construction of this emissions unit. Because BAF was unable at that time to demonstrate that facility-wide emissions would not cause a violation of the PM-10 24-hour standard, installation of Stack CTZ was approved on the basis that emissions from stack CTZ would not significantly contribute to a violation of the 24-hour ambient PM-10 air quality standard. These production limits for stack CTZ were created based on the operating rates used in the significant impacts analysis accompanying the application.

This revised alternate compliance plan establishes that facility-wide emissions are not causing a violation of the ambient PM-10 standards using a cumulative (full impact) analysis. This demonstration includes operation of production line C-6, the production line that includes stack CTZ, at 3750 lbs./hr. Thus, there is no longer a need to retain the existing limits on operation of Stack CTZ.

This alternate compliance plan includes updates to emission factors based on additional source testing that was conducted in 2011, including the emission factor for Stack CTZ. Reflecting the change in potential emissions, an updated potential to emit for Stack CTZ is shown below. The hourly emissions are based on the production line C-6 operating rate identified in Appendix A. The annual production rate is established so that there will not be in an increase in annual emissions from stack CTZ.

Emissions Document	PM 10 Emission Factor, lbs./1000 lbs.	Production, lbs.		Potential Emissions	
		Hourly	Annual	Hourly, lbs.	Annual, tons
P-2009.0042	0.208	2,800	15,698,000	0.58	1.63
Revised ACP	0.128	3,750	25,500,000	0.48	1.63

TABLES

Table 1.
Emission Factors for BAF Facility

Stack ID	Emission Factor	Emission Factor Units	Basis for Factor	Prior DEQ Review of Emission Factor
Boiler 2A	0.000745	lbs. PM10/MMBtu	AP-42, Table 1.4 with NG HHV = 1020 Btu/scf	Review of PTC application underway.
Boiler 3	0.3	lbs./hr.	Enforceable limit in Permit to Construct P-050301	PTC P-050301; T1-2012.0030
DHQ	0.015	lbs. PM10/ 000 lbs. unit process throughput	Based on June 2006 Method 201/202 PM10 testing.	P-2009-0043; T1-2012.0030
DHT	0.110	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUT	P-2009-0043; T1-2012.0030
DHU	0.110	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUT	P-2009-0043; T1-2012.0030
DHZ	0.083	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. All condensable TSP emissions assumed to be PM10. 58.1% of solid TSP assumed to be PM10 as measured in Method 201 test of DUT.	P-2009-0043; T1-2012.0030
DKV	0.094	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. 58.1% of solid TSP emissions assumed to be PM10 as measured in Method 201 test of DUT. There are no condensable emissions.	P-2009-0043; T1-2012.0030
DKW	0.003	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUY	P-2009-0043; T1-2012.0030
DXS	0.0082	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DPY	P-2009-0043; T1-2012.0030
DUO	0.0082	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DPY	P-2009-0043; T1-2012.0030
DPY	0.0082	lbs. PM10/ 000 lbs. unit process throughput	PM10 assumed to be 58.1% of TSP emissions. This fraction is the same as the fraction of solid PM that is PM10 measured in Stack DUT. Total condensable emission for stacks DXS, DUO, DPY, and DPZ Similarity to stack DHQ; condensable emissions divided equally among these four stacks.	P-2009-0043; T1-2012.0030
DPZ	0.0082	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DPY	P-2009-0043; T1-2012.0030
DUQ	0.110	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUT	P-2009-0043; T1-2012.0030

Table 1.
Emission Factors for BAF Facility

DUT	0.110	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. All condensable TSP emissions assumed to be PM10. 58.1% of solid TSP assumed to be PM10 as measured in Method 201 test of DUT.	P-2009-0043; T1-2012.0030
DQA	0.110	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUT	P-2009-0043; T1-2012.0030
DQB	0.110	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUT	P-2009-0043; T1-2012.0030
DUV	0.019	lbs. PM10/ 000 lbs. unit process throughput	Based on Nov. 2011 testing of Stack DUV for PM10. Emission factor is 125% of measured emission rate.	P-2009-0043; T1-2012.0030
DSO	0.046	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. 58.1% of solid TSP emissions assumed to be PM10 as measured in Method 201 test of DUT. There are no condensable emissions.	P-2009-0043; T1-2012.0030
DSK	0.008	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. 58.1% of solid TSP emissions assumed to be PM10 as measured in Method 201 test of DUT. There are no condensable emissions.	P-2009-0043; T1-2012.0030
DUY	0.003	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. 58.1% of solid TSP emissions assumed to be PM10 as measured in Method 201 test of DUT. There are no condensable emissions.	P-2009-0043; T1-2012.0030
DUZ	0.003	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack DUY	P-2009-0043; T1-2012.0030
DRY	0.004	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factor for this stack. 58.1% of solid TSP emissions assumed to be PM10 as measured in Method 201 test of DUT. There are no condensable emissions.	P-2009-0043; T1-2012.0030
ALB	0.055	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. All condensable TSP emissions assumed to be PM10. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g.	P-2009-0043; T1-2012.0030
ALQ	0.035	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g. There are no condensable emissions.	P-2009-0043; T1-2012.0030
ALT	0.004	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. All condensable TSP emissions assumed to be PM10. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g.	P-2009-0043; T1-2012.0030

Table 1.
Emission Factors for BAF Facility

ALY	0.001	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack the D-1 Kice system. This is probably an overestimate since this process only scalps oversize product.	P-2009-0043; T1-2012.0030
ALV	0.055	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack ALB	P-2009-0043; T1-2012.0030
ALW	0.035	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack ALQ	P-2009-0043; T1-2012.0030
ALX	0.004	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack ALT	P-2009-0043; T1-2012.0030
AEV	0.055	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack ALB.	P-2009-0043; T1-2012.0030
AEW	0.039	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack the sum of ALT and ALQ.	P-2009-0043; T1-2012.0030
AGQ	0.001	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack CHV	P-2009-0043; T1-2012.0030
CIR_RTC	0.046	lbs. PM10/ 000 lbs. unit process throughput	Based on Nov. 2011 testing of Stack CIR_RTC for PM and CPM. Because this is a scrubbed stack, all PM assumed to be PM10. Emission factor is 25% larger than measured emission.	P-2009-0043; T1-2012.0030
CHV	0.001	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g. There are no condensable emissions.	P-2009-0043; T1-2012.0030
CXX	0.343	lbs. PM10/ 000 lbs. unit process throughput	Derived from Oct 2000 measurements of TSP (Method 5). All condensable TSP emissions assumed to be PM10. 58.1% of solid TSP assumed to be PM10 as measured in Method 201 test of DUT.	P-2009-0043; T1-2012.0030
CYY	0.327	lbs. PM10/ 000 lbs. unit process throughput	Derived from Oct 2000 measurements of TSP (Method 5). All condensable TSP emissions assumed to be PM10. 58.1% of solid TSP assumed to be PM10 as measured in Method 201 test of DUT.	P-2009-0043; T1-2012.0030
CHX	0.190	lbs. PM10/ 000 lbs. unit process throughput	Derived from November 2011 stack testing of stacks CHX, CHY, CHZ, and TEE for PM10 (PM for stack TEE). Stack TEM Similarity to Stack TEE. Emission factors are 25% greater than measured emissions. See "Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised Emission Factors" for details.	P-2009-0043; T1-2012.0030
CHY	0.063	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CHZ	0.033	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030

Table 1.
Emission Factors for BAF Facility

TEE	0.009	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
TEM	0.009	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
HEB	0.640	lbs. PM10/ 000 lbs. unit process throughput	Direct measurement of TSP and PM10 from HEB and HNL stacks, Oct 2000. Because PM10 significantly greater than TSP, PM10 estimated by assuming 33% of solid TSP is PM10 and all condensable TSP is PM10.	P-2009-0043; T1-2012.0030
HNL	0.142	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CBB	0.101	lbs. PM10/ 000 lbs. unit process throughput	Based on process similarity, total production line emission factors for filterable PM10 and condensable particulate matter (CPM) for stacks CBB, CTQ, CTR, CTS and CTT are Similarity to Stack the total production line emission factors developed for stacks CHX, CHY, CHZ, and TEE and TEM from Nov. 2011 emissions test results from those stacks. Filterable PM10 and CPM emissions allocated to individual stacks based on the emissions profile for filterable PM and CPM as a function of product drying observed during Nov. 2011 stack testing of stacks CHX, CHY, CHZ, TEE, and TEM. See "Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised Emission Factors" for details.	P-2009-0043; T1-2012.0030
CTQ	0.081	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CTR	0.078	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CTS	0.024	AP-42, Table 1.4-2 for uncontrolled burners and assuming 1020 Btu/scf		P-2009-0043; T1-2012.0030
CTT	0.020	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CNV	0.074	lbs. PM10/ 000 lbs. unit process throughput	Based on process similarity, total production line emission factors for filterable PM10 and condensable particulate matter (CPM) for stacks CNV, CNW, CTU, CTQ, CTR, CTS and CTT are Similarity to Stack for the production line served by stacks HEB and HNL. Filterable PM10 and CPM emissions allocated to individual stacks based on the emissions profile for filterable PM and CPM as a function of product drying observed during Nov. 2011 stack testing of stacks CHX, CHY, CHZ, TEE, and TEM. See "Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised Emission Factors" for details.	P-2009-0043; T1-2012.0030
CNW	0.075	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CTU	0.505	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
CTZ	0.128	lbs. PM10/ 000 lbs. unit process throughput		P-2009-0043; T1-2012.0030
NND	0.080	lbs. PM10/ 000 lbs. unit process throughput	Based on process similarity, combined uncontrolled emissions from NND and NNG assumed to be the same as the emissions measured from HEB and	P-2017.0011 (in preparation)

Table 1.
Emission Factors for BAF Facility

NNG	0.224	lbs. PM10/ 000 lbs. unit process throughput (uncontrolled)	HNL during stack test. Emissions assigned to individual stacks based on the emissions profile for filterable PM and CPM as a function of product drying observed during Nov. 2011 stack testing of stacks CHX, CHY, CHZ, TEE, and TEM. See "Review of Results of November 2011 Source Testing at Blackfoot Facility of Basic American Foods and Development of Revised Emission Factors" for details.	P-2017.0011 (in preparation)
TCD	0.0342	lbs. PM10/ 000 lbs. unit process throughput	PM Emission factor for bean drying at Plover facility divided equally between stacks TCD and TCO. All PM measured assumed to be PM10.	P-2009-0043; T1-2012.0030
TCO	0.0342	lbs. PM10/ 000 lbs. unit process throughput	PM Emission factor for bean drying at Plover facility divided equally between stacks TCD and TCO. All PM measured assumed to be PM10.	P-2009-0043; T1-2012.0030
TAC	0.391	lbs. PM10/ 000 lbs. unit process throughput	The sum of TAC and TAH Similarity to Stack the sum of HEB and HNL. Emissions divided equally between stacks.	P-2009-0043; T1-2012.0030
TAH	0.391	lbs. PM10/ 000 lbs. unit process throughput	The sum of TAC and TAH Similarity to Stack the sum of HEB and HNL. Emissions divided equally between stacks.	P-2009-0043; T1-2012.0030
EUW	0.000	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. There are no condensable PM emissions for this stack. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g.	P-2009-0043; T1-2012.0030
SUF	0.000	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack EUW.	P-2009-0043; T1-2012.0030
DSX	0.009	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. There are no condensable PM emissions for this stack. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g.	P-2009-0043; T1-2012.0030
EGS	0.002	lbs. PM10/ 000 lbs. unit process throughput	Similarity to Stack EGT.	P-2009-0043; T1-2012.0030
EGT	0.002	lbs. PM10/ 000 lbs. unit process throughput	Derived from TSP emission factors for this stack. There are no condensable PM emissions for this stack. 50.0% of solid TSP emissions assumed to be PM10, based on AP-42 Table 9.9.1-2, Note g.	P-2009-0043; T1-2012.0030
FIF	0.038	lbs. PM10/ 000 lbs. unit process throughput	Derived from AP-42, Table 9.9.1-1 (5/98) for Internal Vibrating Grain Cleaning with cyclone control. Filterable PM emission factor is 0.075 lbs./ton of grain processed. Per Note j of Table 9.9.1-1, PM10 assumed to be 25 % of TSP.	P-2009-0043; T1-2012.0030
Heaters	0.007	lbs. PM10/MM Btu	AP-42 Table 1.4-2. On an annual basis, firing assumed to occur at a maximum of 50% of burner capacity.	P-2009-0043; T1-2012.0030

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
Boiler 2A	None	NA	91.52	MMBtuh	New emissions unit. Expected startup in 2017. Emissions data from PTC application for emissions unit.
Boiler 3	None	NA	NA	-	Potential to emit established by enforceable limit. Permit PTC P-050301.
DHQ	A	33.6	30	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A, Emission unit throughput is 8x higher than production line output because of internal mix-back loop.
DHT	A	16.8	15	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.
DHU	A	16.8	15	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.
DHZ	A	33.6	30	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A, Emission unit throughput is 8x higher than production line output because of internal mix-back loop.
DKV	A	4.2	3.75	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A,
DKW	A	4.2	3.75	1000 lbs. throughput/hr.	Process A on Production Review Charts in Appendix A,
DXS	B	33.6	30	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
DUO	B	33.6	30	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.
DPY	B	33.6	30	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.
DPZ	B	33.6	30	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 4x higher than production line output because of internal mix-back loop.
DUQ	B	16.8	15	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 2x higher than production line output because of internal mix-back loop.
DUT	B	16.8	15	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 2x higher than production line output because of internal mix-back loop.
DQA	B	16.8	15	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 2x higher than production line output because of internal mix-back loop.
DQB	B	16.8	15	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 2x higher than production line output because of internal mix-back loop.
DUV	B	67.2	60	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A, Emission unit throughput is 8x higher than production line output because of internal mix-back loop.
DSO	B	8.4	7.5	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A,

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
DSK	B	8.4	7.5	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A,
DUY	B	8.4	7.5	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A,
DUZ	B	8.4	7.5	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A,
DRY	B	8.4	7.5	1000 lbs. throughput/hr.	Process B on Production Review Charts in Appendix A,
ALB	C-2	2.5	2.5	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 26.3% of production assigned to this unit.
ALQ	C-2	2.5	2.47	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 26.3% of production assigned to this unit.
ALT	C-2	2.5	2.47	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 26.3% of production assigned to this unit.
ALY	C-2	2.5	2.47	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 26.3% of production assigned to this unit.
ALV	C-2	3.7	3.65	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 38.9% of production assigned to this unit based on equipment capabilities.
ALW	C-2	3.7	3.65	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 38.9% of production assigned to this unit based on equipment capabilities.
ALX	C-2	3.7	3.65	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 38.9% of production assigned to this unit based on equipment capabilities.

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
AEV	C-2	3.3	3.25	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 34.7% of production assigned to this unit based on equipment capabilities.
AEW	C-2	3.3	3.25	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 34.7% of production assigned to this unit based on equipment capabilities.
AGQ	C-2	3.3	3.25	1000 lbs. throughput/hr.	Process C-2 on Production Review Charts in Appendix A, 34.7% of production assigned to this unit based on equipment capabilities.
CIR_RTC	C-1	12	11.0	1000 lbs. throughput/hr.	Process C-1 on Production Review Charts in Appendix A,
CHV	C-1	12	11.0	1000 lbs. throughput/hr.	Process C-1 on Production Review Charts in Appendix A,
CXX	C-3	7.5	6.9	1000 lbs. throughput/hr.	Process C-3 on Production Review Charts in Appendix A,
CYY	C-3	7.5	6.9	1000 lbs. throughput/hr.	Process C-3 on Production Review Charts in Appendix A,
CHX	C-4	2.8	3.2	1000 lbs. throughput/hr.	Process C-3 on Production Review Charts in Appendix A,
CHY	C-4	2.8	3.2	1000 lbs. throughput/hr.	Process C-4 on Production Review Charts in Appendix A,
CHZ	C-4	2.8	3.2	1000 lbs. throughput/hr.	Process C-4 on Production Review Charts in Appendix A,
TEE	C-4	2.8	3.2	1000 lbs. throughput/hr.	Process C-4 on Production Review Charts in Appendix A,

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
TEM	C-4	2.8	3.2	1000 lbs. throughput/hr.	Process C-4 on Production Review Charts in Appendix A,
HEB	C-7	3.5	3.3	1000 lbs. throughput/hr.	Process C-7 on Production Review Charts in Appendix A,
HNL	C-7	3.5	3.3	1000 lbs. throughput/hr.	Process C-7 on Production Review Charts in Appendix A,
CBB	C-5	2	2.5	1000 lbs. throughput/hr.	Process C-5 on Production Review Charts in Appendix A,
CTQ	C-5	2	2.5	1000 lbs. throughput/hr.	Process C-5 on Production Review Charts in Appendix A,
CTR	C-5	2	2.5	1000 lbs. throughput/hr.	Process C-5 on Production Review Charts in Appendix A,
CTS	C-5	2	2.5	1000 lbs. throughput/hr.	Process C-5 on Production Review Charts in Appendix A,
CTT	C-5	2	2.5	1000 lbs. throughput/hr.	Process C-5 on Production Review Charts in Appendix A,
CNV	C-6	2.8	3.75	1000 lbs. throughput/hr.	Process C-6 on Production Review Charts in Appendix A,
CNW	C-6	2.8	3.75	1000 lbs. throughput/hr.	Process C-6 on Production Review Charts in Appendix A,
CTU	C-6	2.8	3.75	1000 lbs. throughput/hr.	Process C-6 on Production Review Charts in Appendix A,

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
CTZ	C-6	2.8	3.75	1000 lbs. throughput/hr.	Process C-6 on Production Review Charts in Appendix A,
NND	C-8	NA	2.92	1000 lbs. throughput/hr.	New emissions unit. Expected startup in 2017. Emissions data from PTC application for emissions unit.
NNG	C-8	NA	2.92	1000 lbs. throughput/hr.	New emissions unit. Expected startup in 2017. Emissions data from PTC application for emissions unit.
TCD	C-RD1	1	1	1000 lbs. throughput/hr.	Process C-RD1 on Production Review Charts in Appendix A,
TCO	C-RD1	1	1	1000 lbs. throughput/hr.	Process C-RD1 on Production Review Charts in Appendix A,
TAC		0.4	0.4	1000 lbs. throughput/hr.	Process rate based on equipment maximum capability.
TAH		0.4	0.4	1000 lbs. throughput/hr.	Process rate based on equipment maximum capability.
EUW		43	43	1000 lbs. throughput/hr.	All production from Processes C-1 through C-8 assumed to pass through packaging equipment.
SUF		43	43	1000 lbs. throughput/hr.	All production from Process C assumed to pass through packaging equipment.
DSX		1	1	1000 lbs. throughput/hr.	Process rate based on equipment maximum capability.
EGS		12.6	11.25	1000 lbs. throughput/hr.	All production from Processes A and B assumed to pass through this equipment.

Table 2.
Operating Rates Used in 2009 Permit and in Alternate Compliance Plan

	Comparison of Operating Rates				
Stack ID	Process ID – Appendix A Production Review	Rate Used in 2009 Permit	Alternate Compliance Plan	Units	Comments
EGT		12.6	11.25	1000 lbs. throughput/hr.	All production from Processes A and B assumed to pass through this equipment.
FIF		15	15	1000 lbs. throughput/hr.	Estimated maximum production rate based on facility operations.
Heaters		77.5755	77.5755	MM Btu/hr.	BAF inventory of NG combustion units

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
Boilers 1 and 2	-	-	-	-	0.000	5.7	-5.700
Boiler 2A	91.52	MMBtuh	0.000745098	lbs. PM10/MMBtu	0.068	0	0.068
Boiler 3	NA	-	0.3	lbs./hr.	0.300	0	0.300
DHQ	30	1000 lbs. throughput/hr.	0.01502204	lbs. PM10/ 000 lbs. unit process throughput	0.451	0.50	-0.054
DHT	15	1000 lbs. throughput/hr.	0.11	lbs. PM10/ 000 lbs. unit process throughput	1.650	1.85	-0.198
DHU	15	1000 lbs.	0.11	lbs. PM10/ 000 lbs. unit process	1.650	1.85	-0.198

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
		throughput/hr.		throughput			
DHZ	30	1000 lbs. throughput/hr.	0.083	lbs. PM10/ 000 lbs. unit process throughput	2.490	2.79	-0.299
DKV	3.75	1000 lbs. throughput/hr.	0.0935	lbs. PM10/ 000 lbs. unit process throughput	0.351	0.39	-0.042
DKW	3.75	1000 lbs. throughput/hr.	0.003	lbs. PM10/ 000 lbs. unit process throughput	0.011	0.01	-0.001
DXS	30	1000 lbs. throughput/hr.	0.008238899	lbs. PM10/ 000 lbs. unit process throughput	0.247	0.28	-0.030
DUO	30	1000 lbs. throughput/hr.	0.008238899	lbs. PM10/ 000 lbs. unit process throughput	0.247	0.28	-0.030
DPY	30	1000 lbs. throughput/hr.	0.008238899	lbs. PM10/ 000 lbs. unit process throughput	0.247	0.28	-0.030
DPZ	30	1000 lbs. throughput/hr.	0.008238899	lbs. PM10/ 000 lbs. unit process throughput	0.247	0.28	-0.030
DUQ	15	1000 lbs. throughput/hr.	0.11	lbs. PM10/ 000 lbs. unit process throughput	1.650	1.85	-0.198
DUT	15	1000 lbs. throughput/hr.	0.11	lbs. PM10/ 000 lbs. unit process throughput	1.650	1.85	-0.198
DQA	15	1000 lbs. throughput/hr.	0.11	lbs. PM10/ 000 lbs. unit process throughput	1.650	1.85	-0.198
DQB	15	1000 lbs. throughput/hr.	0.11	lbs. PM10/ 000 lbs. unit process throughput	1.650	1.85	-0.198

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
DUV	60	1000 lbs. throughput/hr.	0.019460595	lbs. PM10/ 000 lbs. unit process throughput	1.168	1.31	-0.140
DSO	7.50	1000 lbs. throughput/hr.	0.046	lbs. PM10/ 000 lbs. unit process throughput	0.345	0.39	-0.041
DSK	7.50	1000 lbs. throughput/hr.	0.008	lbs. PM10/ 000 lbs. unit process throughput	0.060	0.07	-0.007
DUY	7.50	1000 lbs. throughput/hr.	0.003	lbs. PM10/ 000 lbs. unit process throughput	0.023	0.03	-0.003
DUZ	7.50	1000 lbs. throughput/hr.	0.003	lbs. PM10/ 000 lbs. unit process throughput	0.023	0.03	-0.003
DRY	7.50	1000 lbs. throughput/hr.	0.004	lbs. PM10/ 000 lbs. unit process throughput	0.030	0.03	-0.004
ALB	2.47	1000 lbs. throughput/hr.	0.055	lbs. PM10/ 000 lbs. unit process throughput	0.136	0.14	-0.002
ALQ	2.47	1000 lbs. throughput/hr.	0.035	lbs. PM10/ 000 lbs. unit process throughput	0.086	0.09	-0.001
ALT	2.47	1000 lbs. throughput/hr.	0.004	lbs. PM10/ 000 lbs. unit process throughput	0.010	0.01	0.000
ALY	2.47	1000 lbs. throughput/hr.	0.00075	lbs. PM10/ 000 lbs. unit process throughput	0.002	0.00	0.000
ALV	3.65	1000 lbs. throughput/hr.	0.055	lbs. PM10/ 000 lbs. unit process throughput	0.201	0.20	-0.003
ALW	3.65	1000 lbs.	0.035	lbs. PM10/ 000 lbs. unit process	0.128	0.13	-0.002

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
		throughput/hr.		throughput			
ALX	3.65	1000 lbs. throughput/hr.	0.004	lbs. PM10/ 000 lbs. unit process throughput	0.015	0.01	0.000
AEV	3.25	1000 lbs. throughput/hr.	0.055	lbs. PM10/ 000 lbs. unit process throughput	0.179	0.18	-0.003
AEW	3.25	1000 lbs. throughput/hr.	0.039	lbs. PM10/ 000 lbs. unit process throughput	0.127	0.13	-0.002
AGQ	3.25	1000 lbs. throughput/hr.	0.00075	lbs. PM10/ 000 lbs. unit process throughput	0.002	0.00	0.000
CIR_RTC	11.04	1000 lbs. throughput/hr.	0.0461	lbs. PM10/ 000 lbs. unit process throughput	0.509	0.55	-0.044
CHV	11.04	1000 lbs. throughput/hr.	0.00075	lbs. PM10/ 000 lbs. unit process throughput	0.008	0.01	-0.001
CXX	6.88	1000 lbs. throughput/hr.	0.343	lbs. PM10/ 000 lbs. unit process throughput	2.358	2.57	-0.214
CYY	6.88	1000 lbs. throughput/hr.	0.327	lbs. PM10/ 000 lbs. unit process throughput	2.248	2.45	-0.204
CHX	3.21	1000 lbs. throughput/hr.	0.189740143	lbs. PM10/ 000 lbs. unit process throughput	0.609	0.53	0.077
CHY	3.21	1000 lbs. throughput/hr.	0.063367466	lbs. PM10/ 000 lbs. unit process throughput	0.203	0.18	0.026
CHZ	3.21	1000 lbs. throughput/hr.	0.032592068	lbs. PM10/ 000 lbs. unit process throughput	0.105	0.09	0.013

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
TEE	3.21	1000 lbs. throughput/hr.	0.008954373	lbs. PM10/ 000 lbs. unit process throughput	0.029	0.03	0.004
TEM	3.21	1000 lbs. throughput/hr.	0.008954373	lbs. PM10/ 000 lbs. unit process throughput	0.029	0.03	0.004
HEB	3.33	1000 lbs. throughput/hr.	0.64	lbs. PM10/ 000 lbs. unit process throughput	2.133	2.24	-0.107
HNL	3.33	1000 lbs. throughput/hr.	0.142	lbs. PM10/ 000 lbs. unit process throughput	0.473	0.50	-0.024
CBB	2.50	1000 lbs. throughput/hr.	0.101221193	lbs. PM10/ 000 lbs. unit process throughput	0.253	0.20	0.051
CTQ	2.50	1000 lbs. throughput/hr.	0.080503972	lbs. PM10/ 000 lbs. unit process throughput	0.201	0.16	0.040
CTR	2.50	1000 lbs. throughput/hr.	0.077797642	lbs. PM10/ 000 lbs. unit process throughput	0.194	0.16	0.039
CTS	2.50	1000 lbs. throughput/hr.	0.023847917	lbs. PM10/ 000 lbs. unit process throughput	0.060	0.05	0.012
CTT	2.50	1000 lbs. throughput/hr.	0.020243562	lbs. PM10/ 000 lbs. unit process throughput	0.051	0.04	0.010
CNV	3.75	1000 lbs. throughput/hr.	0.074136553	lbs. PM10/ 000 lbs. unit process throughput	0.278	0.21	0.070
CNW	3.75	1000 lbs. throughput/hr.	0.07514516	lbs. PM10/ 000 lbs. unit process throughput	0.282	0.21	0.071
CTU	3.75	1000 lbs.	0.504812834	lbs. PM10/ 000 lbs. unit process	1.893	1.41	0.480

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
		throughput/hr.		throughput			
CTZ	3.75	1000 lbs. throughput/hr.	0.127905452	lbs. PM10/ 000 lbs. unit process throughput	0.480	0.36	0.122
NND	2.92	1000 lbs. throughput/hr.	0.079840955	lbs. PM10/ 000 lbs. unit process throughput	0.233	0.00	0.233
NNG	2.92	1000 lbs. throughput/hr.	0.223759045	lbs. PM10/ 000 lbs. unit process throughput (uncontrolled)	0.653	0.00	0.653
TCD	1.00	1000 lbs. throughput/hr.	0.034224	lbs. PM10/ 000 lbs. unit process throughput	0.034	0.03	0.000
TCO	1.00	1000 lbs. throughput/hr.	0.034224	lbs. PM10/ 000 lbs. unit process throughput	0.034	0.03	0.000
TAC	0.40	1000 lbs. throughput/hr.	0.391	lbs. PM10/ 000 lbs. unit process throughput	0.156	0.16	0.000
TAH	0.40	1000 lbs. throughput/hr.	0.391	lbs. PM10/ 000 lbs. unit process throughput	0.156	0.16	0.000
EUW	43.00	1000 lbs. throughput/hr.	0.0001	lbs. PM10/ 000 lbs. unit process throughput	0.004	0.00	0.000
SUF	43.00	1000 lbs. throughput/hr.	0.0001	lbs. PM10/ 000 lbs. unit process throughput	0.004	0.00	0.000
DSX	1.00	1000 lbs. throughput/hr.	0.009	lbs. PM10/ 000 lbs. unit process throughput	0.009	0.01	0.000
EGS	11.25	1000 lbs. throughput/hr.	0.0015	lbs. PM10/ 000 lbs. unit process throughput	0.017	0.02	-0.002

Table 3
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lbs./hr.		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
EGT	11.25	1000 lbs. throughput/hr.	0.0015	lbs. PM10/ 000 lbs. unit process throughput	0.017	0.02	-0.002
FIF	15.00	1000 lbs. throughput/hr.	0.038	lbs. PM10/ 000 lbs. unit process throughput	0.570	0.57	0.000
Heaters	77.58	MM Btu/hr.	0.00745098	lbs. PM10/MM Btu	0.578	0.58	0.000
				Total:	31.95	37.89	-5.94

Table 4.
Emissions from BAPCI Facility Stacks

Source ID	Source Description	PM10 (lbs./hr.)	Comments
EU_01	Processing East Boiler	0.398	Based on NG Firing Only.
EU_02	Processing West Boiler	0.302	
EU_06	Re-blend Rm Air Makeup	0.007	
EU_07	Scratch Match Air Makeup	0.037	
EU_08	Bld #3 Air Makeup	0.022	
EU_09	Bld #4 Air Makeup	0.075	
EU_10	Process Peeler exhaust	0.160	
EU_11	Flaker #1	3.794	
EU_12	Flaker #2	3.794	
EU_13	Flaker #3	3.035	
EU_14	Flaker #4	3.035	
EU_15	Flaker #5	3.035	
EU_16	Grinding Circuit #1 baghouse	0.000	
EU_18	Grinding Circuit #2 baghouse	0.001	
EU_19	Flaker Baghouse	0.001	
EU_20	Dehy North Boiler	0.078	
EU_21	Dehy South Boiler	0.063	
EU_22	Dehy Dryer #1A-stage	1.468	Emissions unit permanently shut down.
EU_23	Dehy Dryer #1B-stage	0.646	Emissions unit permanently shut down.
EU_24	Dehy Dryer #2A-stage	1.468	
EU_25	Dehy Dryer #2B-stage	0.646	
EU_26	Dehy Dryer #3A-stage	1.468	
EU_27	Dehy Dryer #3B-stage	0.646	
EU_28	Dehy Dryer #4A-stage	1.101	Emissions unit permanently shut down.
EU_29	Dehy Dryer #4B-stage	0.471	Emissions unit permanently shut down.
EU_30	Dehy Dryer #4C-stage	0.471	Emissions unit permanently shut down.
EU_31	Dehy Dryer #5A-stage	1.781	

Table 4.
Emissions from BAPCI Facility Stacks

Source ID	Source Description	PM10 (lbs./hr.)	Comments
EU_32	Dehy Dryer #5B-stage	0.774	
EU_33	Dehy Dryer #5C-stage	0.775	
EU_34	Dehy Bin Dryer - New Burner	0.640	
EU_35	West Area Air Makeup	0.026	
EU_36	S. Dryer Rm 4&5 Air Makeup	0.037	
EU_37	S. Dryer Rm 4&5 Roof Air Makeup	0.037	
EU_38	Inspection Rm Roof Air Makeup	0.026	
EU_39	Dehydration Research Dryer	0.182	
EU_40	Packaging Baghouse #1	0.000	
EU_41	Packaging Baghouse #2	0.000	
EU_42	Crush Room Baghouse #1	0.000	
EU_43	Crush Room Baghouse #2	0.000	
EU_44	Dehy Steam Peeler	0.160	
EU_45	Dehy Dryer #6A-stage	0.670	
EU_46	Dehy Dryer #6B-stage	0.147	
EU_47	Dehy Dryer #6C-stage	0.147	
EU_48	Dryer #6 Air Makeup Unit	0.026	
EU_68	New Air Makeup Unit	0.025	New unit.

FIGURES

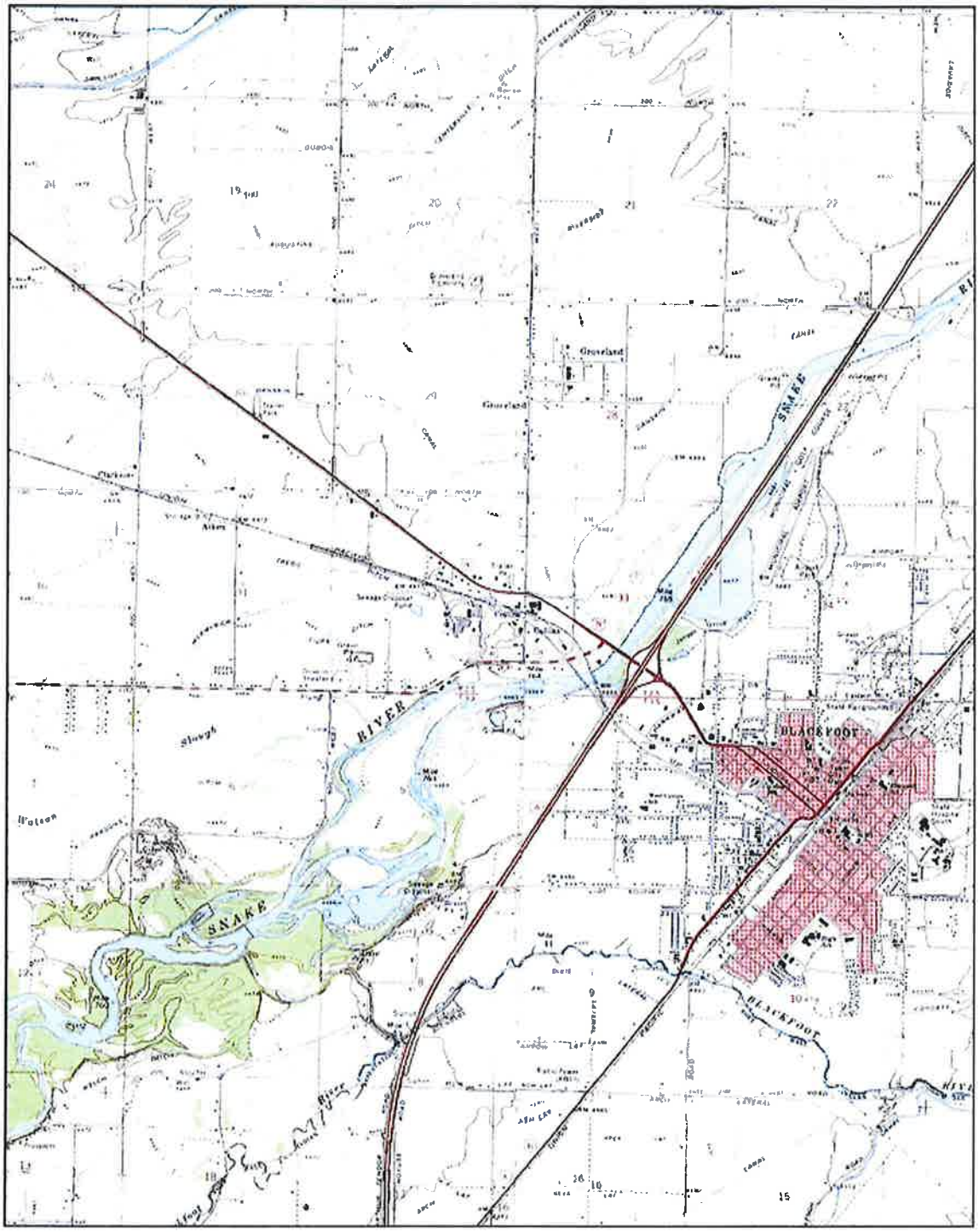


Figure 1
Site Map

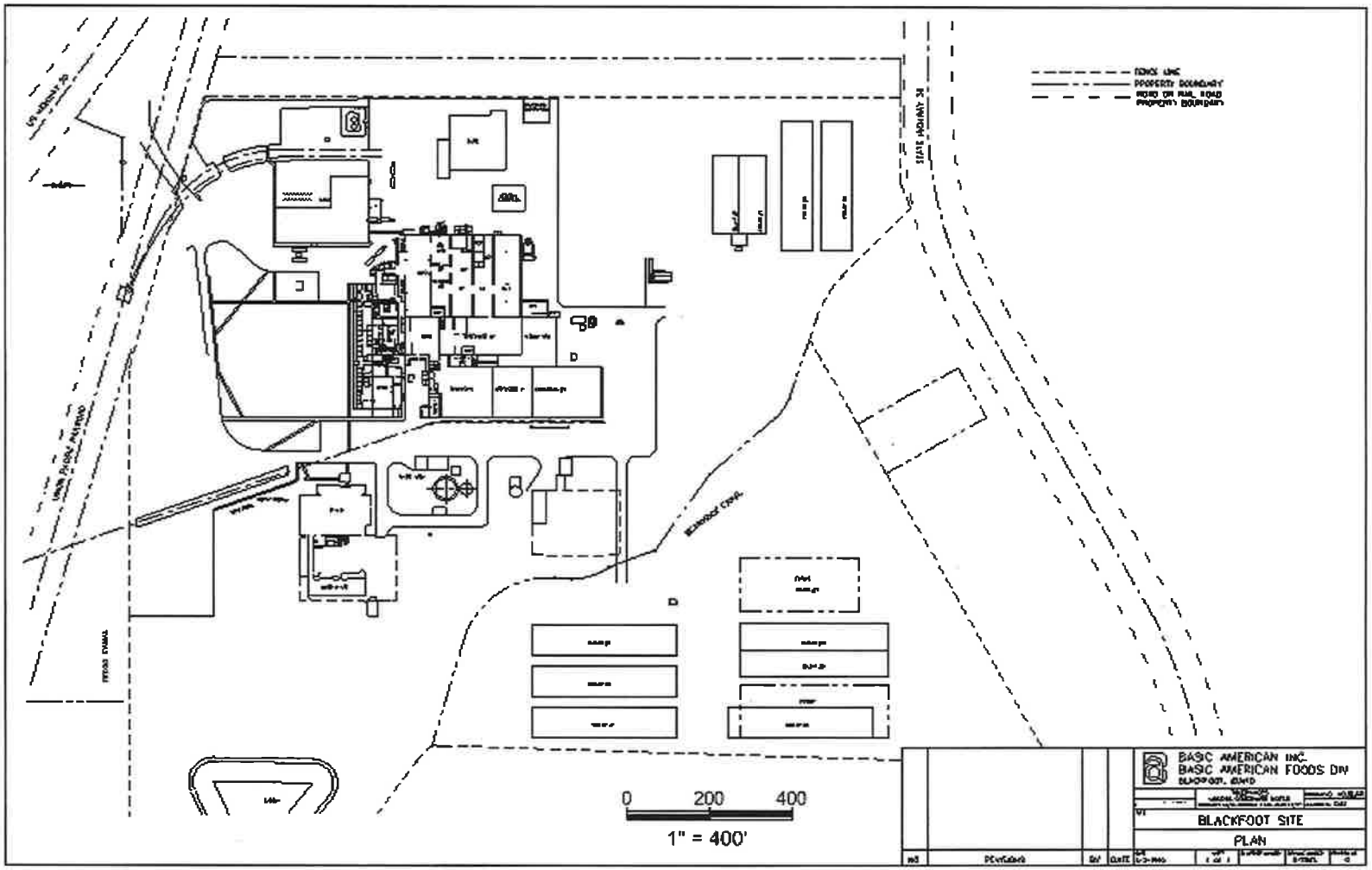


Figure 2
Blackfoot Plant Site Plan

APPENDIX A

REASSESSMENT OF POTENTIAL MAXIMUM PRODUCTION LINE OPERATING RATES AT BAF FACILITY

APPENDIX A

REASSESSMENT OF POTENTIAL MAXIMUM PRODUCTION LINE OPERATING RATES

Most of BAF's production lines use custom built equipment for which there are no "design" or "nameplate" operating rates. The custom nature of BAF's production operations means that operation is equal parts "art" and "science", and as experience is gained in operating a given production line, ways of operating the production line are usually discovered. Given this context BAF has traditionally estimated maximum operating rates for production lines based on interviews with production personnel as to what they considered the maximum capacity of their production line might be, with an arbitrary (and often generous) safety factor added to that estimate to account for future process improvements. In preparing estimates of potential to emit BAF has deliberately attempted to err conservatively high to minimize potential issues associated with underestimating facility emissions.

As part of its review of facility emissions in preparing this alternate compliance plan, BAF scrutinized plant production capability in greater detail. BAF first noted that the summation of individual production line operating rates greatly exceeded the facility's ability to manage raw material inputs and product outputs; it was clearly impossible for the plant to operate in the manner it was assumed to be operating under the current compliance plan. BAF next assembled production data for the last 20+ years of plant operations for the various plant production lines.[1] This 20-year operating record provides a much more rigorous and accurate basis for estimating maximum operating rates than the previous procedure for estimating maximum production rates.

Using the 20-year production data BAF identified true maximum line operating rates, and then added realistic safety factors on to those rates to revise maximum process operating rates. These rates were then used in calculating a revised emissions inventory for compliance demonstration purposes. The development of these revised operating rates is presented below.

COMPARISON OF MODELED AND ACTUAL PRODUCTION RATES

As noted previously, BAF has historically estimated maximum operating rates on a production line-by-production line basis. Maximum potential operating rates have been largely based on interviews with production personnel as to what they considered the maximum capacity of a line might be, with an arbitrary (and often generous) safety factor added to that estimate. Given the inherent uncertainties in this approach and BAF's desire to avoid potential liabilities resulting from underestimating facility emissions, BAF has attempted to be conservative (high) in its estimates.

Total facility emissions were then identified by summing together the maximum rates developed for each production line. Implicitly, this assumes that each production line is simultaneously operating at its maximum rate, with all safety factors also consumed. While this might be a reasonable approach for a facility with only one or two production lines, in a facility with multiple production lines that have fluctuating operating rates, this can lead to unrealistic operating assumptions.

Figure B-1 compares "permitted" operating rates[2] for the Blackfoot Facility with actual operating rates for January 1, 1997 through June 3, 2017 (20+ years of record). As Figure B-1 shows, during this period actual operating rates have generally been 50% or less of operating rates used to determine facility potential to emit for particulate emissions. This analysis confirms that BAF's traditional

[1] From January 1, 1997 through June 30, 2017.

[2] Facility permits do not include specific production limits. The "maximum permit production" values are the production rates included in emissions inventories identifying facility potential to emit fir particulate emissions..

assumptions about maximum facility greatly overstate potential operations. Because potential particulate emissions are directly related to assumed operating rates, it follows that BAF's estimates of potential emissions have also been overstated.

To prepare accurate estimates of operations rates BAF undertook a review of 20+ years of operating data for production lines at the Blackfoot Facility, from January 1, 1997 through June 30, 2017. This gives a true picture of potential operating rates for the processes. Figures B-2 through B-11 present the results of this historical review for each production line.

Based on the data presented in these figures BAF selected realistic operating rates for each line, based on maximum historic operations, plus a margin of safety. The selected maximum production rates are shown on Figures B-2 through B-11 as red lines. The margin of safety varies among the production lines, depending on the degree of operational history that BAF has with the line. Production lines that BAF has operated for many years, such as Processes A and B, are very well defined and characterized, and have been largely debottlenecked. Conversely, with newer production lines, BAF has not had the same history to become familiar with line operations, nor have there been the same opportunities for debottlenecking and optimization. In such cases, a greater safety factor is provided.

Table 1 summarizes information on each production line, showing historic maximum rate, what BAF believes to be the "true" maximum potential operating rate, and the "safety factor" embedded in the assumed maximum operating rate. The maximum potential operating rate identified in Table 1 are used in BAF's Alternate PM10 Compliance Plan to provide more accurate estimates of potential PM10 emissions than the unrealistic operating rates embedded in the current compliance PM10 compliance plan.

The information contained in this appendix (through 2013) was presented to DEQ in a meeting that took place on January 10, 2013 with Mike Simon Bill Rogers, and Kevin Schilling. Based upon the information, Mr. Rogers and Mr. Simon concurred that BAF's prior estimates of maximum were unnecessarily conservative and that the Revised Maximum Production Rates shown in Table 1 provided reasonable estimates of potential facility emissions for use in facility permitting and ambient impact. Consistent with this guidance, BAF has used these emissions estimates in creating its alternate compliance plan.

Tables

Table B-1
Comparison of Highest Actual Daily Production with Revised Maximum Production Rates

Production Line Identification	Highest Actual Daily Production, lbs/day	Revised Maximum Production Rate*, lbs/day	"Safety Factor"
A and B (Combined)	253,230	270,000	6.2%
C-1	243,100	265,000	8.3%
C-2	206,400	225,000	8.3%
C-3	150,812	165,000	8.6%
C-4	68,748	77,000	10.7%
C-5	53,550	60,000	10.8%
C-6	74,750	90,000	16.9%
C-7	76,950	80,000	3.8%
C-8	-	70000	
C-RD1	22,080	24,000	8.0%

* The revised maximum production rate is the rate used in BAF's Alternate PM10 Compliance Plan for the Blackfoot Facility.

Figures

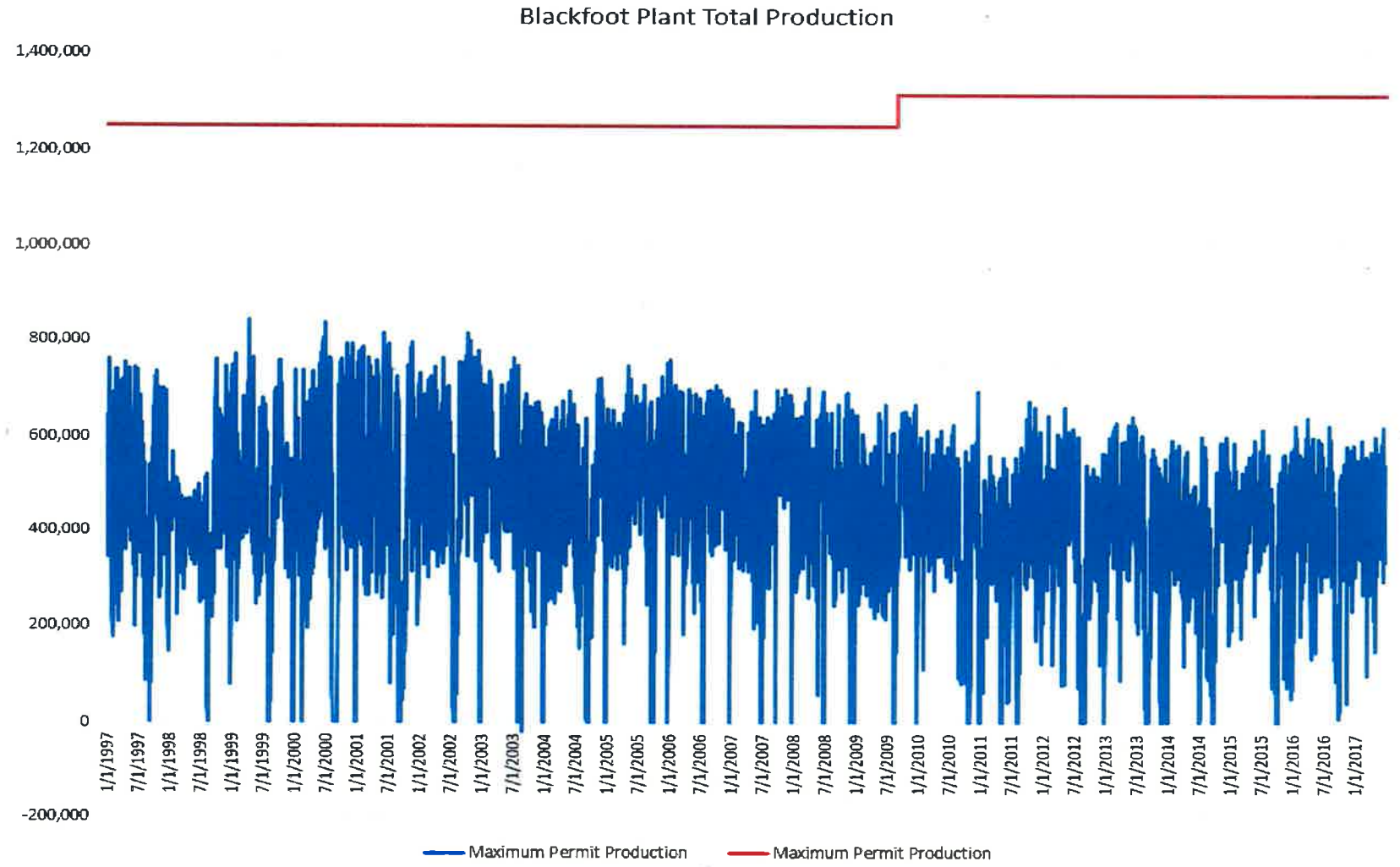


Figure B-1

Blackfoot Facility Permitted and Actual Production Rates – 1/1/1997 through 6/30/2017

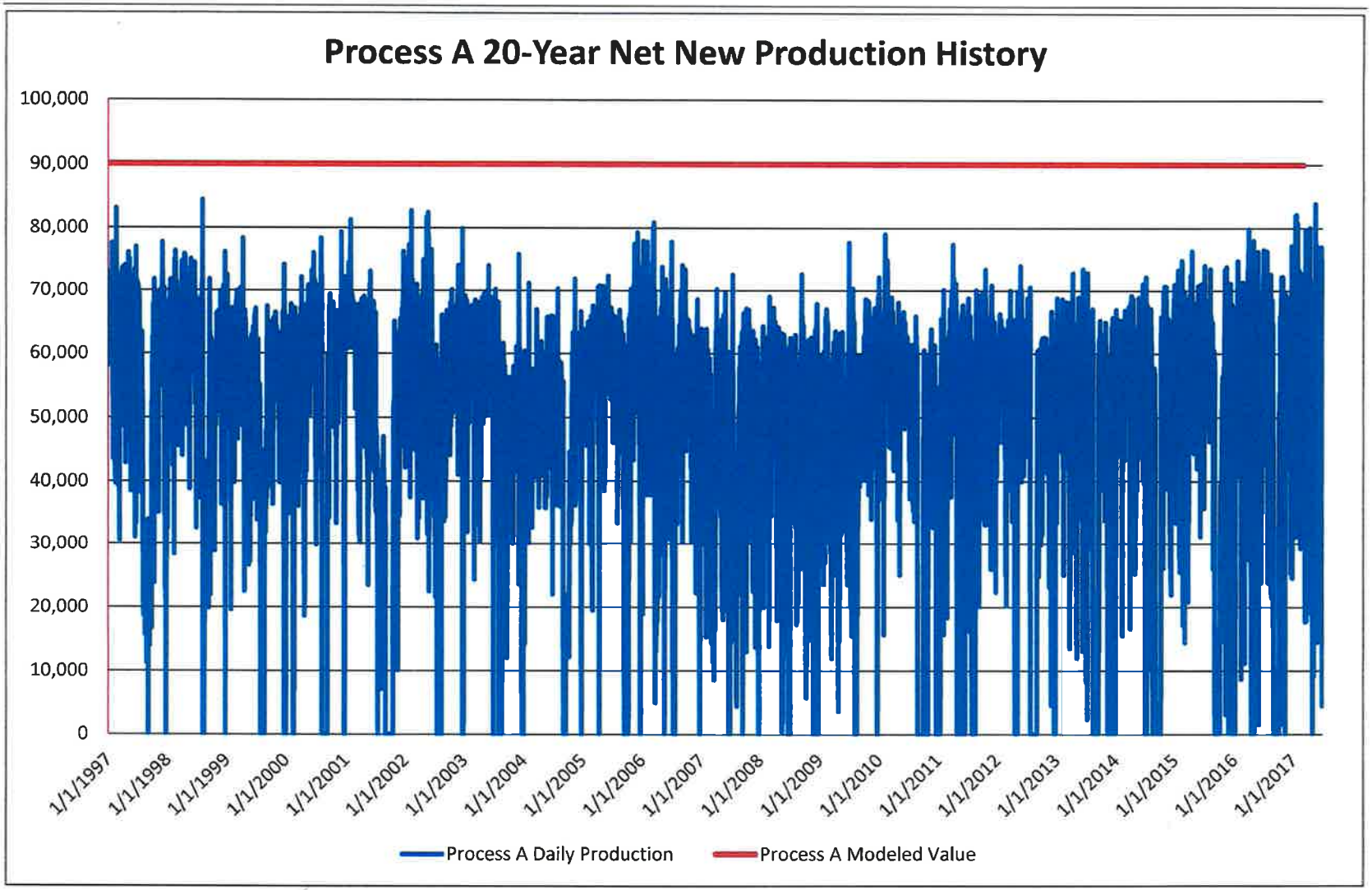


Figure B-2
Process A Production History – 1997 through 2017

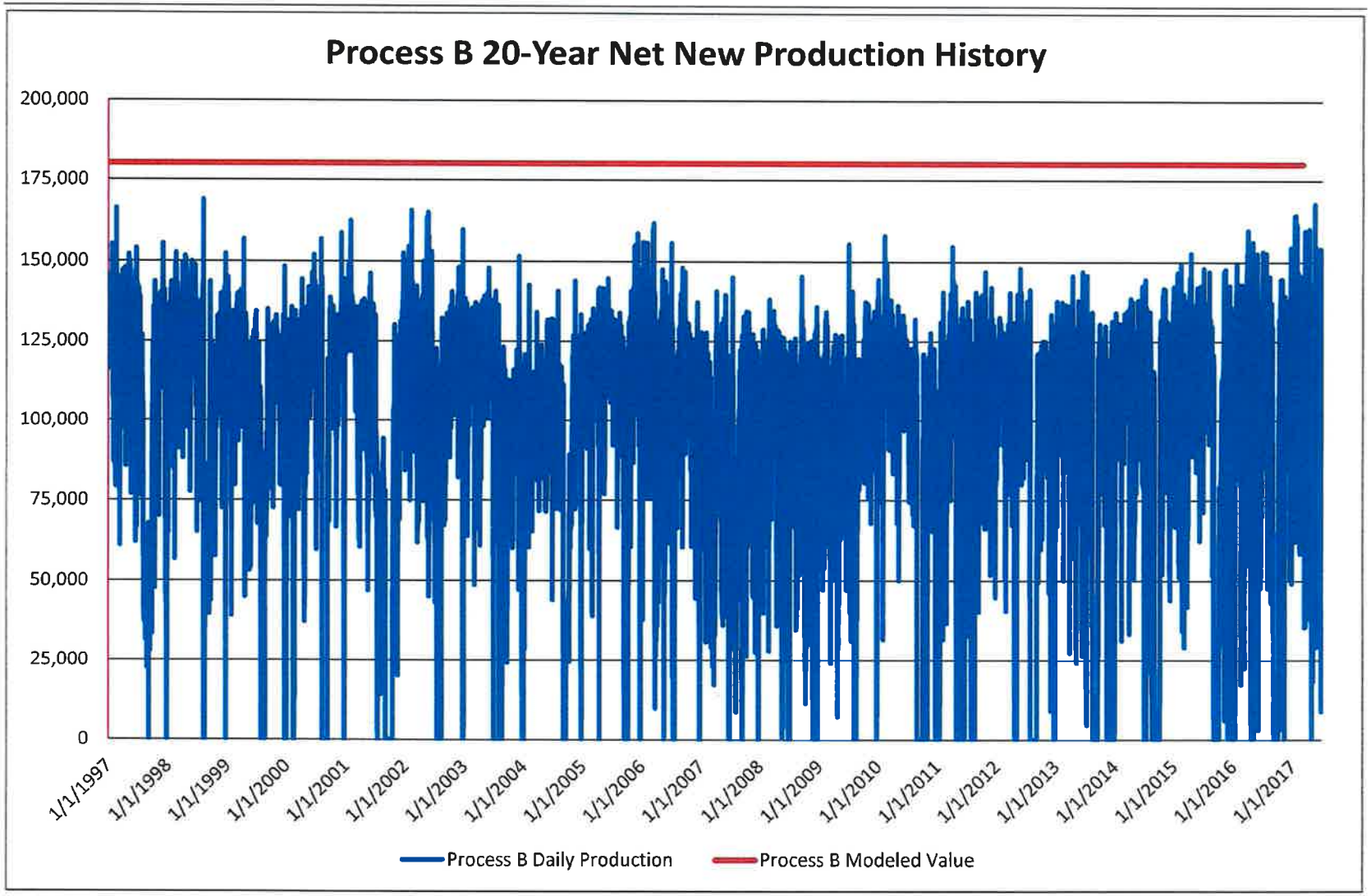


Figure B-3
Process B Production History – 1997 through 2017

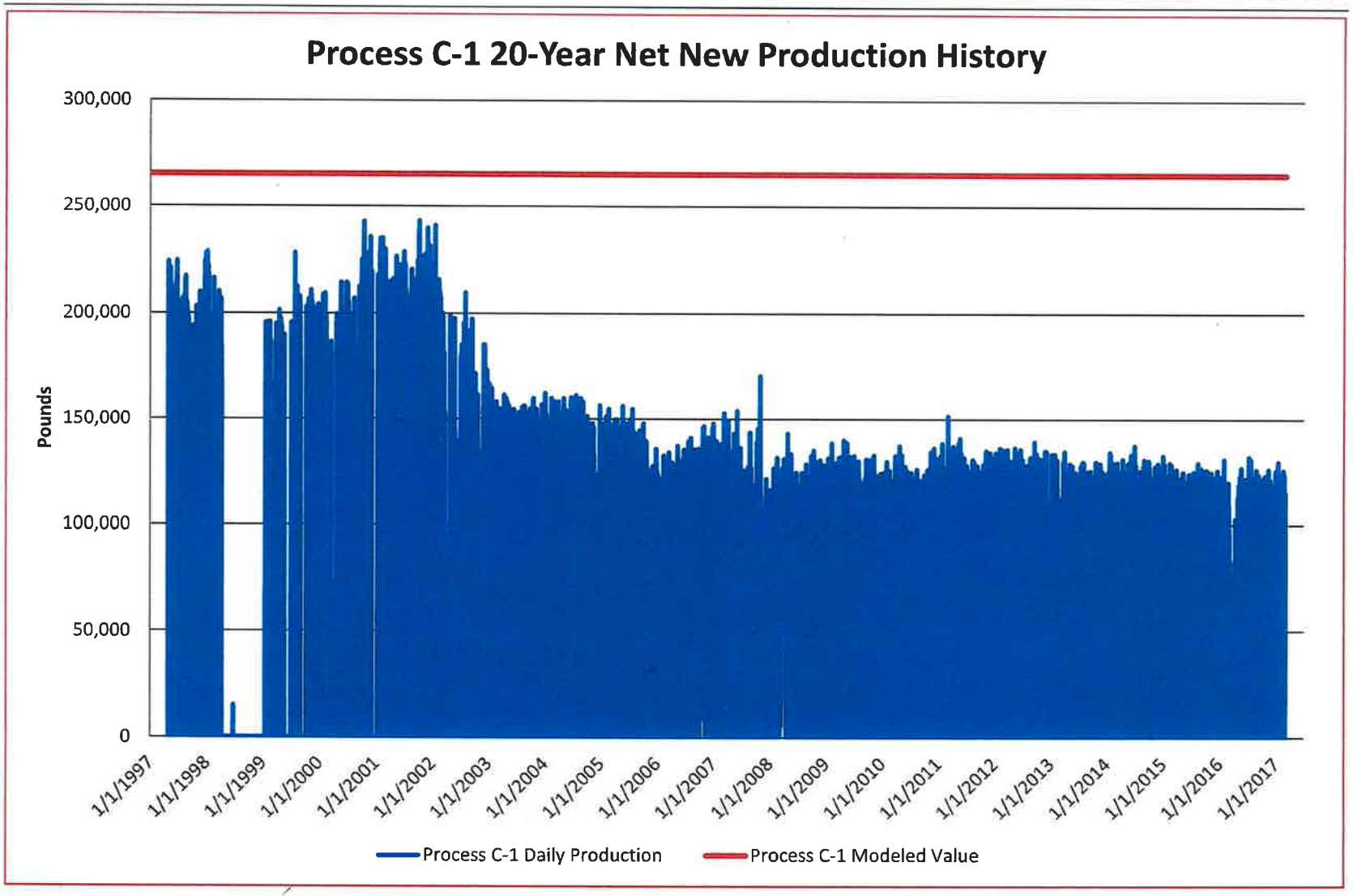


Figure B-4
Process C-1 Production History – 1997 through 2017

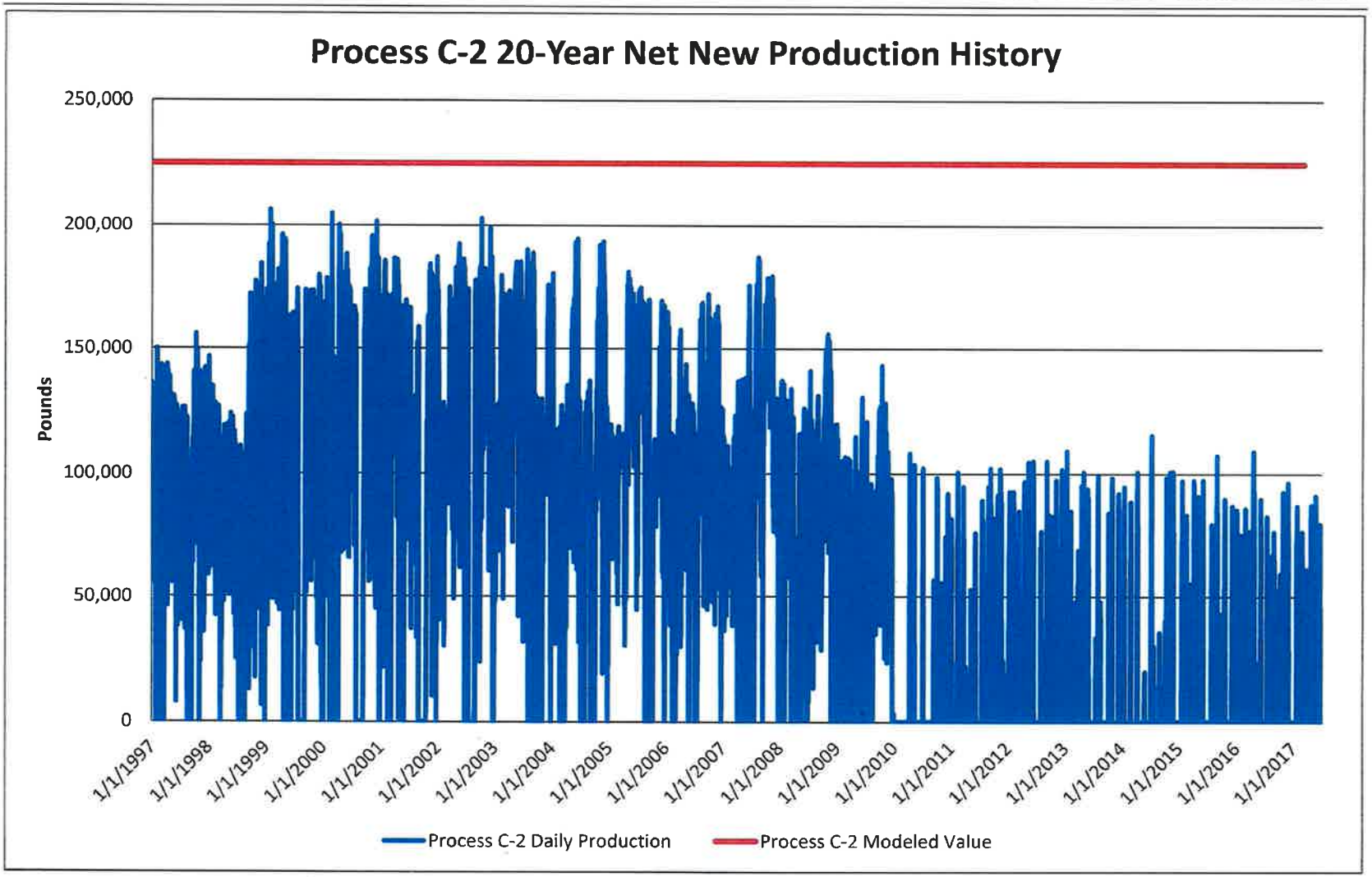


Figure B-5
Process C-2 Production History – 1997 through 2017

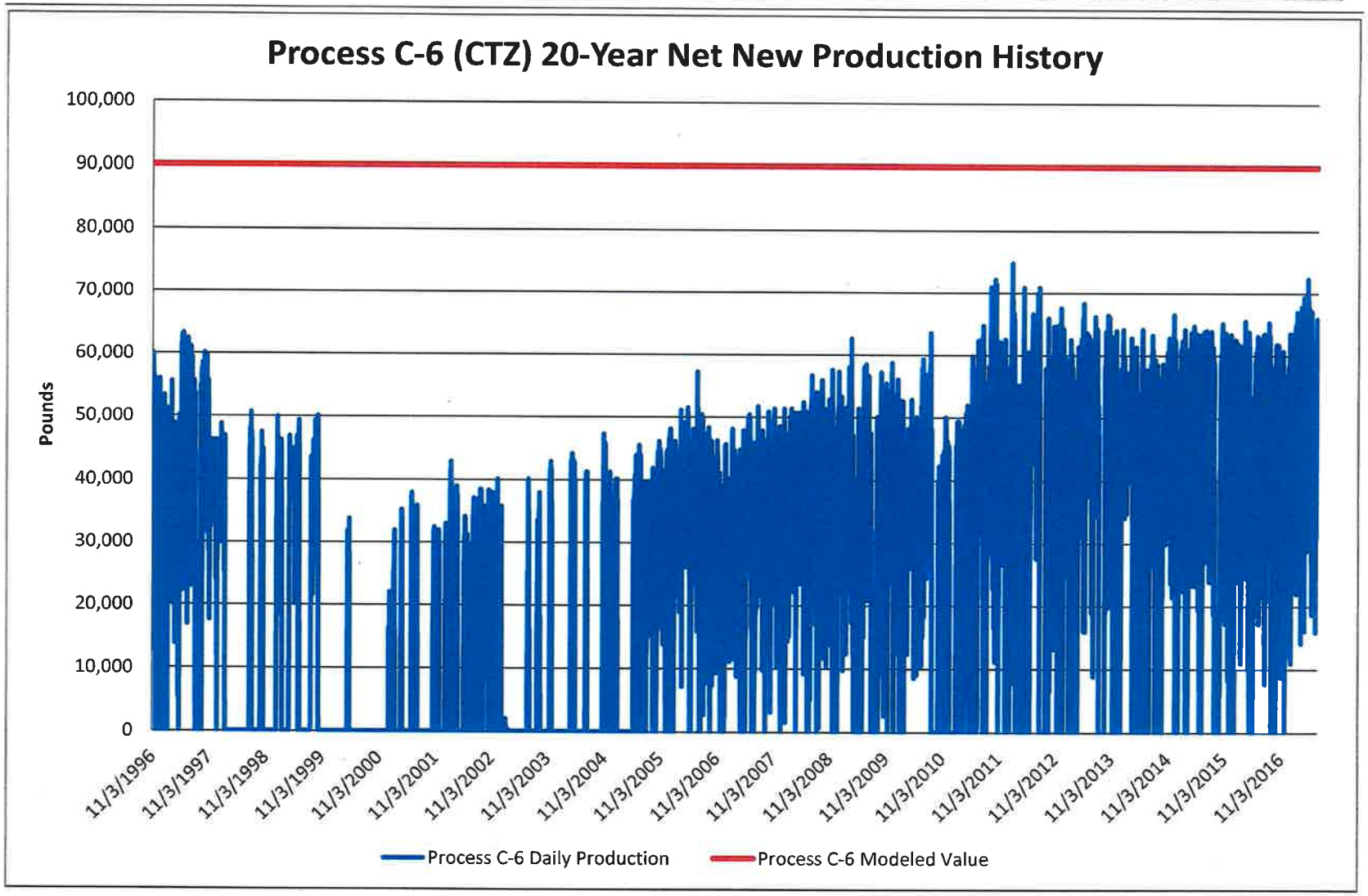


Figure B-6
Process C-3 Production History – 1997 through 2017

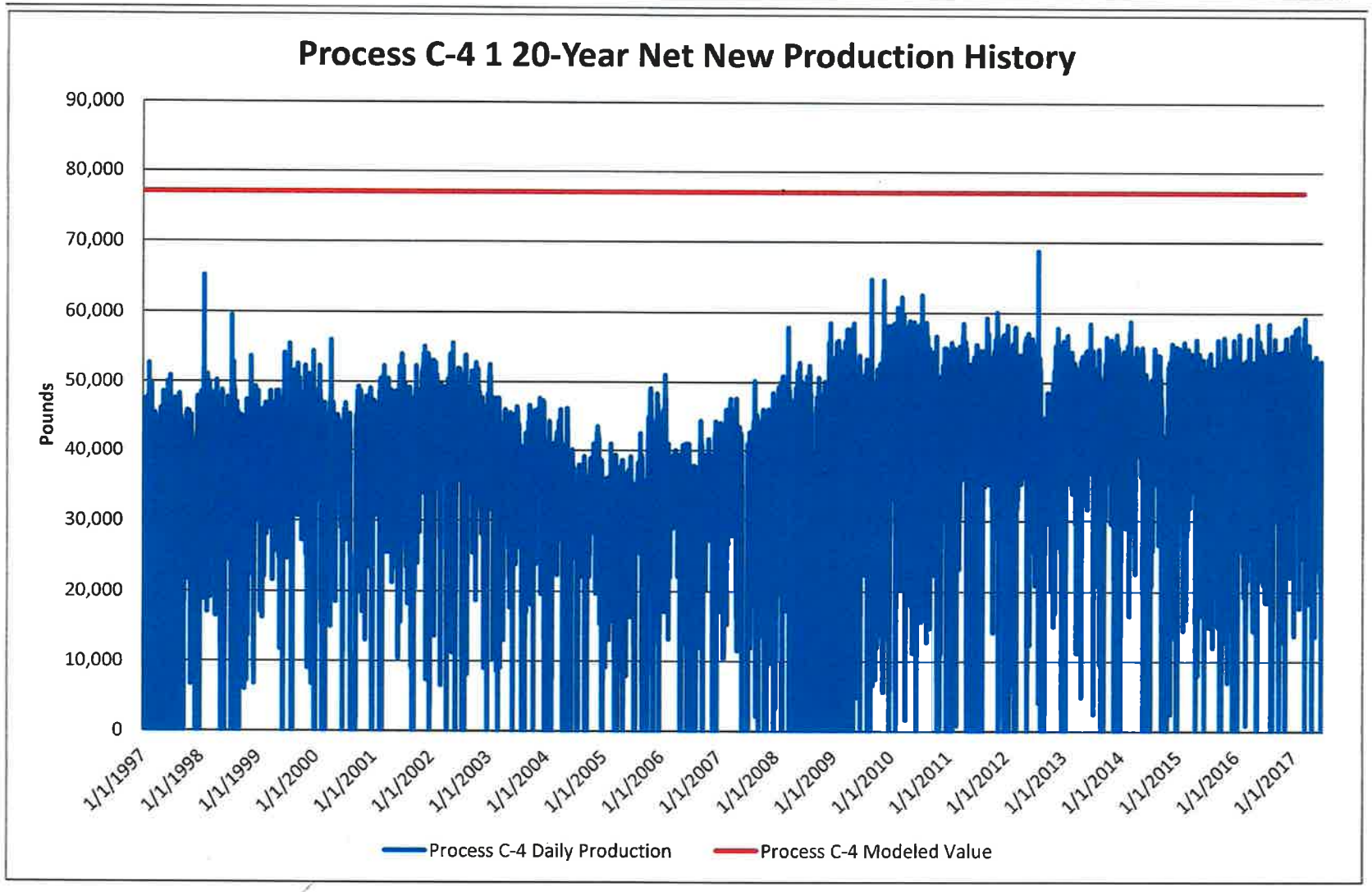


Figure B-7
Process C-4 Production History – 1997 through 2017

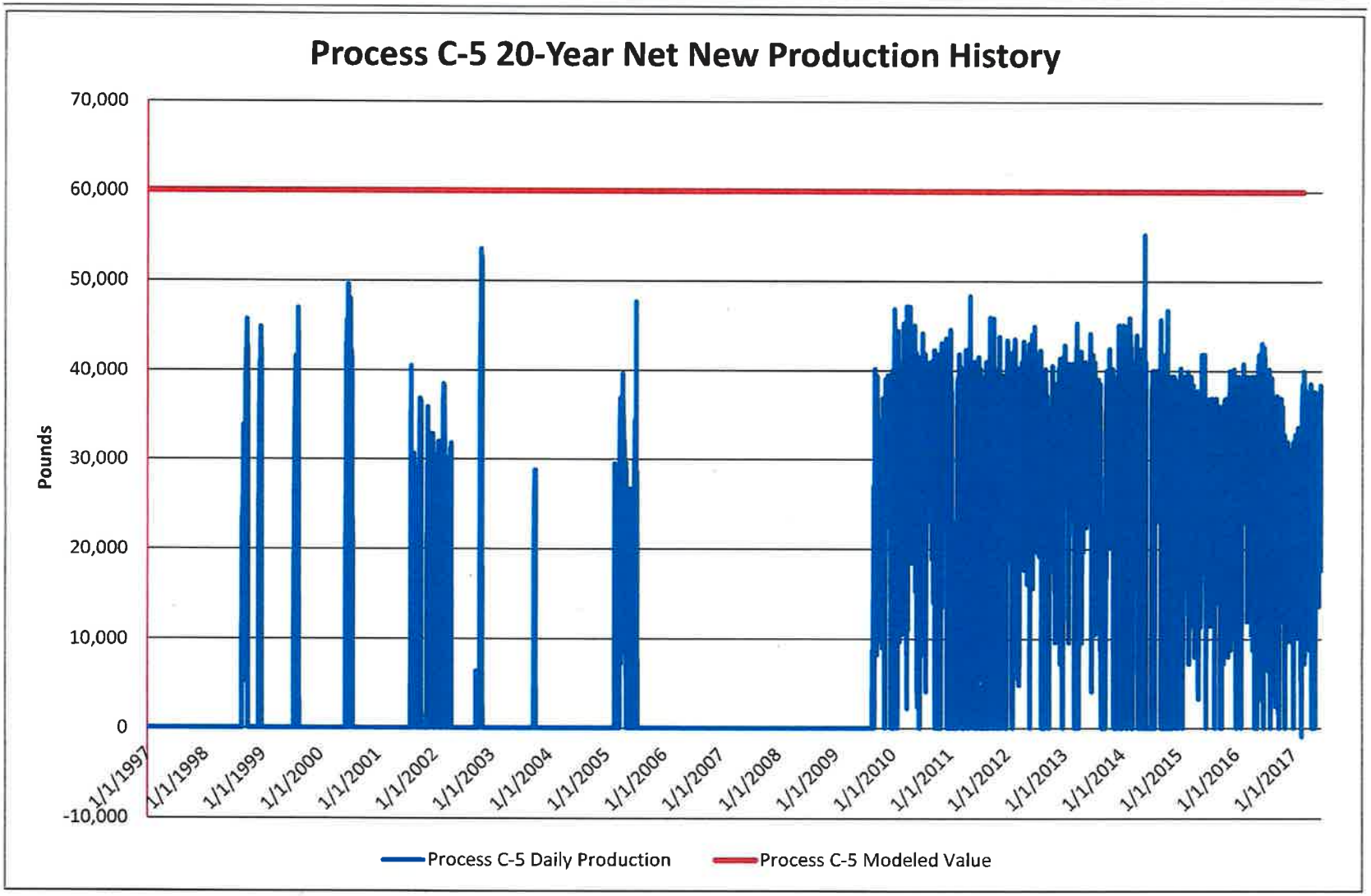


Figure B-8
Process C-5 Production History – 1997 through 2017

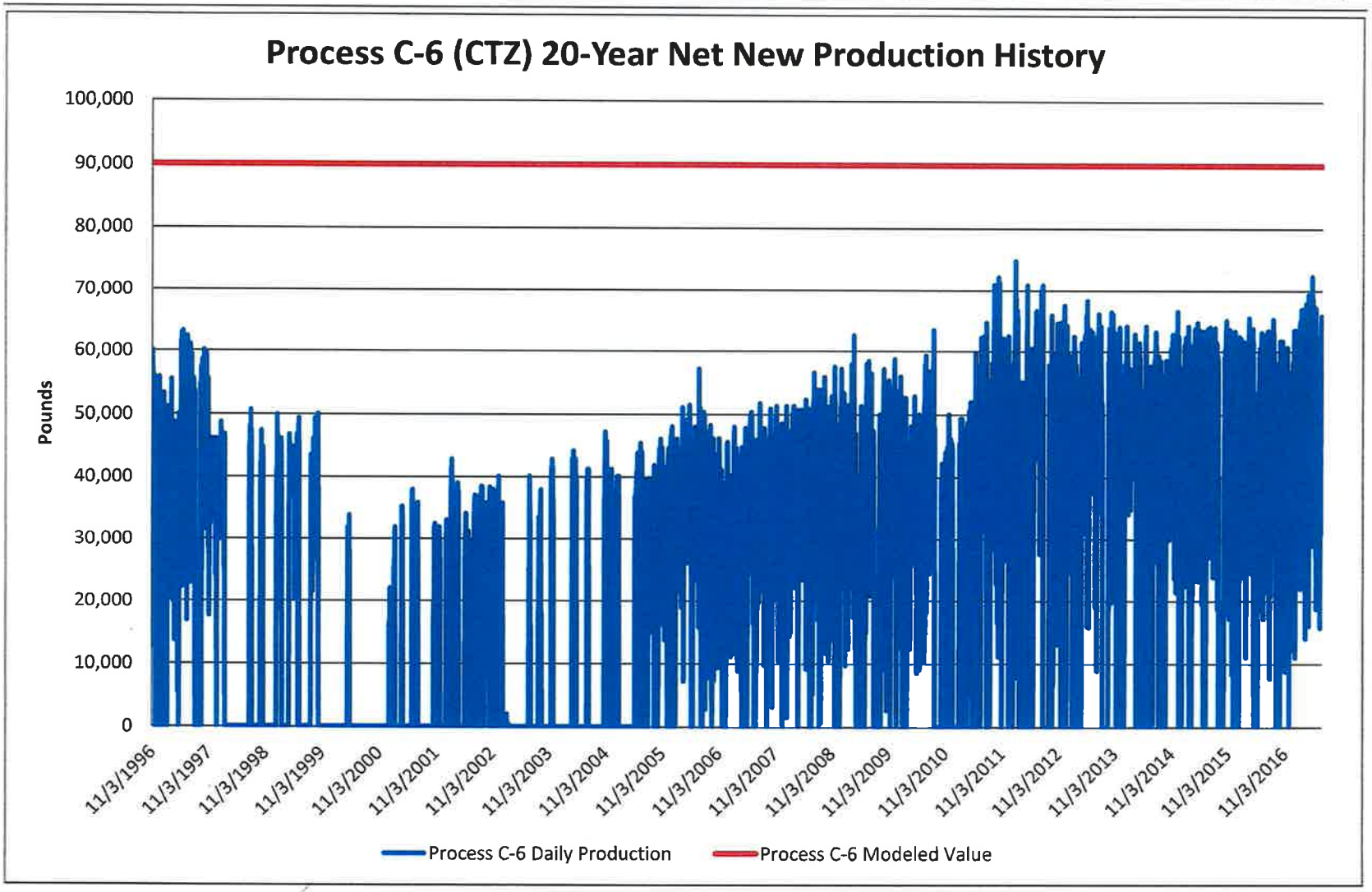


Figure B-9
Process C-6 Production History – 1997 through 2017

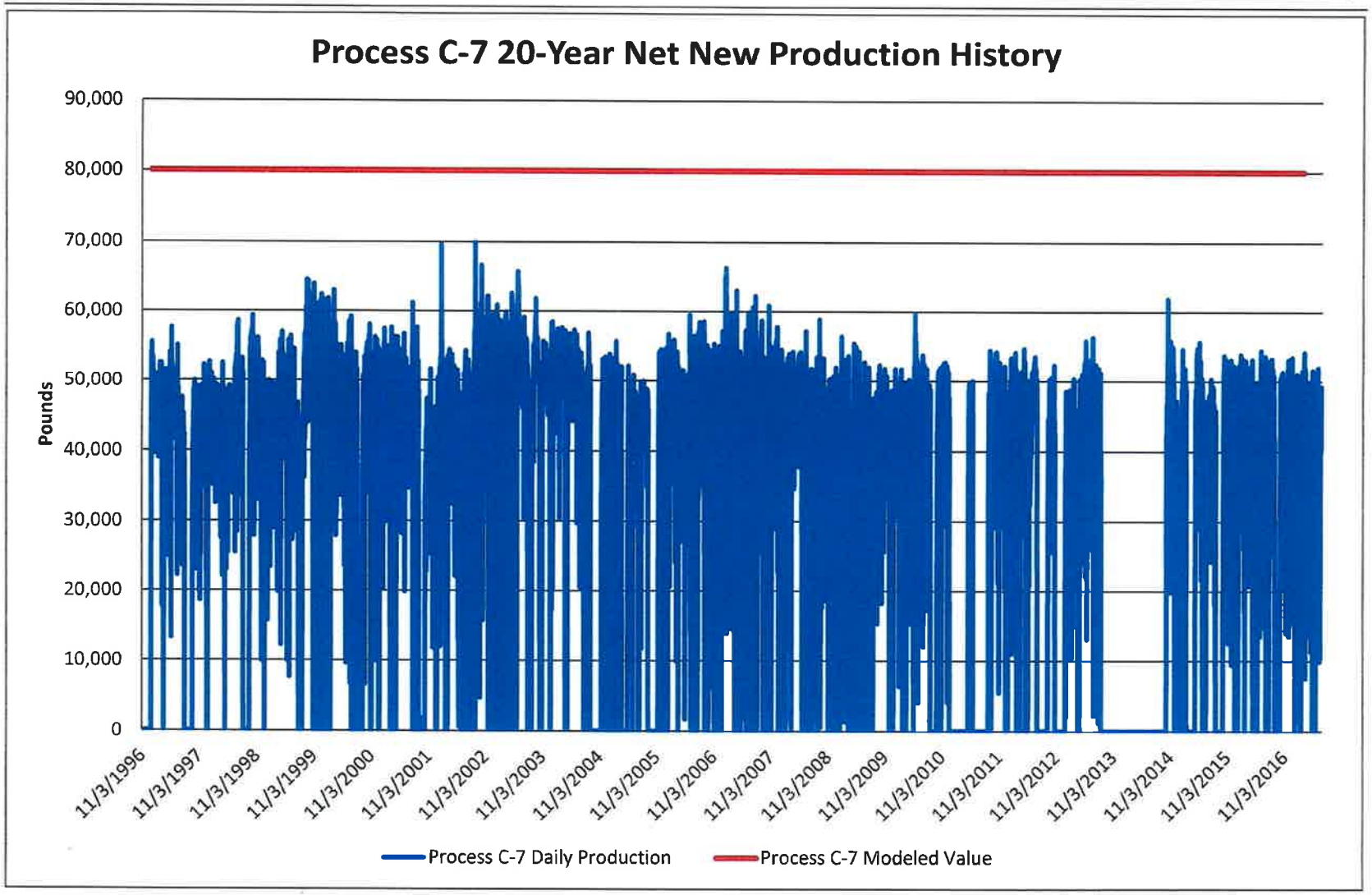


Figure B-10
Process C-7 Production History – 1997 through 2017

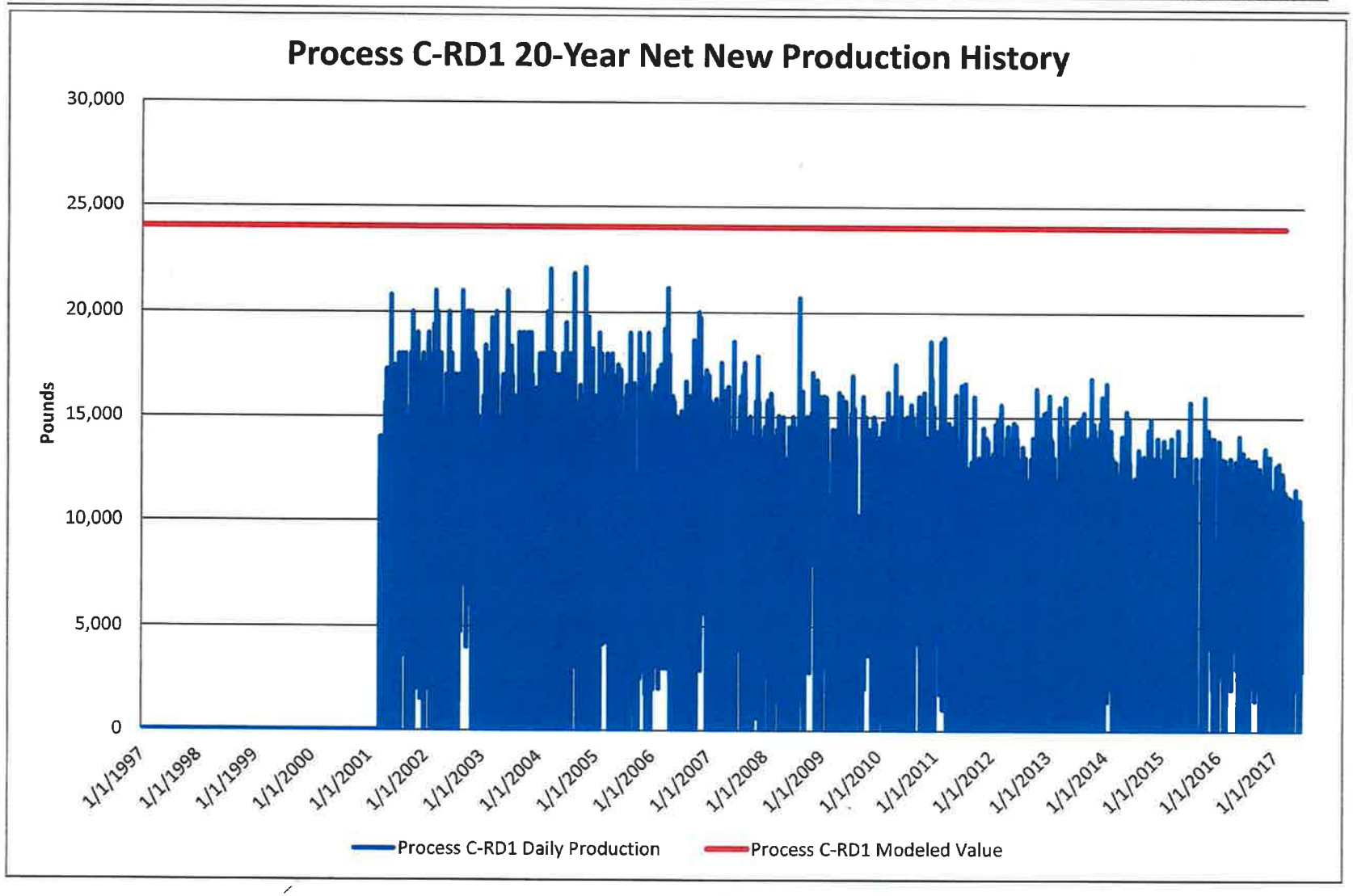


Figure B-11
Process C-RD1 Production History – 1997 through 2017

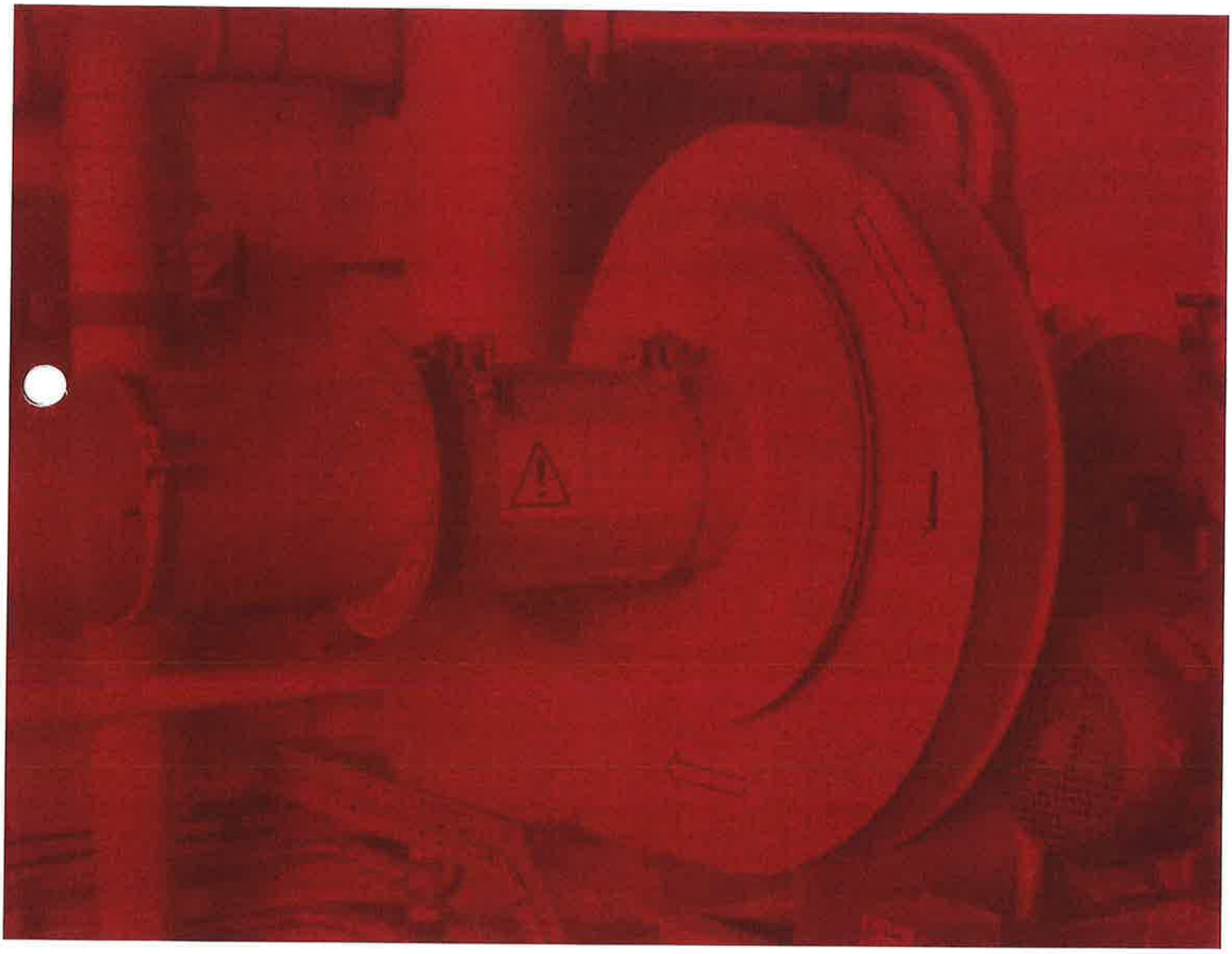
APPENDIX B

ROTOCLONE PRODUCT BROCHURE

RotoClone™ W

Wet Dust Collector

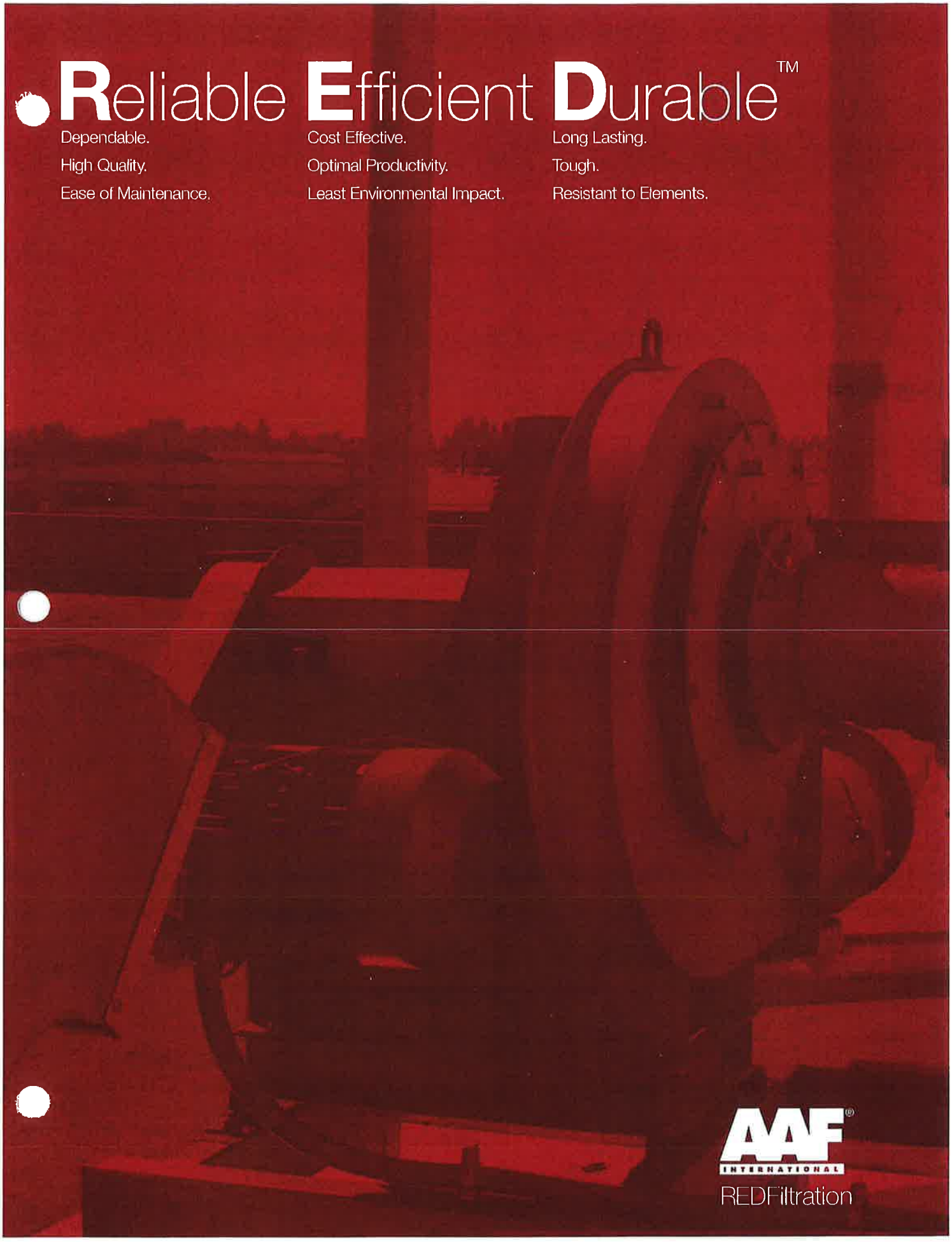
Leading the Way in Wet Dust Collection Technology



POWERED BY
REDClean™ Technology

AAF INTERNATIONAL
BETTER AIR IS OUR BUSINESS™

RF
REDFiltration™
Reliable Efficient Durable™


Reliable Efficient Durable™
Dependable.
High Quality.
Ease of Maintenance.
Cost Effective.
Optimal Productivity.
Least Environmental Impact.
Long Lasting.
Tough.
Resistant to Elements.
AAF INTERNATIONAL
REDFiltration

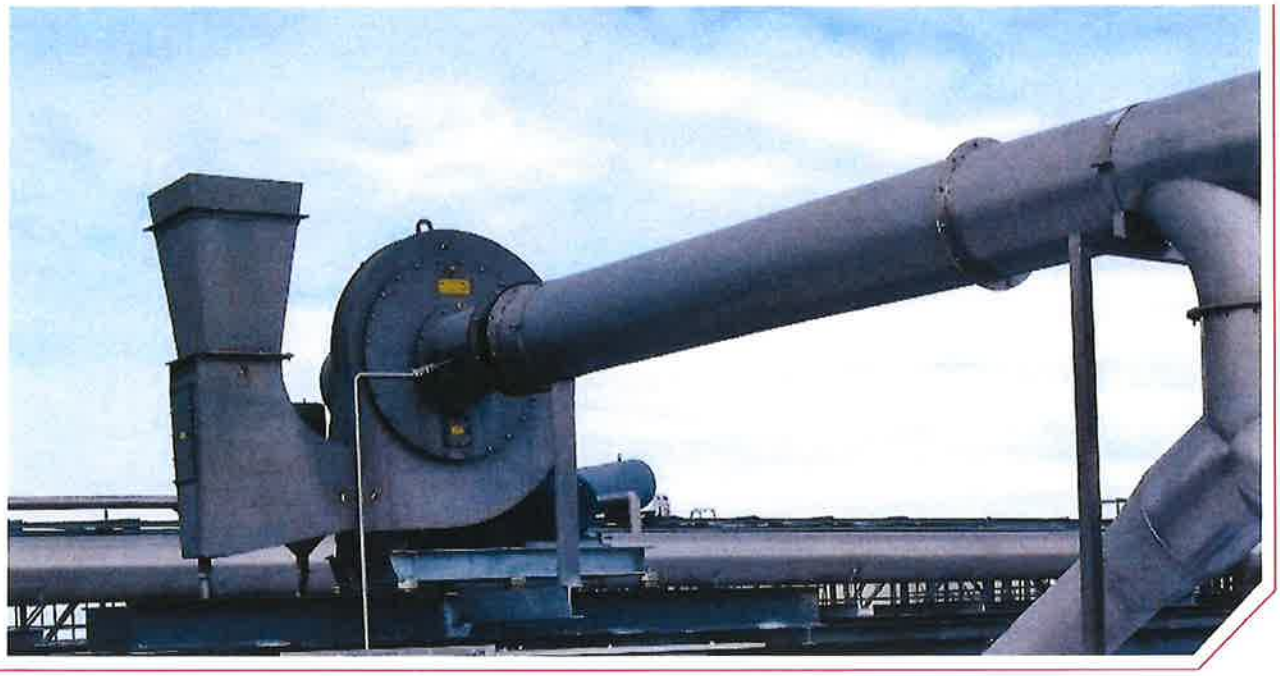
The Evolution of REDFiltration™

For more than 90 years, AAF International has been providing filtration solutions for industrial processes around the world.

Throughout our rich history, AAF International has pioneered many of the techniques used today to control airborne dust, fume and vapor in virtually every production process. Our constant passion for innovative solutions has led us to offer the most reliable, efficient and durable products available on the market today.

AAF International, a member of DAIKIN Group, also believes in valuing our people, communities and environment. Our ISO 9001 certified facilities utilize lean and green manufacturing to deliver products with short lead times and minimal environmental impact. Our people centered management philosophy enables us to deliver the best customer service and also give back to the communities in which we serve and live.

Trust the Power of RED



The RotoClone™ Advantage

The RotoClone™ W is the most cost-effective, high-efficiency wet dust collector in its class. It combines a dust collector with a centrifugal fan, saving space and making it suitable for a wide variety of different applications. The distinguishing feature of the RotoClone™ W is the addition of a fine water film on the impeller blades to capture even the smallest of dust particles.

Benefits

- Low installation cost
- Provides continuous operation
- Constant exhaust volume
- Small space requirements
- Versatility
- No secondary dust problem
- Serves as fire barrier in restaurant range hood applications
- Factory Mutual & ULC approved

Features

- Food quality features
- Expansion chamber
- Bearing pedestal
- Motor mount
- Inlet housing
- Centrifugal outlet

Applications

The RotoClone™ W is a cost-effective dust and grease collection solution that requires no compressed air or replacement cartridges or fabric bags. It is capable of handling hot, moist gas streams and sticky or explosive dusts, while ensuring performance is maintained without interruption or downtime as typically demanded in many of the following industrial processes.

Industries

- Food, beverage and tobacco
- Minerals and ceramics
- Coal
- Chemical and plastics
- Pharmaceutical
- Fertilizer
- Pulp and paper
- Fiberglass

Food Processing

- Cereal
- Flour
- Rice
- Salt
- Soya Bean
- Cocoa
- Confectionery
- Sugar
- Snack food
- Commercial catering
- Beverage concentrate

Processes

- Dryers
- Cookers
- Crushing
- Grinding
- Spraying
- Coating
- Glazing
- Ventilation
- Transfer stations
- Mixing
- Dumping
- Packaging

RotoClone™ W

Leading the Way in Wet Dust Collection Technology

The RotoClone™ W can be used in many different industries that require a high degree of cleaning.

Food Quality Features
In addition to stainless steel construction, the food quality design RotoClone™ W includes handy access doors for easier cleaning and inspection, spray nozzles for improved flushing during operation, and elimination of surface areas where material can accumulate.

90 Degree Outlet
The food quality 90 degree outlet has the standard drain, plus three additional access openings, two quick opening doors and one bolted plate for complete accessibility to all internal surfaces. Also included are two spray nozzles positioned to flush surfaces that may be subject to material build-up.

Expansion Chamber
The food quality expansion chamber on the RotoClone™ W has a flanged inlet and outlet that can be easily removed for cleaning. A quick release access door and a spray nozzle positioned for additional flushing are also provided.

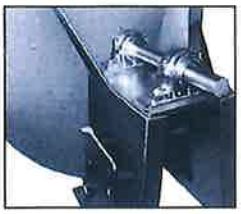
Bearing Pedestal
To eliminate flat surfaces that attract material build-up, the food quality design is easy to clean and uses round pipe for reinforcement, rather than standard reinforced bearing plate with angle iron stiffeners.

Motor Mount
The food quality design motor mount is specially constructed to allow for complete drainage after wash down.

Housing Wrapper
The food quality design housing wrapper is fitted to the ends of the front and rear panels on the RotoClone™ W and solid welded. This eliminates the corners that are normally formed by recessing the housing wrapper between the front and rear panels.

Housing Wrapper Panel
The wrapper panel on the food quality design RotoClone™ W has a smooth welded panel at the discharge to seal the pocket rather than the standard flat area.

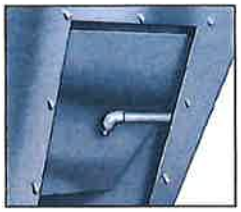
Inlet Housing
The inlet housing on the food quality design has a quick release tension clamp rather than the standard latch. This provides a positive seal and easy access.



The motor mount is designed to drain completely.

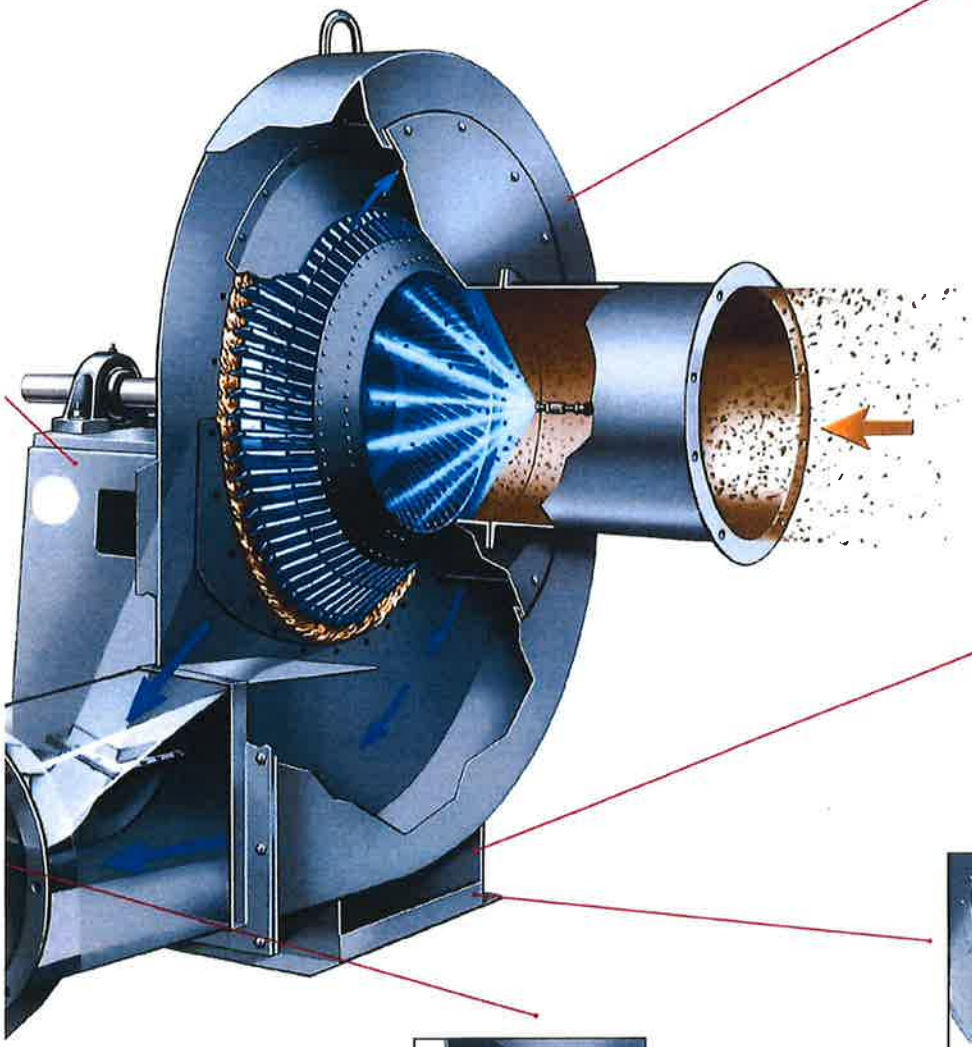
Access door on expansion chamber allows for thorough inspection and cleaning.

The 90 degree outlet elbow has two access doors.



Spray nozzles in the 90 degree outlet enhance cleaning.

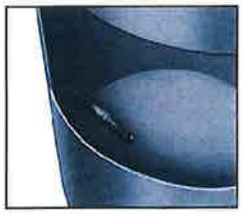
There are no corners on the housing wrapper.



Food Quality unit and options shown.

The bearing pedestal is designed for easy wash down with round pipe for reinforcement.

At the housing panel discharge, a welded panel is added to seal the pocket.



A spray nozzle speeds cleaning of the expansion chamber.

Constant Exhaust Air

The RotoClone™ W is recommended for the collection of light loadings of granular dusts and mist. Dynamic forces developed by the rotating impeller cause even the finest particles to impinge on, and be trapped by, the flowing water film which covers all blade surfaces.

The impeller imparts energy to the clean air, which being lighter than the water and dust, continues on to the clean air outlet. The water and dust, being heavier than air, are directed into the water cone and the slurry formed drains from the unit from the bottom of the RotoClone™ W expansion chamber.

Air velocity in ducts is maintained by constant exhaust air volume. Unlike barrier filters such as pulse-jet filters, which have to form a dust layer or cake to build resistance, the RotoClone™ W requires no dust build up so efficiency is immediate. No waiting for dust cake build up. This means that building of residue and bypass of the dust is prevented. This is particularly important when the RotoClone™ W functions as a fire barrier.

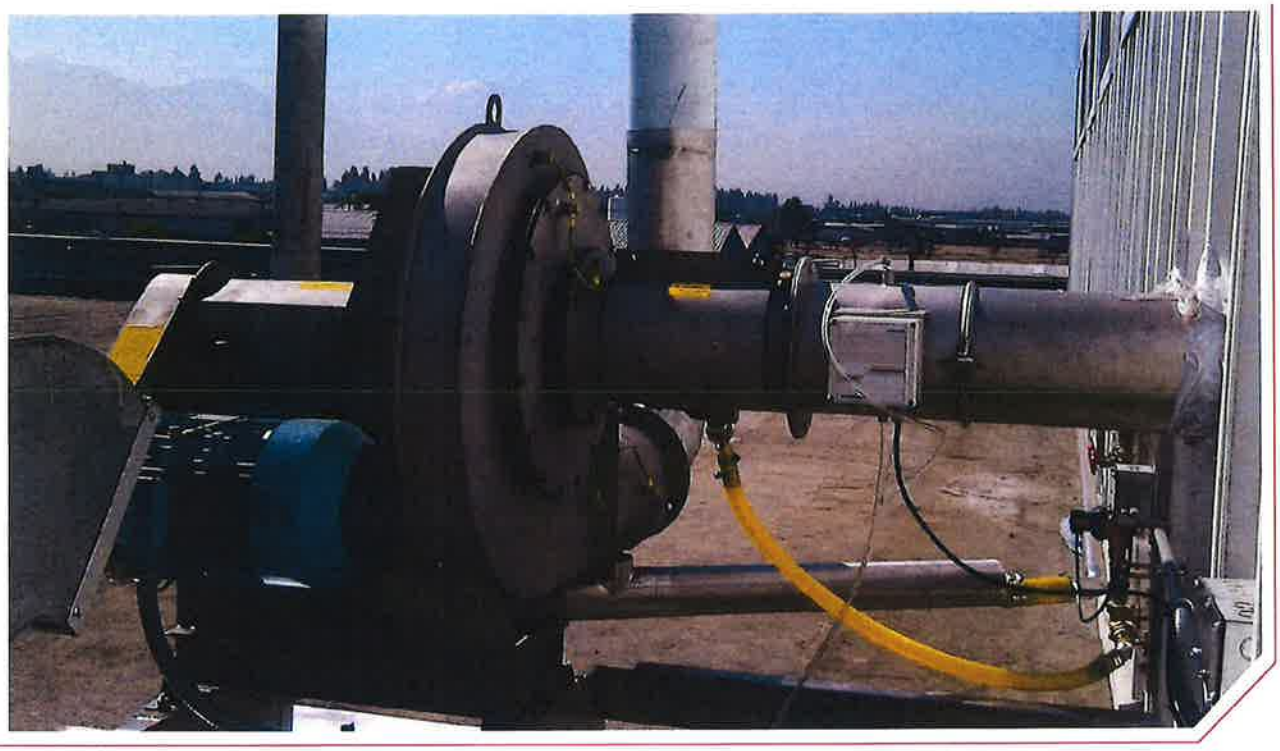
Please see your AAF representative for an operational animation.

Specialist Applications

The RotoClone™ W is suitable for many of the most difficult applications where more traditional dry filtration products are unable to deliver a cost-effective solution. Extracting and filtering of explosive dusts, oil, grease and stream are no problem for the RotoClone™ W. Compliant with international regulations such as NFPA and ATEX, the RotoClone™ W offers customers regulatory compliance at minimum capital investment, eliminating the need for costly items such as fire or explosion detection and suppression technology. Even operations with sparks, steam, oil or high grease content can be handled by the RotoClone™ W, making it one of the most versatile products on the market today.

Proven specialist applications where the RotoClone™ W has been successfully employed include:

- Coal handling
- Light metal grinding and buffing
- Snack food production
- Industrial frying
- Paper trim
- Organic dusts requiring explosion protection
- Constant volume extraction



Available Options and Accessories

Options

- Corrosion protection package
- Alternate controls
- FM controls
- Food quality construction
- Stainless steel construction (304 and 316)
- Centrifugal outlet
- 90 degree outlet
- Straight outlet
- Motor mounting arrangements
- Explosion proof solenoids
- High temperature construction
- Vibration isolators
- Pedestal and baseframe mounted drive
- ATEX/NFPA certified for explosive applications
- AutoFlush facility on shut down

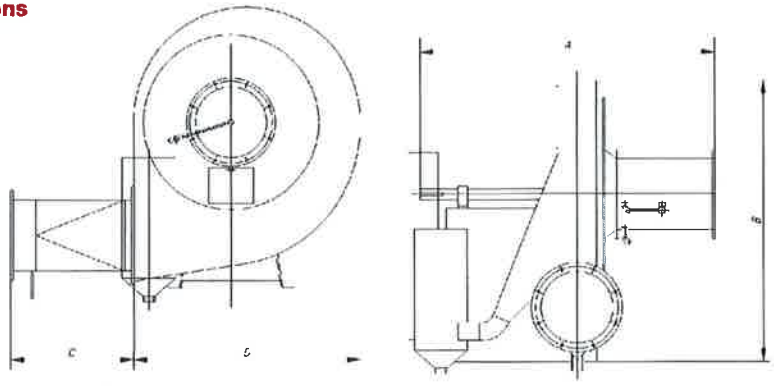
Accessories

- AAF control center
- Custom paint systems
- HEPA/ASHRAE filters and housings

Dimensions and Specifications

The RotoClone™ W is available in 12 different sizes to suit a wide range of applications in various industries.

Dimensions



NOTE Motor size and weights vary by manufacturer

RotoClone™ W

Size	Dimensions				Weight (lbs)/(Kg)		Impeller	Water Supply Rates		
	A (ft)/(mm)	B (ft)/(mm)	C (ft)/(mm)	D (ft)/(mm)	Shipping Weight	Operating Weight	Maximum Speed (RPM)	40 psi/ 2.75 barg (GPM/LPH)	50 psi/ 3.45 barg (GPM/LPH)	60 psi/ 4.14 barg (GPM/LPH)
8	3' 7-1/8" /1,099	2' 8-15/16" /837	14"/356	2' 1-7/8" /657	225/102	425/192	4,100	1.1/250	1.2/273	1.3/295
10	4' 3-9/16" /1,314	3' 3-15/16" /1,014	17-1/2" /444	2' 7-7/8" /810	360/163	610/277	3,300	1.5/340	1.6/364	1.8/409
12	4' 3-15/16" /1,475	4'-1/4" /1,225	21"/533	3' 2-1/2" /978	630/285	880/399	2,800	1.8/409	2/454	2.2/500
14	5' 2-11/16" /1,599	4' 6-3/4" /1,390	24-1/4" /622	3' 8-1/2" /1,130	990/450	1,340/608	2,400	2.3/523	2.5/568	2.9/659
16	5' 6-5/16" /1,689	5' 3-1/8" /1,603	2'-4"/711	4' 3-1/4" /1,302	1,260/572	1,710/776	2,100	3.5/795	3.9/886	4.3/977
20	6' 8-7/16" /2,062	6' 5-9/16" /1,970	2'-11"/889	5' 3-1/8" /1,603	1,620/735	2,270/1,030	1,700	4.5/1,022	5/1,136	5.5/1,250
24	7' 10-3/16" /2,411	7' 10-1/16" /2,389	3'-6"/1,067	6' 3-3/8" /1,914	1,890/858	2,590/1,175	1,400	5.5-6.0/ 1,363	6.2-6.7/ 1,522	6.8-7.3/ 1,659
27	8' 8-1/4" /2,648	8' 8-1/14" /2,648	3'-11" /1,194	7'-1/2" /2,146	2,970/1,348	3,720/1,688	1,250	7.0-7.5/ 1,704	7.9-8.4/ 1,908	8.7-9.2/ 2,090
30	9' 3-3/16" /2,824	9' 5-3/4" /2,869	4' 4-1/2" /1,334	7'-9"/2,362	3,870/1,756	5,020/2,278	1,100	8/1,818	8.9/2,022	9.8/2,227
33	10' 3-3/16" /3,085	10' 5-13/16" /3,196	4'-10" /1,613	8' 7-5/8" /2,832	4,860/2,205	6,360/2,886	1,000	12/2,727	13.4/3,045	14.7/3,340
36	10' 11-1/8" /3,330	11'-1/4" /3,435	5' 3-1/2" /1,613	9' 3-1/2" /2,832	5,850/2,654	7,350/3,334	925	14.0-15.0/ 3,181	14.7-15.7/ 3,567	16.7-17.1/ 3,885
45	12' 1-9/16" /3,697	13' 9-3/16" /4,196	6'-7"/2,007	11' 4 -7/8" /3,477	13,500/6,125	16,000/7,620	730	21.0-22.0/ 5,000	23.6-24.6/ 5,589	25.9-26.9/ 6,112

NOTES

1. Decreased or Increased water requirements can be provided by changing nozzle size.
2. For air temperatures in excess of 300°F/149°C, cooling spray nozzles should be provided in inlet duct to compensate for evaporation.
3. A safe approximation will be .2 GPM/45 LPH of additional water per 1,000 CFM/1,700 m³/hr for each 100°F/38°C temperature reduction.
4. Shipping weight does not include motor and drive, operating weight includes motor and drive.

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Sales Offices:

Europe, Middle East & Africa

AAF Ltd
Bassington Lane, Cramlington
Northumberland, NE23 8AF UK
Tel: +44 1670 713 477
Email: redfiltration@aafintl.com

AAF, S.A.
C/ Urartea, 11
Polígono Ali-Gobeo
01010 Vitoria, Spain
Tel: +34 945 214851
Email: redfiltration@aafintl.com

AAF France
Rue William Dian
27620 Gasny, France
Tel: +33 2 32 53 60 60
Email: redfiltration@aafintl.com

AAF Sri
Via Lario, 1
22070 – Fenegrò (CO), Italy
Tel: +39 031 35 25 311
Email: redfiltration@aafintl.com

AAF Luftreinigungssysteme GesmbH
Campus 21
Europaring F12 401
2345 Brunn am Gebirge, Austria
Tel: +43 (0) 2236 677 628 0
Email: redfiltration@aafintl.com

AAF – Lufttechnik GmbH
Centroalle 263 b
D 46047
Oberhausen, Germany
Tel: +49 208 828423 0
Email: redfiltration@aafintl.com

AAF – Environmental Control Epe
1, Ifaistou & Kikladon
15354- Glika Nera, Greece
Tel: +30 2106632015
Email: redfiltration@aafintl.com

AAF Hava Filtreleri ve Ticaret AS
Hürriyet Mahallesi
Yakac1k D-100 Kuzey Yan Yol No: 49/1-2
34876 Kartal, Istanbul, Turkey
Tel: +90 216 4495164/65
Email: redfiltration@aafintl.com

AAF International – Middle East
FZS1BC01-BC04, Jebel Ali Dubai, UAE
Tel: 009714 8894886
Email: redfiltration@aafintl.com

AAF Saudi Arabia Ltd.
P.O. Box 59336 Riyadh 11525,
Kingdom of Saudi Arabia
Tel: +966 1 265 0883
Email: redfiltration@aafintl.com

Asia

America Air Filter Manufacturing Sdn Bhd
(Asia Regional Office)
Lot 6, Jalan Pengapit, 15/19,
Seksyen 15, 40000 Shah Alam,
Selangor Darul Ehsan, Malaysia
Tel: +603 5039 7733
Email: redfiltration@aafintl.com

AAF (Wuhan) Co. Ltd., (China HQ)
33 Che Cheng Road
Wuhan Economic & Technological
Development Zone
Wuhan, Hubei Province PR,
China 430056
Tel: +86 27 8447 3671 +86 27 8447 3672
Email: redfiltration@aafintl.com

AAF International (Thailand) Co., Ltd.
100 Moo 4 Soi Namdang – Bangplee 44
Bangkaew Bangplee, Samutprakarn
10540, Thailand
Tel: +66 2738 7788
Email: redfiltration@aafintl.com

Daikin Australia Pty Ltd
(AAF Australia & New Zealand Sales Office)
15 Nyadale Road Scoresby Victoria 3179,
Australia
Tel: +61 (0)3 9237 5562
Email: redfiltration@aafintl.com

North & South America

AAF International
9920 Corporate Campus Drive, Suite 2200
Louisville, KY 40223-5000, USA
Tel: 1 502 637 0011
Toll Free: 1 800 477 1214
Email: redfiltration@aafintl.com

AAF, S de RL de CV
Av. Primero de Mayo No. 85,
Col. San Andrés Atenco,
C.P. 54040 Tialnepantla Edo.
De Mexico, México
Tel: +52 55 5565 5200
Email: redfiltration@aafintl.com

American Air Filter Brasil Ltda.
Rua Doutor Bacelar, 173-CJ. 121
Vila Clementino – São Paulo – Brazil
CEP 04026-000
Tel: +55 11 5567 3000
Email: redfiltration@aafintl.com

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Reliable Efficient Durable™

APPENDIX C

AMBIENT IMPACTS ANALYSIS

APPENDIX C

AMBIENT IMPACTS ANALYSIS

BASIC AMERICAN FOODS

AMBIENT IMPACTS ANALYSIS

REVISED ALTERNATE COMPLIANCE PLAN

BLACKFOOT FACILITY OF BASIC AMERICAN FOODS
(A DIVISION OF BASIC AMERICAN INC.)

AIRS FACILITY ID NO. 011-00012

AUGUST 2017

Coal Creek Environmental Associates
Bellevue, WA
Project 170301.31

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LIST OF FIGURES

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1. SUMMARY

This ambient impacts analysis is submitted in support of a Revised Alternate Compliance Plan ("*ACP*") for PM10 emissions from the Basic American Foods ("*BAF*") Blackfoot Facility ("*the BAF facility*"). This impacts analysis demonstrates that combined PM10 impacts from the BAF facility and the adjacent Basic American Potato Company, Inc. ("*the BAPCI facility*") will not cause an exceedance of an air quality standard.

2. PROJECT DESCRIPTION AND BACKGROUND

2.1 GENERAL FACILITY/PROJECT DESCRIPTION

PTC No. P-2009.0043 ("*the facility permit*"), was issued to BAF on January 20, 2011. The facility permit includes a compliance schedule that requires that BAF implement certain specified stack changes (the "*current compliance plan*") that were proposed to enable the BAF facility to demonstrate compliance with PM air quality standards. The facility permit conditions also allow BAF to implement an ACP, subject to Idaho Department of Environmental Quality ("*DEQ*") approval. Since the facility permit was issued BAF has worked to develop a viable ACP for DEQ approval.

In January 2014 BAF submitted an ACP. As required by DEQ, this ACP included impacts from the BAF facility and an adjacent potato dehydration facility that had been operated by Nonpareil Corporation. In response to questions raised by DEQ, BAF provided supplemental information and updates to the proposed plan in June 2014, August 2014, and April 2015.

On December 21, 2015 DEQ disapproved BAF's ACP, and requested that BAF submit a revised 24-hour PM10 ambient impact analysis showing compliance with the 24-hour PM NAAQS at all ambient air locations. In response to this letter, BAF met with DEQ on March 1, 2016 to discuss options to respond to DEQ's notice of denial. At the meeting BAF suggested that the modeled exceedances of the PM10 NAAQS indicated in the ACP modeling analyses were likely the result of extreme conservatism built into the AERMOD preprocessor that generates building downwash parameters. BAF proposed conducting an Equivalent Building Dimension ("*EBD*") analysis of downwash effects in a boundary layer wind tunnel to aid in developing more realistic downwash inputs for AERMOD.

DEQ stated that conducting an EBD study was an acceptable option, and BAF retained CPP, Inc., a firm experienced in conducting EBD studies, to conduct an EBD study at the BAF facility. CPP completed its work and issued a study report in October 2016. Preliminary modeling conducted using the CPP study results demonstrated that modeled PM10 impacts did comply with the PM10 NAAQS, supporting BAF's presumptions that the previously modeled high ambient impacts were due to overly-conservative downwash assumptions in the AERMOD preprocessor.

DEQ requested that the US EPA Region 10 Office assist in reviewing the CPP report. EPA concurred with the approach and procedures used by CPP, and provided comments and recommendations on several aspects of the study. BAF and CPP responded to EPA's

comments in a letter dated May 24, 2017, and on July 18, 2017 DEQ approved the CPP study report.[1]

This revised ACP incorporates the results of the CPP EBD study. It also includes a general update of the AERMOD model for the site based on field verifications of model parameters and changes in facilities and operations that have occurred or that are currently underway. Thus, this revised ACP reflects conditions as they currently exist, not as they existed in 2009, when the facility permit was issued, nor as in 2013, when the original ACP was submitted.

This revised ACP also includes an updated impacts analysis for annual PM-10 impacts for BAF facility sources.

2.2 PROJECT LOCATION

The BAF Facility is located at 415 West Collins Road, Blackfoot, Idaho. Figure 1 provides an aerial view of the plant.

The BAF facility is on the outskirts of the City of Blackfoot, about two miles northwest of downtown Blackfoot. The Snake River and Interstate Highway 15 are situated between the plant and the main portion of Blackfoot. As Figure 1 illustrates, most of the immediate area surrounding the site is industrial. Once outside of this industrial area, the land use becomes rural/agricultural.

Basic American Foods also now owns and operates the adjacent BAPCI (former Nonpareil) vegetable dehydration facility. Other businesses in the area include various agricultural supplies and services companies, truck and equipment sales and services, and convenience stores. A grain elevator is located about a mile further to the northwest.

The air shed in Blackfoot is either attainment or unclassifiable for all air quality standards.

The facility UTM coordinates are 387630E/4784160N, (Zone 12, NAD83).

2.2.1 *EXISTING PERMITS AND MODELING ANALYSES*

The facility currently operates under DEQ Permit No. P-2009.0043, which is a facility-wide FEC permit. A facility-wide ambient impacts analysis was completed in conjunction with the issuance of that permit.

On July 31, 2017 DEQ issued Permit to Construct No. P-2017.0011, authorizing the construction and operation of production line C-8 at the BAF facility. This project included a significant impacts analysis for PM2.5, PM10, SO_2, NOx, and certain TAPs.

On May 26, 2017 BAF submitted an application for Permit to Construct for replacement of two dual-fueled boilers at the BAF facility with a single NG-fired boiler. This project is under is under review at DEQ and has been assigned permit number P-2017.0031. This application included a significant impacts analysis for NOx, PM10, PM2.5, and selected toxic air pollutants.

[1] Email from Thomas Swaine, DEQ, to Stephen Nelson, Coal Creek Environmental Associates.

The two Permit to Construct ambient impact analysis described above used this ACP model as a base.

3. MODELING ANALYSIS APPLICABILITY AND PROTOCOL

The option to submit an Alternate Control Plan was included in the facility permit as an alternative to certain changes in stacks that were included in the plant in order to demonstrate compliance with the PM10 NAAQS. Accordingly, the modeling requirement for the ACP is to demonstrate that the ACP will meet ambient air quality standards for PM10. Because the provision for an ACP is included in the facility permit, this revision can be done without reopening or revising the existing permit.

3.1 APPLICABLE STANDARDS

As noted above, the ambient impacts analysis for the ACP only involves PM10, and the compliance demonstration needs to be based on a full impacts analysis. No other criteria air pollutants are included in the analysis. No TAP emissions are associated with the project. There are no applicable performance standards, MACT standards, or NESHAPs.

The applicable full impact regulatory requirements PM10 are presented below:

Applicable Regulatory Requirements – Criteria Air Pollutants

Pollutant	Averaging Time	Ambient Air Quality Standard. µg/m³	Modeled Design Value Used for Full Impact Analysis
PM10	24-hour	150	Highest 6th high 24-hr average
	Annual	50	1st highest annual average

3.2 CRITERIA AIR POLLUTANT MODELING APPLICABILITY

As noted previously, this ambient impacts analysis is a required update to an existing PM10 analysis. There are no applicable modeling thresholds for this project.

3.3 TAP MODELING APPLICABILITY

As noted previously, this ambient is a required update to an existing PM10 analysis. Toxic air pollutant analysis is included with this project.

3.4 MODELING PROTOCOL

A modeling protocol was submitted to DEQ for the original Alternate Compliance Plan on August 12, 2013. On October 15, 2013 DEQ approved the modeling protocol, and on

December 24, 2013 provided additional clarification. Attachment A includes copies of these documents.

Note that the methodology demonstrating acceptability of the ACP for 24-hour PM10 in these documents is no longer applicable to this project. At the time those documents were prepared, BAF and DEQ were confronting a situation in which the combined impacts for the BAF and BAPCI facilities exceeded the PM10 NAAQS; thus the compliance approach in the protocols describes a process for showing that the ACP provided an improvement in air quality as compared with the PM10 compliance requirements in the facility permit. That approach is now moot because this ambient impacts analysis demonstrates that the combined impact from the two facilities is less than the PM10 NAAQS.

Although the methodology for demonstrating compliance from the initial protocols is no longer, the other provisions of the approved protocols are still valid.

As summarized in the project background section, above, DEQ rejected BAF's initial ACP. In response BAF suggested that an Equivalent Building Dimensions investigation be conducted to develop improved building downwash parameters for use in AERMOD. On June 21, 2016 BAF submitted to DEQ a protocol for the EBD study. Although formal concurrence with the proposal was never received, BAF proceeded with the EBD study.

Attachment B contains the CPP Wind Energy Protocol for the EBD Study.

4. MODELED EMISSIONS SOURCES

The emissions sources modeled include all identified sources of PM10 emissions at the BAF and BAPCI facilities except for fugitive road dust sources. Tables 1 through 4 of the revised ACP identify the sources included in the impacts analysis. The project emissions and calculations spreadsheet provided with this submittal provides additional details on these sources.

4.1 CRITERIA AIR POLLUTANTS

As noted previously, PM10 is the only criteria air pollutant includes in this impacts analysis.

4.1.1 MODELED EMISSIONS RATES FOR SIGNIFICANT IMPACT ANALYSIS

No significant impacts analysis was conducted for this project.

4.1.2 MODELED EMISSIONS RATES FOR CUMULATIVE IMPACT ANALYSIS

Modeled emission rates for PM10 for the full impacts analysis are shown in Tables 1 and 2 of the revised ACP. The project emissions and calculations spreadsheet provided with this submittal provides additional details on these calculations.

4.1.3 NO2/NOx RATIO FOR NOx CHEMISTRY MODELING

This project does not include NOx modeling.

4.1.4 SPECIAL METHODS FOR MODELING CRITERIAL POLLUTANT EMISSIONS

Not applicable. No special methods were used.

4.2 TOXIC AIR POLLUTANTS

This project does not include Toxic Air Pollutant modeling.

4.3 EMISSION RELEASE PARAMETERS

Table 3 lists stack parameters for point sources and Table 4 lists release parameters for volume sources.

Additional data on emissions release parameter for the BAF facility is contained in the project emissions and calculations spreadsheet included with this submittal. For the BAPCI facility, release parameters are the same as those provided by DEQ.

In general, to retain consistency with the modeling analysis performed for PTC No. P-2009.0043 modeling has used the same release parameters except in cases where more accurate data for a particular source has been obtained.

5. MODELING METHODOLOGY

Key modeling parameters used in the impact analysis are summarized in Table 5.

5.1 MODEL SELECTION

Modeling was conducted using AERMOD (Version 16216r). AERMOD uses input data prepared by the AERMINUTE, AERMET and AERMAP pre-processor programs; AERMET and AERMAP produce the input files for meteorologic data and terrain characteristics, respectively. The following versions of preprocessing programs were used:

- AERMET (Version 12345)
- AERMINUTE (Version 11325)
- AERMAP (Version 11103)
- BPIP-PRIME (Version 04274)

AERMOD was run with the following options:

- Actual receptor elevations and hill-height scales
- Complex and intermediate terrain algorithms

AERMOD execution was managed in a Microsoft Windows operating system interface using BEEST for Windows, Version 11.07. BEEST for Windows is a modeling manager for

AERMOD modeling and is distributed by Providence Engineering and Environmental Group LLC.[2]

5.2 METEOROLOGIC DATA

The meteorologic data set used for this project is the same as the data set that was used for BAF's alternate PM10 compliance plan for the BAF facility and that was used in recent air quality analyses for the installation of production line C-8 and the replacement of BAF facility Boilers 1 and 2 with Boiler 2A. A description of the data set is provided below.

Meteorologic data for the five-year period 2002-2006 was prepared using the AERMINUTE and AERMET preprocessors. Surface data were prepared by merging hourly on-site data from a Blackfoot area meteorologic data monitoring tower with surface data from the National Weather service monitoring station in Pocatello. The on-site data tower, which is operated by Idaho National Laboratory, is located at Lat 43.189790° N., Long 112.333173° W. The tower site is at Mt. View Middle School, a low-rise building with large areas of surrounding open land in a semi-developed area. The amount of open space and physical scale of the buildings is similar to the land around the BAF facility. Upper air observations used radiosonde data from Boise Airport.

Raw data received from INL are in the modeling data package provided with this submittal. Dick Perry of Stinger Environmental reviewed the raw data provided by INL and converted the data to a format suitable for AERMET processing.

The following on-site observations were merged into the surface station data:

- Wind direction, 15-meter height
- Wind speed, 15-meter height
- Wind direction standard deviation, 15-meter height
- Temperature, 15-meter height
- Temperature, 2-meter height
- Temperature difference, 15-meter height vs. 2-meter height
- Relative humidity, 2-meter height
- Insolation
- Precipitation
- Station Pressure.

Site surface characteristics were prepared for the on-site tower from U.S. Geological Survey (USGS) National Land Cover Data 1992 archives (NLCD92) using the AERSURFACE processor. Twelve 30-degree wind sectors were used, commencing with due north. Site surface characteristics generated by AERSURFACE for each of these sectors are listed in Attachment C.

One-minute ASOS data files were obtained for Pocatello airport, station KPIH. The AERMINUTE preprocessor was used to create a concatenated AERMINUTE file for the

[2] 1201 Main Street, Baton Rouge, LA. www.providenceeng.com

years 2002-2006 for use in AERMET. The Oris Solution AerMinute interface (Ver 2.09) was used to manage AERMINUTE operations. The AERMINUTE files are in the modeling data package provided with this submittal.

Other AERMET settings and options are summarized below:

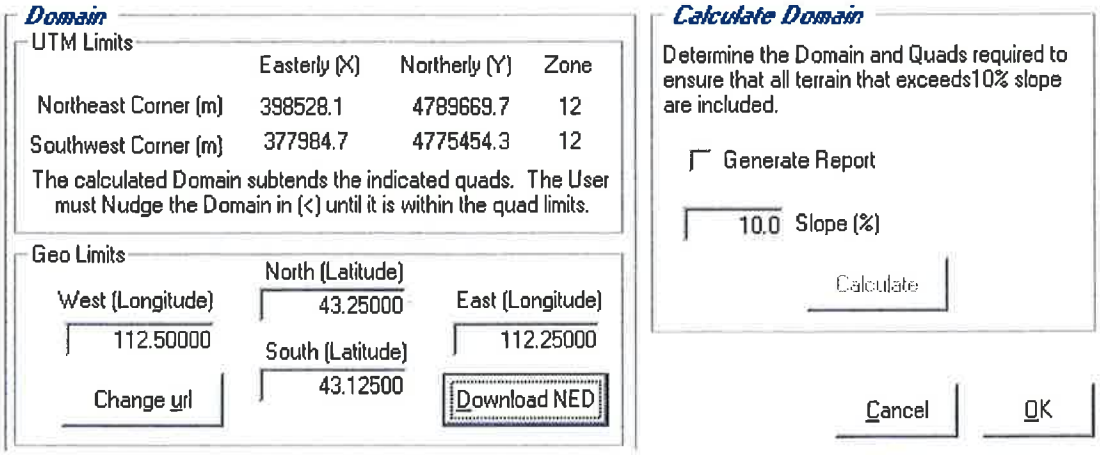
Parameter	Setting
Threshold Wind Speed	0.5 m/s
Wind Direction	Random
Wind Measurement Height	10 meters
Primary and Secondary Wind Surface Characteristics Frequencies	Monthly
Wind Sectors	12 (equally spaced 30 degree increments)
Season Definitions	Winter: Dec – Mar Spring: Apr – May Summer: Jun – Sep Autumn: Oct – Nov
Arid	No
Moisture	Average

Copies of the AERMET input and output files for each stage of the AERMET processing are included in the modeling data package that is being included with the application submittal.

5.3 EFFECTS OF TERRAIN

Effects of terrain were accounted for by determining elevations for model components using AERMAP and a NED GeoTIFF file. AERMAP processing was used to generate hill heights for receptors.

The model domain and Geolimits have calculated using the 10% slope criterion. The calculated domain limits are shown below and in Figure 2.



A NED file was downloaded for use in AERMAP that covers the region extending from -112 to -113 degrees longitude and from 42.875 to 43.5 degrees latitude. This area fully encloses the calculated domain limits.

The coordinates for all model features are created in NAD83; there is no user location coordinate system.

Land use data has been reviewed in recent and current facility-wide monitoring activities. The rural land use option is appropriate for the modeling analysis.

5.4 FACILITY LAYOUT

The model used is the current version of a model that was created in 2003 when the first facility-wide ambient impacts analysis was conducted for the BAF facility. That model was created in NAD27 using facility scale drawings maintained by the BAF engineering department.

Since 2003, many adjustments have been made to the model to incorporate changes in facilities and operations and to eliminate identified discrepancies in the model. The model has also been converted to NAD83.

In 2011, an AERMOD model for the neighboring Nonpareil facility was merged into the existing facility. The Nonpareil model was provided to BAF by DEQ. BAF subsequently acquired the Nonpareil facility, so that now both facilities operate under common ownership.

In the process of merging and working with the two models BAF has identified various inconsistencies in the original Nonpareil model received from DEQ, which BAF has resolved by completing additional field measurements and referencing model features to Google Earth imagery.

Figure 3 is a view of the project location, showing sources and buildings. The model includes both on-site buildings as well as nearby off-site buildings.

Building and building tier heights are based on field measurements. Figure 4 is a scaled site plot plan that shows building tier heights. Figure 5 provides a more detailed view of the main

processing area at the BAF facility. Figure 6 provides a more detailed view of the Flaker area buildings.

5.5 EFFECTS OF BUILDING DOWNWASH

Plume downwash was considered for the structures associated with the facility, including facilities on neighboring property of potential downwash concern. BPIP-PRIME (version 04274) was used to evaluate building dimensions for consideration of downwash effects in AERMOD.

After consultation with DEQ, BAF retained CPP, Inc. to refine the BPIP-Prime downwash parameters using an equivalent building diameter EBD study at the BAF facility. CPP completed its work and issued a study report in October 2016. Preliminary modeling conducted using the CPP study results demonstrated that modeled PM10 impacts did comply with the PM10 NAAQS, supporting BAF's presumptions that the previously modeled high ambient impacts were due to overly-conservative downwash assumptions in the AERMOD preprocessor.

DEQ requested that the US EPA Region 10 Office assist in reviewing the CPP report. EPA concurred with the approach and procedures used by CPP, and provided comments and recommendations on several aspects of the study. BAF and CPP responded to EPA's comments in a letter dated May 24, 2017, and on July 18, 2017 DEQ approved the CPP study report.[3]

The modeling files include both the original and modified BPIP-Prime downwash parameters.

5.6 AMBIENT AIR BOUNDARY

Figure 7 shows the ambient air boundary for the site. The ambient boundary follows plants fenceline, where they exist. Where a fenceline does not exist, the ambient air boundary is the exterior wall of the building.

5.7 RECEPTOR NETWORK

Figures 8 depicts the primary receptor network created for this analysis. As described in Table 5, the network has a 25-meter fenceline grid, extending to 250 meters, and a 100-meter corners grid that is 4000 meters wide and 3300 meters high centered on the plant. Previous modeling at the BAF facility has shown that site dispersion is strongly influenced by downwash, with major impacts zones occurring in near field receptors, and that a grid as described is adequate to characterize emissions impacts.

A special impact grid with 5-meter spacing was also created in the area that showed the greatest impacts. Figure 9 shows the special impact grid.

[3] Email from Thomas Swaine, DEQ, to Stephen Nelson, Coal Creek Environmental Associates.

5.8 BACKGROUND CONCENTRATIONS

Per the modeling protocol, background concentrations are 67 µg/m^3 and 17.6 µg/m^3 for 24-hour and annual PM10, respectively.

5.9 NOX CHEMISTRY

No NOx chemistry options will be used. NO2 impacts will be analyzed using Tier I procedures.

6. RESULTS AND DISCUSSION

This section discusses how results of the ambient impacts analysis will be presented and analyzed.

6.1 CRITERIA POLLUTANT IMPACT RESULTS

The criteria pollutant impact analysis conducted were full impact (cumulative) impact analyses for 24-hour and annual PM10.

6.1.1 SIGNIFICANT IMPACT LEVEL ANALYSES

Not applicable – Significant Impact Analysis not conducted..

6.1.2 CUMULATIVE NAAQS IMPACT ANALYSES

Figures 10 and 11 show the results for the highest 6th high 24-hour average PM10 impact. In both figures the display is set to show numeric results only when the impact exceeds 75 ug/m^3. As can be seen, impacts exceeding 75 ug/m^3 occur only in a small area north of the BAF facility. Figure 11 provides detail on this area, using the 5-meter special impact grid.

The highest 6th high 24-hour PM10 impact is 79.7 ug/m^3. Receptor data at this location is shown below:

Easting, m	Northing, m	Elevation, m	Hill Height, m	Flag Height, m	Date
387875.00	4784315.00	1365.51	1365.51	0.00	July 11, 2004

For annual PM10, the highest impact, 27.4 ug/m^3, occurred in year 2003. Figure 12 shows the data graphically, with numeric values greater than 20 ug/m^3 displayed.

The area of primary impact is similar to that for the 24-hour PM10. Data for the highest impact receptor is shown below:

Easting, m	Northing, m	Elevation, m	Hill Height, m	Flag Height, m	Date
387831.80	4784327.60	1365.34	1365.34	0.00	2003

Results for the PM10 cumulative impact analysis are shown below.

Pollutant	Averaging Period	Modeled Design Concentration, ($\mu g/m^3$)	Background Concentration, ($\mu g/m^3$)	Total Impact, ($\mu g/m^3$)	NAAQS, ($\mu g/m^3$)
PM10	24-hour	79.7	67	146.7	150
	Annual	27.4	17.6	45	50

6.2 TAP IMPACT ANALYSES

Not applicable. No TAP impacts analysis needed.

6.3 MODELING DOCUMENTATION

An email with a link to a Dropbox folder containing the modeling files is being provided as part of this submittal.

7. QUALITY ASSURANCE/QUALITY CONTROL

To aid in modelling data management, an Excel spreadsheet was used to manage all emissions calculations and related information. The spreadsheet was also set up to allow direct "copy-and-paste" of emission rates into the AERMOD GUI interface incorporated into the BEEST AERMOD modeling manager.

After model runs are completed, the runstream files for the model run was inspected to verify that the model run conditions were executed as desired. First the Control Options portion of the runstream file was checked to verify that the appropriate model options were implemented during the run. Then the Source Parameter options were checked by importing the runstream file into BEEST as a new BEEST modeling sessions. The source parameters generated by this import activity were then compared with the parameters in Tables 3 and 4.

TABLES

Table 1
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lb/hr		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
Boilers 1 and 2	-	-	-	-	0.000	5.7	-5.700
Boiler 2A	91.52	MMBtuh	0.000745098	lb PM10/MMBtu	0.068	0	0.068
Boiler 3	NA	-	0.3	lb/hr	0.300	0	0.300
DHQ	30	1000 lbs throughput/hr	0.01502204	lb PM10/ 000 lb unit process throughput	0.451	0.50	-0.054
DHT	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198
DHU	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198
DHZ	30	1000 lbs throughput/hr	0.083	lb PM10/ 000 lb unit process throughput	2.490	2.79	-0.299
DKV	3.75	1000 lbs throughput/hr	0.0935	lb PM10/ 000 lb unit process throughput	0.351	0.39	-0.042
DKW	3.75	1000 lbs throughput/hr	0.003	lb PM10/ 000 lb unit process throughput	0.011	0.01	-0.001
DXS	30	1000 lbs throughput/hr	0.008238899	lb PM10/ 000 lb unit process throughput	0.247	0.28	-0.030
DUO	30	1000 lbs throughput/hr	0.008238899	lb PM10/ 000 lb unit process throughput	0.247	0.28	-0.030
DPY	30	1000 lbs throughput/hr	0.008238899	lb PM10/ 000 lb unit process throughput	0.247	0.28	-0.030
DPZ	30	1000 lbs throughput/hr	0.008238899	lb PM10/ 000 lb unit process throughput	0.247	0.28	-0.030
DUQ	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198
DUT	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198
DQA	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198
DQB	15	1000 lbs throughput/hr	0.11	lb PM10/ 000 lb unit process throughput	1.650	1.85	-0.198

Table 1
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lb/hr		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
DUV	60	1000 lbs throughput/hr	0.019460595	lb PM10/ 000 lb unit process throughput	1.168	1.31	-0.140
DSO	7.50	1000 lbs throughput/hr	0.046	lb PM10/ 000 lb unit process throughput	0.345	0.39	-0.041
DSK	7.50	1000 lbs throughput/hr	0.008	lb PM10/ 000 lb unit process throughput	0.060	0.07	-0.007
DUY	7.50	1000 lbs throughput/hr	0.003	lb PM10/ 000 lb unit process throughput	0.023	0.03	-0.003
DUZ	7.50	1000 lbs throughput/hr	0.003	lb PM10/ 000 lb unit process throughput	0.023	0.03	-0.003
DRY	7.50	1000 lbs throughput/hr	0.004	lb PM10/ 000 lb unit process throughput	0.030	0.03	-0.004
ALB	2.47	1000 lbs throughput/hr	0.055	lb PM10/ 000 lb unit process throughput	0.136	0.14	-0.002
ALQ	2.47	1000 lbs throughput/hr	0.035	lb PM10/ 000 lb unit process throughput	0.086	0.09	-0.001
ALT	2.47	1000 lbs throughput/hr	0.004	lb PM10/ 000 lb unit process throughput	0.010	0.01	0.000
ALY	2.47	1000 lbs throughput/hr	0.00075	lb PM10/ 000 lb unit process throughput	0.002	0.00	0.000
ALV	3.65	1000 lbs throughput/hr	0.055	lb PM10/ 000 lb unit process throughput	0.201	0.20	-0.003
ALW	3.65	1000 lbs throughput/hr	0.035	lb PM10/ 000 lb unit process throughput	0.128	0.13	-0.002
ALX	3.65	1000 lbs throughput/hr	0.004	lb PM10/ 000 lb unit process throughput	0.015	0.01	0.000
AEV	3.25	1000 lbs throughput/hr	0.055	lb PM10/ 000 lb unit process throughput	0.179	0.18	-0.003
AEW	3.25	1000 lbs throughput/hr	0.039	lb PM10/ 000 lb unit process throughput	0.127	0.13	-0.002
AGQ	3.25	1000 lbs throughput/hr	0.00075	lb PM10/ 000 lb unit process throughput	0.002	0.00	0.000
CIR_RTC	11.04	1000 lbs throughput/hr	0.0461	lb PM10/ 000 lb unit process throughput	0.509	0.55	-0.044
CHV	11.04	1000 lbs throughput/hr	0.00075	lb PM10/ 000 lb unit process throughput	0.008	0.01	-0.001

Table 1
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lb/hr		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
CXX	6.88	1000 lbs throughput/hr	0.343	lb PM10/ 000 lb unit process throughput	2.358	2.57	-0.214
CYY	6.88	1000 lbs throughput/hr	0.327	lb PM10/ 000 lb unit process throughput	2.248	2.45	-0.204
CHX	3.21	1000 lbs throughput/hr	0.189740143	lb PM10/ 000 lb unit process throughput	0.609	0.53	0.077
CHY	3.21	1000 lbs throughput/hr	0.063367466	lb PM10/ 000 lb unit process throughput	0.203	0.18	0.026
CHZ	3.21	1000 lbs throughput/hr	0.032592068	lb PM10/ 000 lb unit process throughput	0.105	0.09	0.013
TEE	3.21	1000 lbs throughput/hr	0.008954373	lb PM10/ 000 lb unit process throughput	0.029	0.03	0.004
TEM	3.21	1000 lbs throughput/hr	0.008954373	lb PM10/ 000 lb unit process throughput	0.029	0.03	0.004
HEB	3.33	1000 lbs throughput/hr	0.64	lb PM10/ 000 lb unit process throughput	2.133	2.24	-0.107
HNL	3.33	1000 lbs throughput/hr	0.142	lb PM10/ 000 lb unit process throughput	0.473	0.50	-0.024
CBB	2.50	1000 lbs throughput/hr	0.101221193	lb PM10/ 000 lb unit process throughput	0.253	0.20	0.051
CTQ	2.50	1000 lbs throughput/hr	0.080503972	lb PM10/ 000 lb unit process throughput	0.201	0.16	0.040
CTR	2.50	1000 lbs throughput/hr	0.077797642	lb PM10/ 000 lb unit process throughput	0.194	0.16	0.039
CTS	2.50	1000 lbs throughput/hr	0.023847917	lb PM10/ 000 lb unit process throughput	0.060	0.05	0.012
CTT	2.50	1000 lbs throughput/hr	0.020243562	lb PM10/ 000 lb unit process throughput	0.051	0.04	0.010
CNV	3.75	1000 lbs throughput/hr	0.074136553	lb PM10/ 000 lb unit process throughput	0.278	0.21	0.070
CNW	3.75	1000 lbs throughput/hr	0.07514516	lb PM10/ 000 lb unit process throughput	0.282	0.21	0.071
CTU	3.75	1000 lbs throughput/hr	0.504812834	lb PM10/ 000 lb unit process throughput	1.893	1.41	0.480
CTZ	3.75	1000 lbs throughput/hr	0.127905452	lb PM10/ 000 lb unit process throughput	0.480	0.36	0.122

Table 1
Emissions from BAF Facility Stacks

	Operating Rate		Emission Factor		Emission Rate, lb/hr		
Stack ID	Value	Units	Value	Units	Alternate Compliance Plan	2009 Permit	Difference
NND	2.92	1000 lbs throughput/hr	0.079840955	lb PM10/ 000 lb unit process throughput	0.233	0.00	0.233
NNG	2.92	1000 lbs throughput/hr	0.223759045	lb PM10/ 000 lb unit process throughput (uncontrolled)	0.653	0.00	0.653
TCD	1.00	1000 lbs throughput/hr	0.034224	lb PM10/ 000 lb unit process throughput	0.034	0.03	0.000
TCO	1.00	1000 lbs throughput/hr	0.034224	lb PM10/ 000 lb unit process throughput	0.034	0.03	0.000
TAC	0.40	1000 lbs throughput/hr	0.391	lb PM10/ 000 lb unit process throughput	0.156	0.16	0.000
TAH	0.40	1000 lbs throughput/hr	0.391	lb PM10/ 000 lb unit process throughput	0.156	0.16	0.000
EUW	43.00	1000 lbs throughput/hr	0.0001	lb PM10/ 000 lb unit process throughput	0.004	0.00	0.000
SUF	43.00	1000 lbs throughput/hr	0.0001	lb PM10/ 000 lb unit process throughput	0.004	0.00	0.000
DSX	1.00	1000 lbs throughput/hr	0.009	lb PM10/ 000 lb unit process throughput	0.009	0.01	0.000
EGS	11.25	1000 lbs throughput/hr	0.0015	lb PM10/ 000 lb unit process throughput	0.017	0.02	-0.002
EGT	11.25	1000 lbs throughput/hr	0.0015	lb PM10/ 000 lb unit process throughput	0.017	0.02	-0.002
FIF	15.00	1000 lbs throughput/hr	0.038	lb PM10/ 000 lb unit process throughput	0.570	0.57	0.000
Heaters	77.58	MM Btu/hr	0.00745098	lb PM10/MM Btu	0.578	0.58	0.000
				Total:	31.95	37.89	-5.94

Table 2
Emissions from BAPCI Facility Stacks

Source ID	Source Description	PM10 (lb/hr)	Comments
EU_01	Processing East Boiler	0.398	Based on NG Firing Only.
EU_02	Processing West Boiler	0.302	
EU_06	Reblend Rm Air Makeup	0.007	
EU_07	Scratch Match Air Makeup	0.037	
EU_08	Bld #3 Air Makeup	0.022	
EU_09	Bld #4 Air Makeup	0.075	
EU_10	Process Peeler exhaust	0.160	
EU_11	Flaker #1	2.50	
EU_12	Flaker #2	2.50	
EU_13	Flaker #3	2.00	
EU_14	Flaker #4	2.00	
EU_15	Flaker #5	2.00	
EU_16	Grinding Circuit #1 baghouse	0.000	
EU_18	Grinding Circuit #2 baghouse	0.001	
EU_19	Flaker Baghouse	0.001	
EU_20	Dehy North Boiler	0.078	
EU_21	Dehy South Boiler	0.063	
EU_22	Dehy Dryer #1A-stage	-	Emissions unit permanently shut down.
EU_23	Dehy Dryer #1B-stage	-	Emissions unit permanently shut down.
EU_24	Dehy Dryer #2A-stage	1.09	
EU_25	Dehy Dryer #2B-stage	0.48	
EU_26	Dehy Dryer #3A-stage	1.09	
EU_27	Dehy Dryer #3B-stage	0.48	
EU_28	Dehy Dryer #4A-stage	-	Emissions unit permanently shut down.
EU_29	Dehy Dryer #4B-stage	-	Emissions unit permanently shut down.
EU_30	Dehy Dryer #4C-stage	-	Emissions unit permanently shut down.
EU_31	Dehy Dryer #5A-stage	1.03	
EU_32	Dehy Dryer #5B-stage	0.45	
EU_33	Dehy Dryer #5C-stage	0.45	

Table 2
Emissions from BAPCI Facility Stacks

Source ID	Source Description	PM10 (lb/hr)	Comments
EU_34	Dehy Bin Dryer - New Burner	0.640	
EU_35	West Area Air Makeup	0.026	
EU_36	S. Dryer Rm 4&5 Air Makeup	0.037	
EU_37	S. Dryer Rm 4&5 Roof Air Makeup	0.037	
EU_38	Inspection Rm Roof Air Makeup	0.026	
EU_39	Dehydration Research Dryer	0.182	
EU_40	Packaging Baghouse #1	0.000	
EU_41	Packaging Baghouse #2	0.000	
EU_42	Crush Room Baghouse #1	0.000	
EU_43	Crush Room Baghouse #2	0.000	
EU_44	Dehy Steam Peeler	0.160	
EU_45	Dehy Dryer #6A-stage	0.670	
EU_46	Dehy Dryer #6B-stage	0.147	
EU_47	Dehy Dryer #6C-stage	0.147	
EU_48	Dryer #6 Air Makeup Unit	0.026	
EU_68	New Air Makeup Unit	0.025	New unit.

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
BLR2A	BAF	387767.25	4784172.19	1364.62	30.48	422.038889	17.3840249	1.0668	V
AGQ	BAF	387732.5	4784136.75	1364.51	10.1316	298.15	6.75426522	0.1524	H
AEV	BAF	387705.83	4784128.36	1364.39	15.5204	299.82	16.8270542	0.8138	V
AEW	BAF	387705.84	4784125.56	1364.39	15.5204	299.82	15.8448257	0.6614	V
ALB	BAF	387729.67	4784136.23	1364.49	10.54	349.26	16.3928668	0.4938	V
ALQ	BAF	387728.42	4784135.23	1364.49	8.0254	311.48	26.7380475	0.3292	V
ALT	BAF	387725.76	4784135.23	1364.48	8.0254	319.26	30.6682799	0.3292	V
ALV	BAF	387721.88	4784138.74	1364.46	8.7356	343.71	17.4871041	0.6005	V
ALW	BAF	387720.08	4784138.74	1364.45	10.2352	317.59	14.9184291	0.6005	V
ALX	BAF	387717.92	4784138.5	1364.45	10.1072	313.15	12.3708236	0.6005	V
ALY	BAF	387748.24	4784141.34	1364.57	9.8542	314.82	18.9012295	0.1006	V
CBB	BAF	387740.58	4784112.41	1364.54	11.7348	327.59	12.2503349	0.5852	V
CHV	BAF	387739.1	4784133.83	1364.53	9.0922	324.82	35.5964574	0.1524	H
CHX	BAF	387718.42	4784124.12	1364.45	14.731	346.65	9.4944669	0.9723	V
CHY	BAF	387722.85	4784124.49	1364.47	9.5738	336.04	10.2503111	0.6309	V

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
CHZ	BAF	387728.83	4784123.78	1364.49	10.921	343.15	8.09757433	0.5547	V
CIR_RTC	BAF	387728.48	4784143.68	1364.49	14.8255	319.98	11.8527142	0.6096	V
TEE	BAF	387736.36	4784127.98	1364.52	11.1252	349.15	10.86612	0.4572	V
TEM	BAF	387741.39	4784127.31	1364.54	11.0978	349.15	10.86612	0.4572	V
CNV	BAF	387767.06	4784106.05	1364.65	19.5072	477.59	26.6627678	0.9144	V
CNW	BAF	387760.19	4784106.05	1364.62	19.5072	477.59	26.6627678	0.9144	V
CTQ	BAF	387737	4784109.56	1364.53	11.177	343.71	12.160063	0.5944	V
CTR	BAF	387734	4784110.04	1364.51	10.8204	330.37	21.0583038	0.3962	V
CTS	BAF	387730.77	4784108.84	1364.5	10.8204	329.26	11.7667666	0.3383	V
CTT	BAF	387723.93	4784109.2	1364.47	10.8204	323.15	13.6299017	0.3383	V
CTU	BAF	387766.55	4784112.02	1364.64	13.716	344.26	12.6091126	0.9418	V
CTZ	BAF	387729.57	4784101.05	1364.49	16.2062	334.26	17.3850527	0.7772	V
CXX	BAF	387765.84	4784130.99	1364.64	17.145	313.15	23.4669189	0.8138	V
CYY	BAF	387766.92	4784121.52	1364.64	18.6172	314.82	20.2126778	1.2192	V
DHQ	BAF	387721.68	4784154.28	1364.46	11.3081	302.04	7.15625814	0.762	V
DHT	BAF	387701.75	4784159.93	1364.39	20.065	333.15	22.3772231	0.9144	V
DHU	BAF	387707.25	4784159.94	1364.41	20.065	333.15	22.3772231	0.9144	V
DHZ	BAF	387709.76	4784162.81	1364.42	20.065	330.37	13.5110522	0.9144	V
DKV	BAF	387689.68	4784158.56	1364.36	16.7122	296.48	11.4867257	0.6096	V

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
DKW	BAF	387684.38	4784155.24	1364.35	11.6586	303.15	20.6770843	0.128	H
DPY	BAF	387724.96	4784159.74	1364.47	10.0371	306.48	11.9115884	0.6096	V
DPZ	BAF	387722.83	4784159.1	1364.46	10.1285	310.93	7.4473062	0.5334	V
DQA	BAF	387706.96	4784144.11	1364.4	19.4554	333.15	14.1505245	1.0668	V
DQB	BAF	387698.83	4784144.1	1364.36	19.4554	333.15	14.1505245	1.0668	V
DRY	BAF	387691.34	4784154.12	1364.35	15.5936	296.48	4.65700096	0.253	C
DSK	BAF	387690.27	4784146.12	1364.34	15.7216	302.59	10.9728	0.2865	H
DSO	BAF	387692.09	4784153.48	1364.35	15.3924	310.93	23.9969081	0.2865	H
DSX	BAF	387692.1	4784145.1	1364.34	15.9258	297.04	15.24	0.0762	C
DUO	BAF	387722.82	4784162.28	1364.46	8.8788	310.93	7.4473062	0.5334	V
DUQ	BAF	387706.95	4784149.69	1364.4	19.0256	333.15	14.9953319	1.0668	V
DUT	BAF	387698.82	4784149.68	1364.37	19.0256	333.15	14.9953319	1.0668	V
DUV	BAF	387710.52	4784145.25	1364.41	20.9794	325.26	11.1573981	1.2192	V
DUY	BAF	387697.49	4784141.29	1364.36	11.302	303.15	20.6804708	0.128	H
DUZ	BAF	387697.99	4784141.3	1364.36	11.302	303.15	20.6804708	0.128	H
DXS	BAF	387724.96	4784161.52	1364.47	9.2751	306.48	11.9115884	0.6096	V
EGS	BAF	387698.88	4784074.75	1364.28	20.9794	307.04	4.53786601	0.3048	V
EGT	BAF	387693.42	4784074.75	1364.26	20.6746	295.93	8.63574788	0.3048	V
EUW	BAF	387685.01	4784115.6	1364.3	10.0584	309.26	14.9023869	0.2316	V

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
FIF	BAF	387719.24	4784058	1364.34	14.6304	294.26	9.94602348	0.3566	V
HEB	BAF	387766.83	4784086.47	1364.64	19.8638	350.37	27.5970427	0.9144	V
HNL	BAF	387751.03	4784080.23	1364.56	15.5966	343.15	25.8463553	0.509	V
NND	BAF	387740.521	4784027.55	1364.45	18.288	344.26	11.6161022	1.0668	V
NNG	BAF	387745.781	4784033.38	1364.48	21.336	303.705556	13.0683047	1.2192	V
TCD	BAF	387566.96	4784242.49	1364.8	9.906	337.59	11.1793576	0.6858	C
TCO	BAF	387576.72	4784242.49	1364.78	10.8204	310.93	5.33614693	0.6096	C
SUF	BAF	387662.4	4784077.49	1364.15	10.5156	294.26	13.1298462	0.3993	H
EU_01_NG	Nonpareil	388250	4784294.13	1366.37	18.288	483.15	11.491	0.701	V
EU_02_NG	Nonpareil	388255	4784294.13	1366.37	18.288	483.15	6.767	0.9144	V
EU_10	Nonpareil	388266.45	4784276.11	1366.29	7.3152	360.93	6.10E-02	0.6096	V
EU_11	Nonpareil	388266.01	4784308.44	1366.43	16.4592	322.04	14.387	0.9144	V
EU_12	Nonpareil	388270.58	4784308.21	1366.43	16.4592	322.04	14.387	0.9144	V
EU_13	Nonpareil	388274.38	4784308.28	1366.42	16.4592	322.04	14.387	0.9144	V
EU_14	Nonpareil	388278.33	4784308.36	1366.41	16.4592	322.04	14.387	0.9144	V
EU_15	Nonpareil	388286.78	4784308.28	1366.42	16.4592	322.04	14.387	0.9144	V
EU_16	Nonpareil	388296.23	4784308.52	1366.47	6.096	294.26	0.001	0.0009	V
EU_17	Nonpareil	388282.48	4784222.75	1366.21	6.096	294.26	0.001	0.0009	V
EU_18	Nonpareil	388350.84	4784308.66	1366.52	5.0292	294.26	17.983	0.3353	V

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
EU_19	Nonpareil	388290.18	4784307.83	1366.43	6.096	294.26	31.455	0.3658	V
EU_20	Nonpareil	387996.94	4784157.84	1365.22	8.5344	466.48	6.157	0.4877	V
EU_21	Nonpareil	387995.68	4784154.33	1365.22	8.5344	466.48	1.402	0.9144	V
EU_24	Nonpareil	388014.5	4784140.28	1365.06	12.6492	359.26	12.436	0.762	V
EU_25	Nonpareil	388022.33	4784134.25	1365.05	12.6492	338.71	5.761	0.9144	V
EU_26	Nonpareil	388011.08	4784131.1	1365.06	12.6492	359.26	12.436	0.762	V
EU_27	Nonpareil	388020.71	4784126.5	1365.05	12.6492	338.71	8.291	0.762	V
EU_31	Nonpareil	388009.28	4784117.05	1365.05	12.6492	344.26	14.569	1.0363	V
EU_32	Nonpareil	388028.19	4784113.18	1365.05	12.6	338.71	10.516	0.7925	V
EU_33	Nonpareil	388031.07	4784112.91	1365.05	12.6	327.59	11.339	0.6096	V
EU_34	Nonpareil	388051.6	4784123.71	1365.08	12.6	305.37	1.829	0.4267	V
EU_39	Nonpareil	388071.62	4784026.99	1365.13	7.3152	308.15	1.829	0.1524	V
EU_40	Nonpareil	388059.88	4784091.64	1365.1	6.096	294.26	16.307	0.1524	V
EU_41	Nonpareil	388065.01	4784092.63	1365.11	6.096	294.26	45.293	0.1524	V
EU_42	Nonpareil	388044.48	4784087.68	1365.07	4.8768	294.26	0.001	0.0009	V
EU_43	Nonpareil	388042.32	4784081.83	1365.07	4.8768	294.26	0.001	0.0009	V
EU_44	Nonpareil	387995.82	4784145.35	1365.18	7.3152	360.93	9.10E-02	0.6096	V
EU_45	Nonpareil	388008.87	4784103.84	1365.05	12.6492	344.26	17.8699999	0.9357	V
EU_46	Nonpareil	388023.37	4784100.33	1365.05	8.2296	338.71	10.598	0.7894	V

Table 3
Point Source Stack Parameters

Release Point	Description	UTC Coordinates		Base Elevation (m)	Stack Height (m)	Stack Gas Flow Temp. (K)	Stack Gas Flow Velocity (m/s)	Modeled Stack Diameter (m)	Orientation of Release
		Easting (m)	Northing (m)						
EU_47	Nonpareil	388026.7	4784099.16	1365.05	8.2296	327.59	12.1759	0.5883	V

Table 4
Volume Source Release Parameters

Source	Description	UTM Coordinates		Release Height (m)	Horizontal Dimension (m)	Vertical Dimension (m)
		Easting (m)	Northing (m)			
HEATERS	BAF	387994.85	4784141.44	14.88	37.44	6.9199
EU_06	Nonpareil	388246.75	4784294.13	10	0.71	2.34
EU_07	Nonpareil	388246.75	4784294.13	10	0.71	2.34
EU_08	Nonpareil	388246.75	4784294.13	10	0.71	2.34
EU_09	Nonpareil	388246.75	4784285.23	10	0.71	2.34
EU_35	Nonpareil	388246.75	4784285.23	10	0.71	2.34
EU_36	Nonpareil	388246.75	4784285.23	10	0.71	2.34
EU_37	Nonpareil	388246.75	4784285.23	10	0.71	2.34
EU_38	Nonpareil	388246.75	4784285.23	10	0.71	2.34

Table 5
Modeling Parameters

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	415 West Collins Road, Blackfoot, ID	Attainment
Model	AERMOD	AERMOD (Version 16216r)
Meteorological Data	On-Site Data: Mountain View Middle School, Blackfoot. (Meteorologic data station maintained by Idaho National Laboratory) Surface Data: Pocatello Regional Airport (Station 24156). Upper air: Boise (Station 24131) All data for 2002 to 2006.	Meteorologic data were obtained from Idaho National Laboratory for a station located at the Mountain View Middle School in Blackfoot Idaho, about 2 miles ESE of the Blackfoot Facility. These data were processed in AERMET Version 12345 as on-site data. See Section 5.2 of this memorandum for additional details of the meteorological data.
Terrain	Considered	3-dimensional receptor coordinates were obtained from USGS National Elevation Dataset (NED) files and were used to establish elevation of ground level receptors. AERMAP (version 11103) was used to determine each receptor elevation and hill height scale. A 10% slope criterion was used to determine the geodomain for AERMAP processing.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility, including facilities on neighboring property of potential downwash concern. BPIP-PRIME (version 04274) was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NOx Chemistry	Tier I (No NOx chemistry)	Use of ARM1 approved by DEQ.
Receptor Grid	Grid 1	25-meter spacing along the ambient air boundary, extending 250 meters beyond the ambient air boundary
	Grid 2	100-meter exclusionary corners grid, extending from 385600E/4782600N on the southwest to 389500E/4785800 on the northwest
	Special Impact Grid	A 5-meter grid located in an area along the north ambient where the highest impacts were noted. This grid was added to ensure that the highest 6th high 24-hr PM10 impact was characterized in sufficient detail.

FIGURES

Figure 1
Site Location

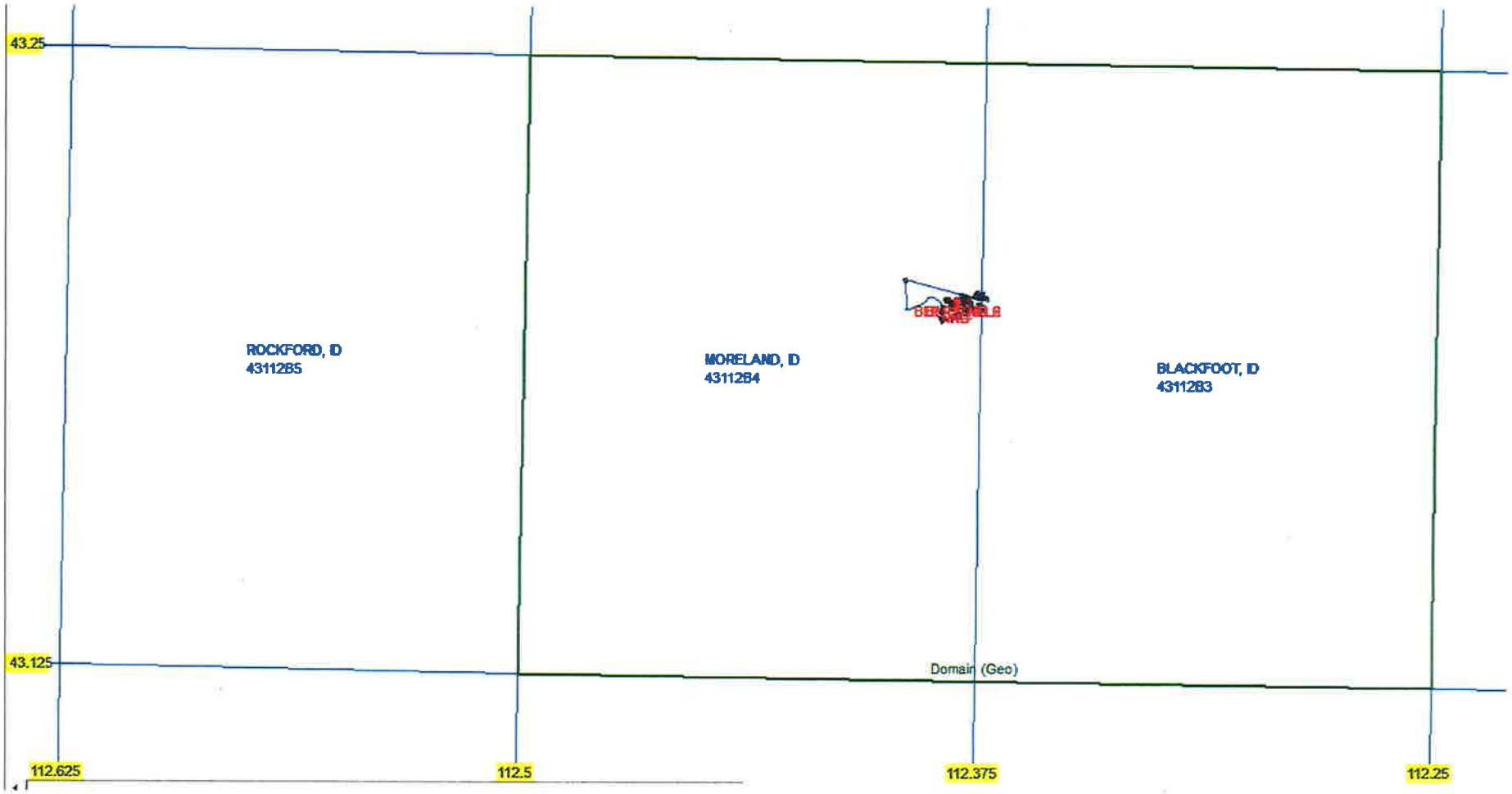


Figure 2
Calculated Geodomain Using 10% Slope Criteria

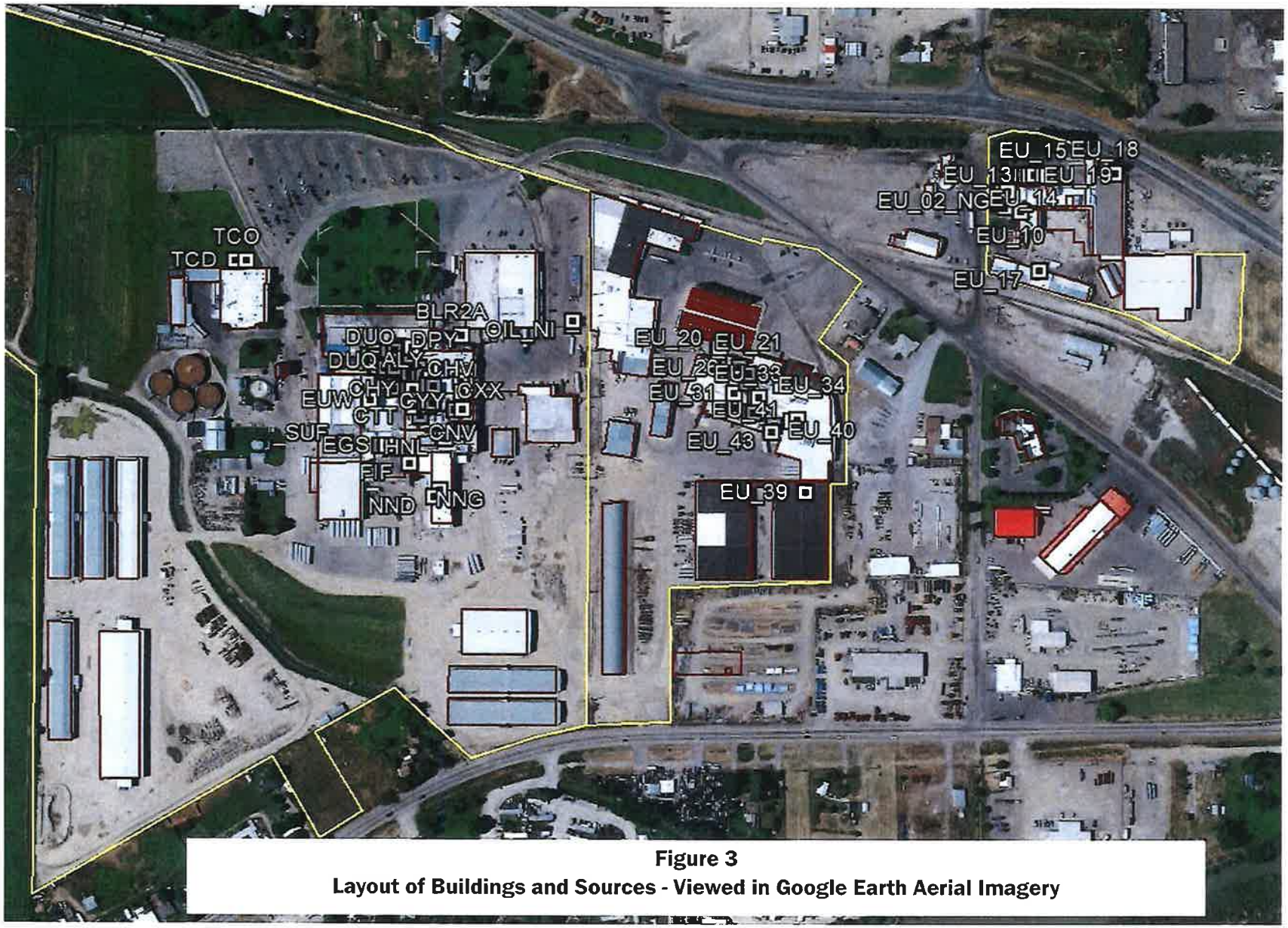


Figure 3
Layout of Buildings and Sources - Viewed in Google Earth Aerial Imagery

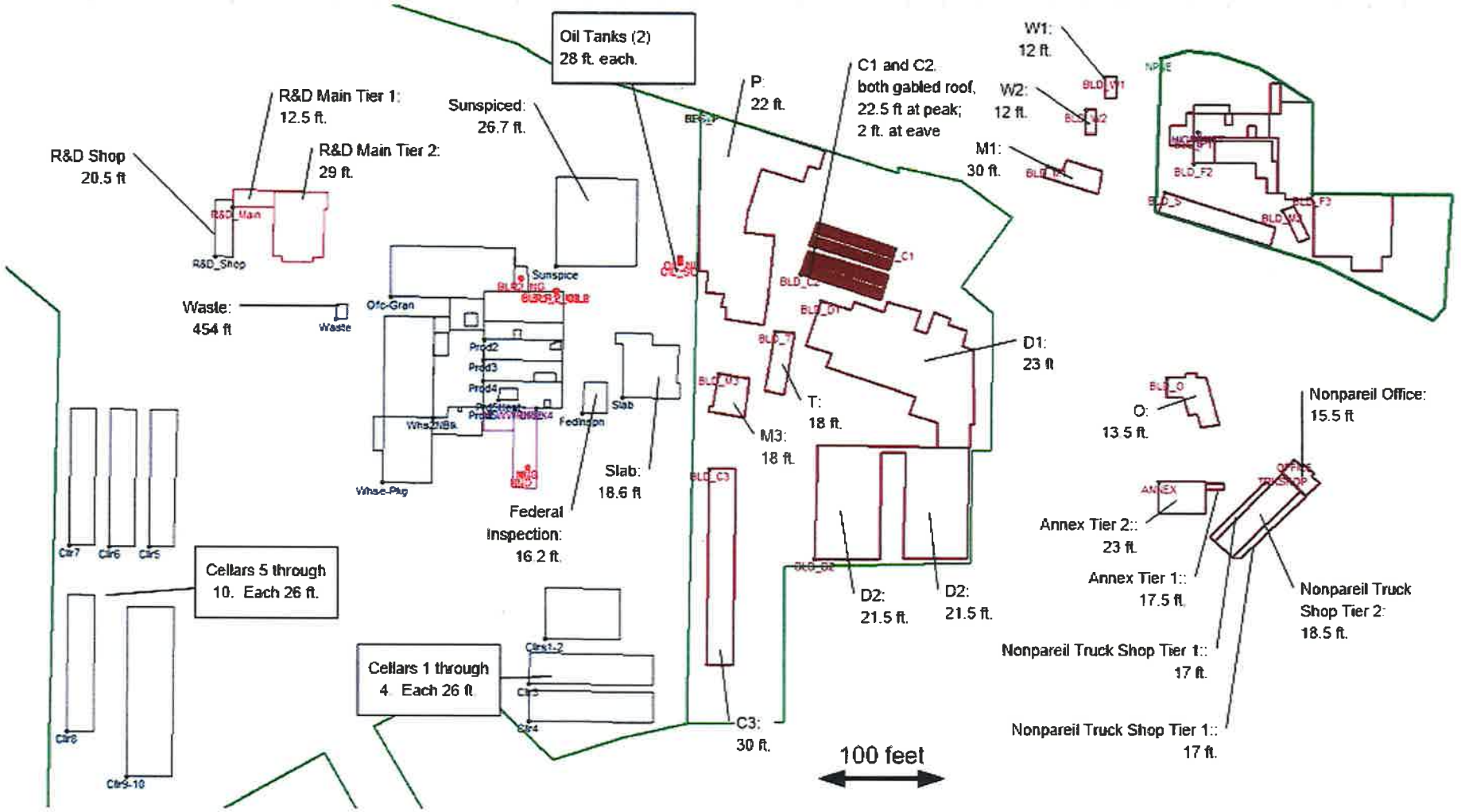


Figure 4
Scaled Plot Plan with Building Tier Heights

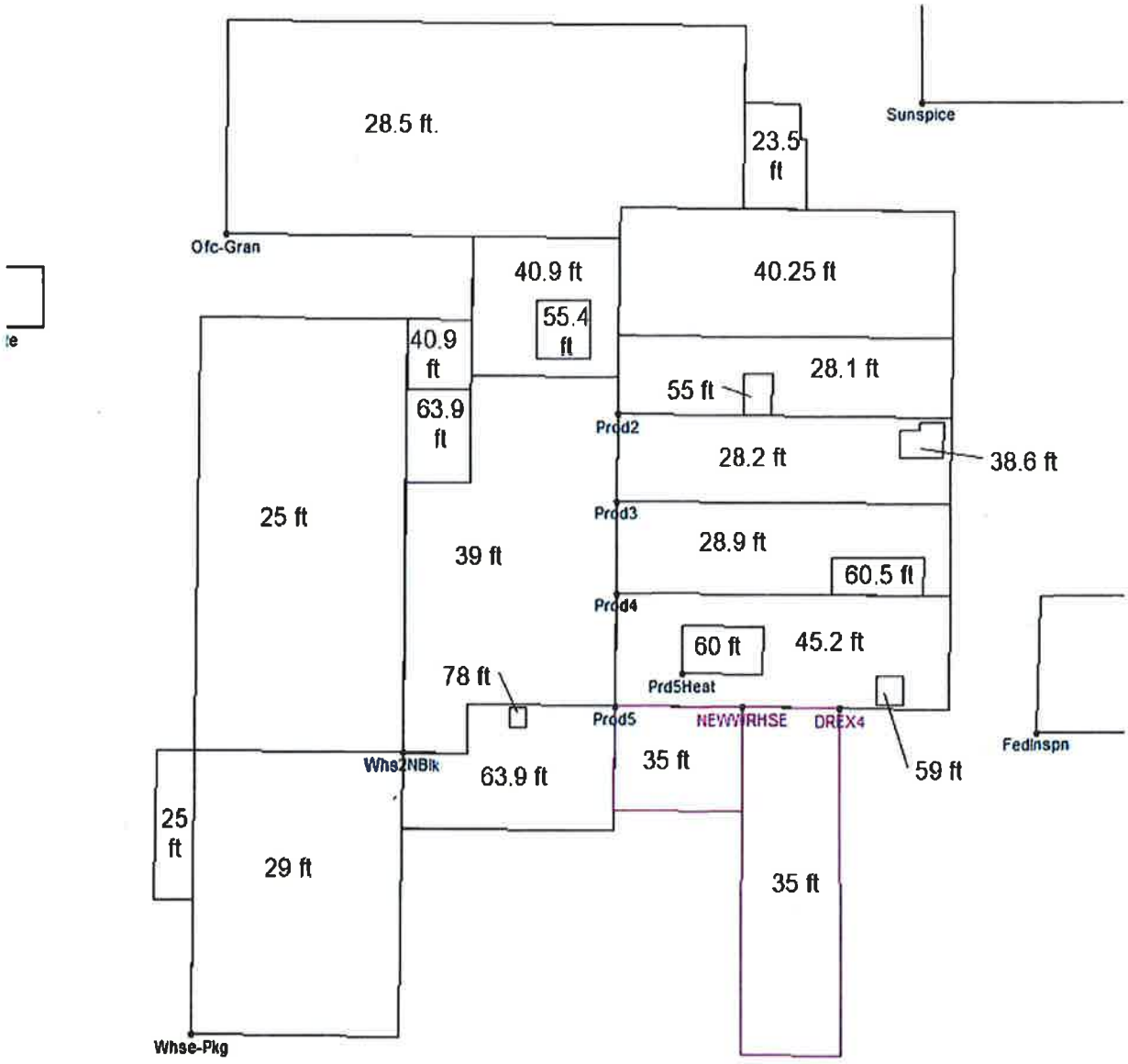


Figure 5
Building Tier Heights for Blackfoot Main Production Building

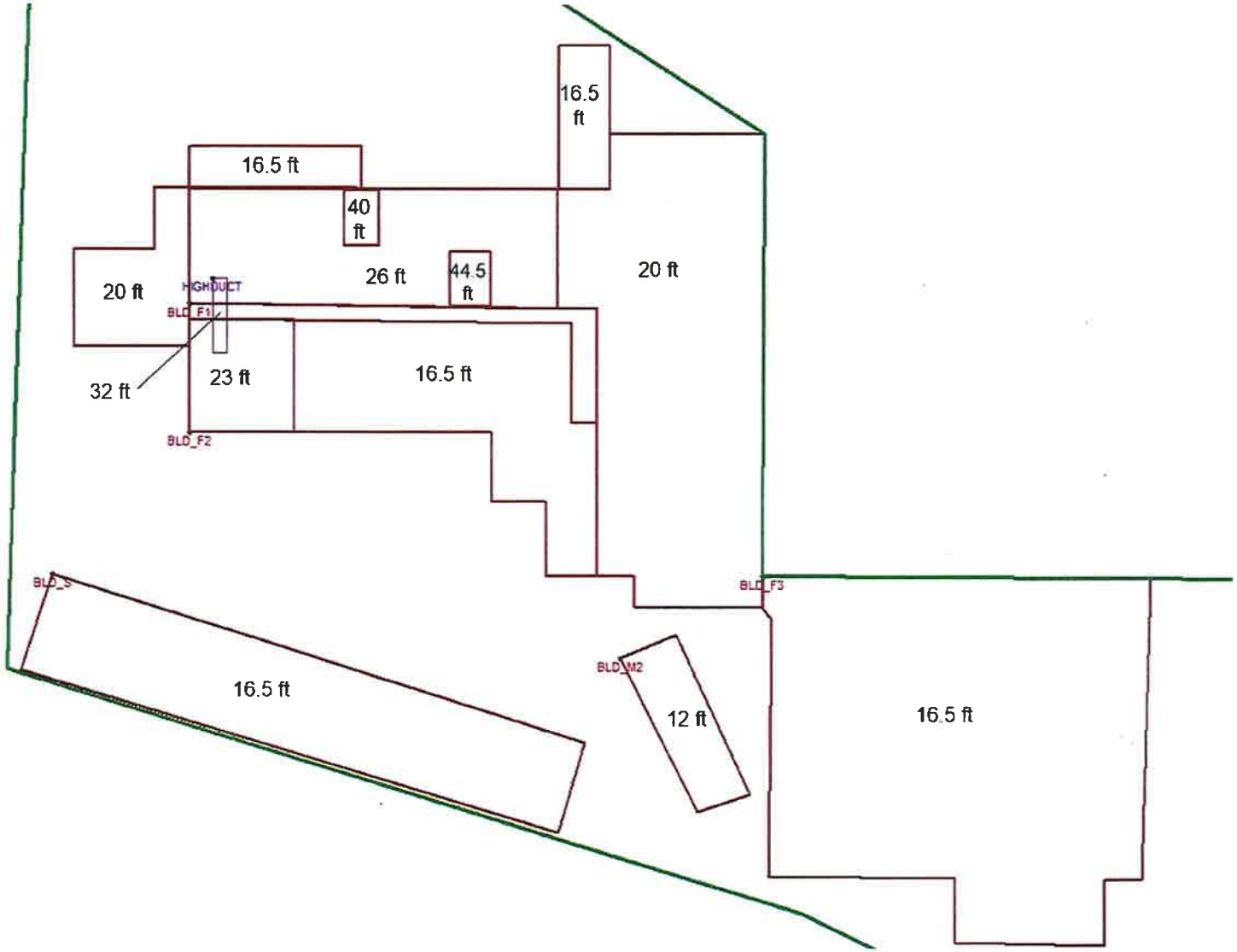


Figure 6
Building Tier Heights for Flaker Area

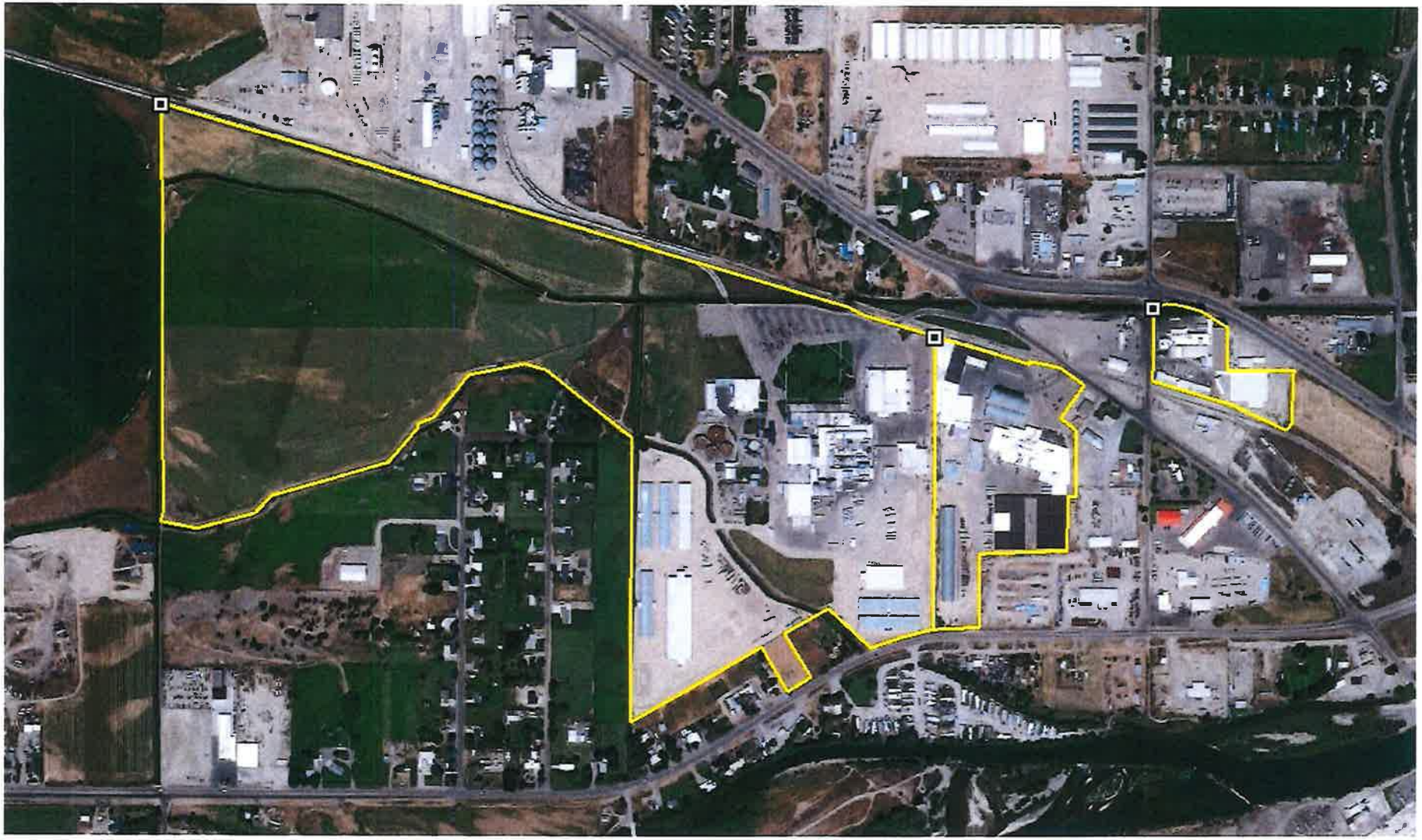


Figure 7
Site Ambient Boundary - Viewed in Google Earth Aerial Imagery

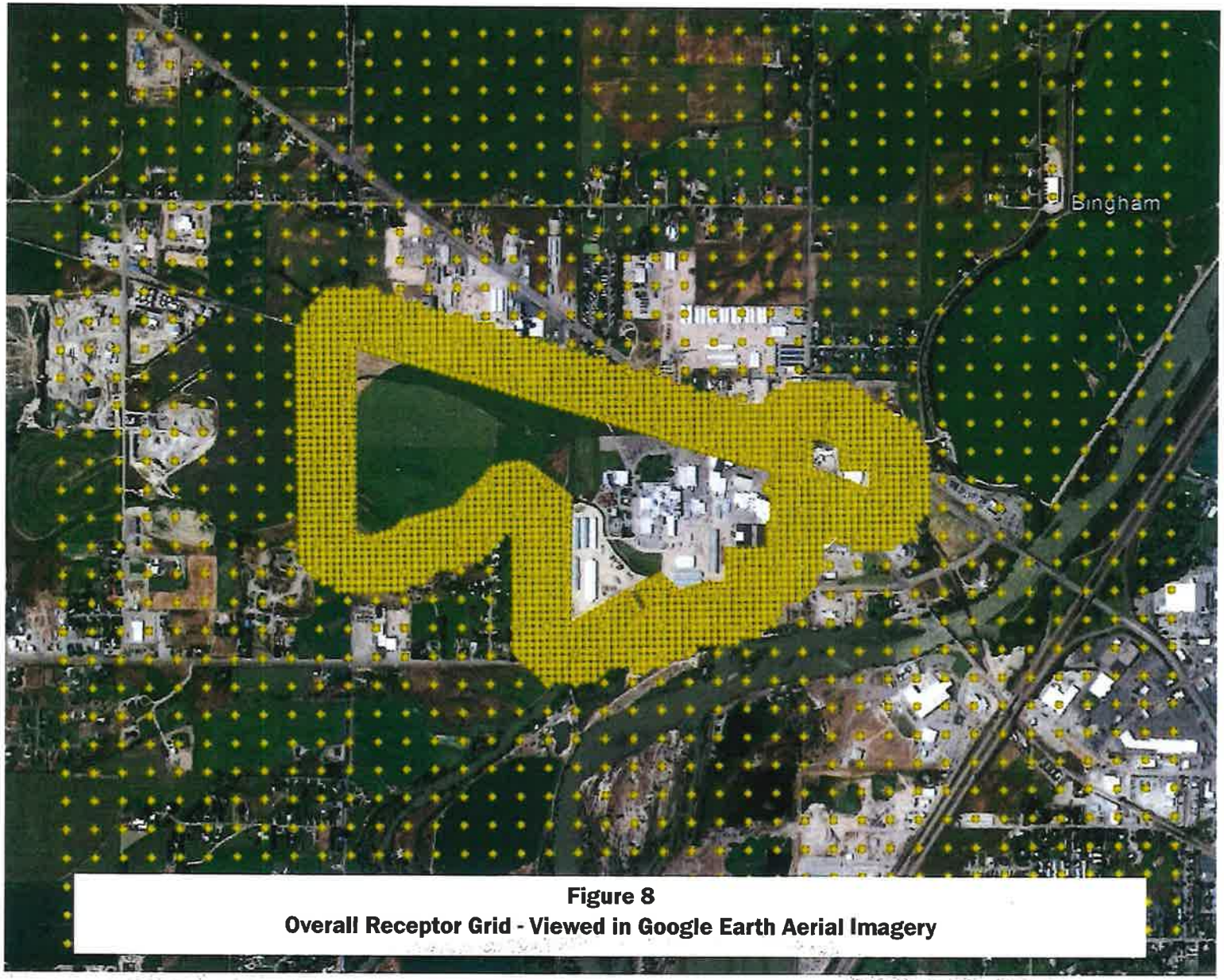


Figure 8
Overall Receptor Grid - Viewed in Google Earth Aerial Imagery

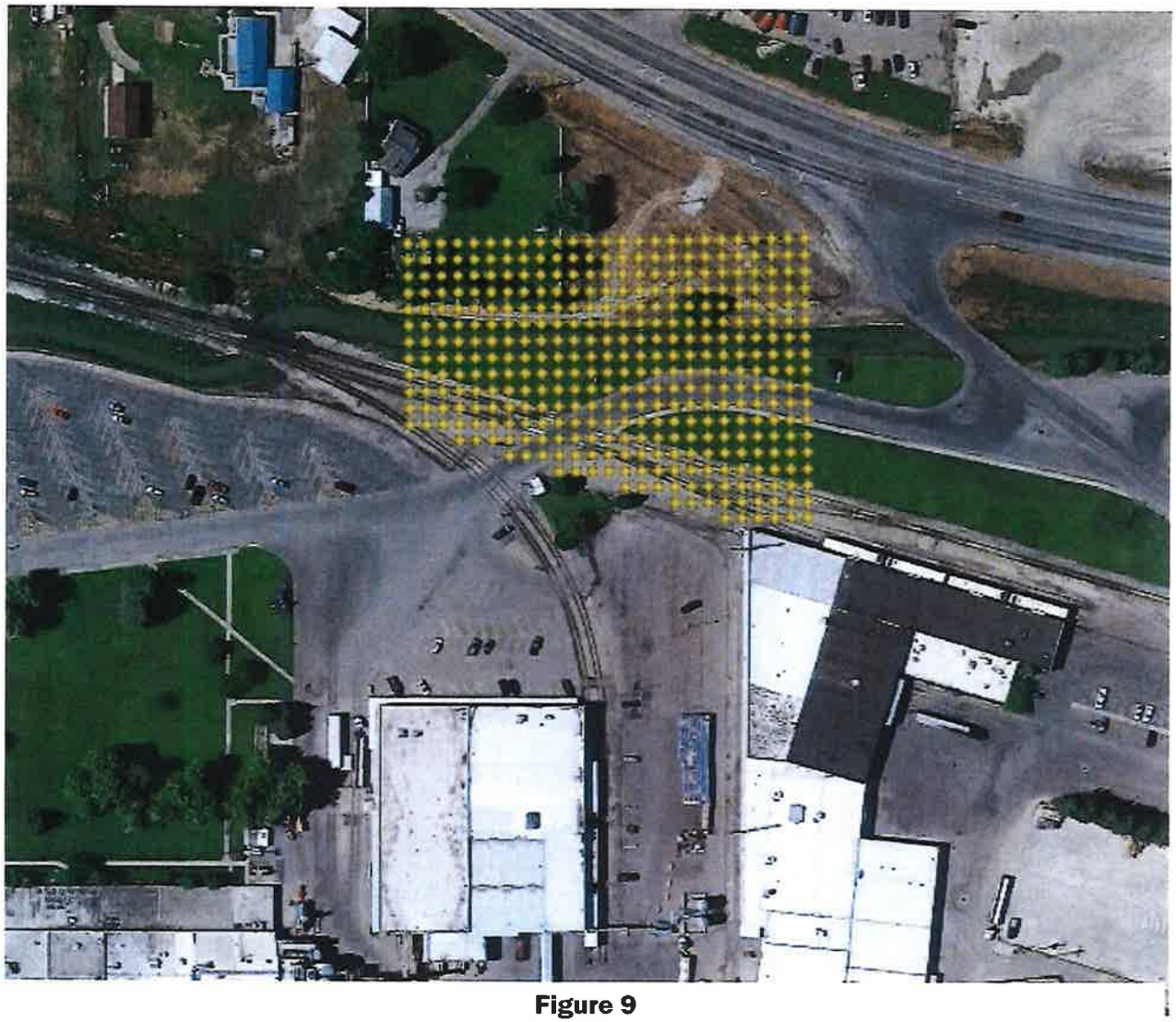


Figure 9
Special Impact Receptor Grid - Viewed in Google Earth Aerial Imagery

Figure 10
Results for Highest 6th High 24-Hour PM10 Impact

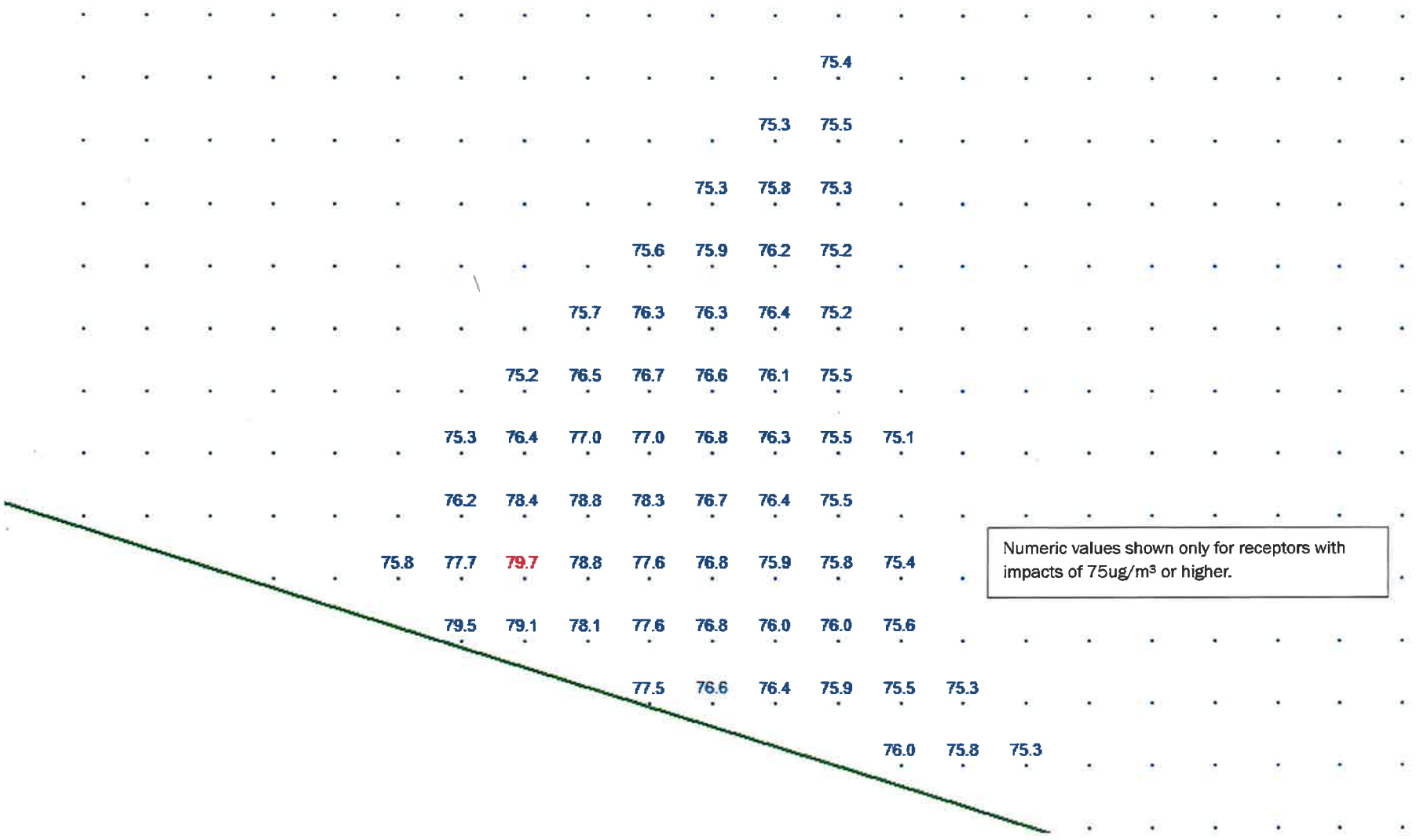


Figure 11
Results for Highest 6th High 24-Hour PM10 with Special Impact Grid

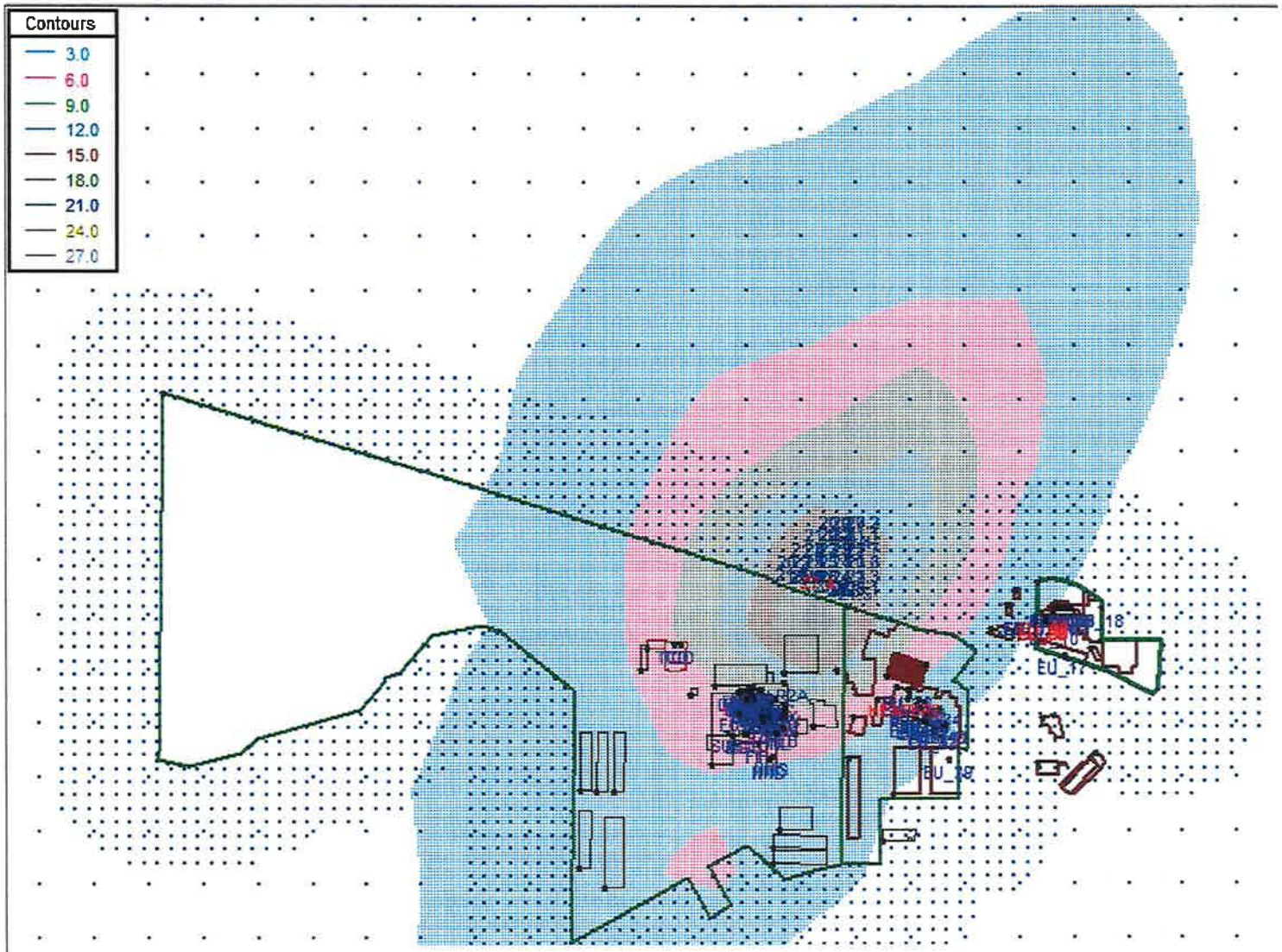


Figure 12
Results for Highest 1st High Annual PM10 Impact

ATTACHMENT A

AERSURFACE SITE SURFACE CHARACTERISTICS FOR METEROLOGIC DATA TOWER AT MOUNTAIN VIEW MIDDLE SCHOOL

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
January	1 of 12	0.18	0.74	0.066
January	2 of 12	0.18	0.74	0.043
January	3 of 12	0.18	0.74	0.024
January	4 of 12	0.18	0.74	0.022
January	5 of 12	0.18	0.74	0.020
January	6 of 12	0.18	0.74	0.025
January	7 of 12	0.18	0.74	0.044
January	8 of 12	0.18	0.74	0.225
January	9 of 12	0.18	0.74	0.277
January	10 of 12	0.18	0.74	0.315
January	11 of 12	0.18	0.74	0.240
January	12 of 12	0.18	0.74	0.151
February	1 of 12	0.18	0.74	0.066
February	2 of 12	0.18	0.74	0.043
February	3 of 12	0.18	0.74	0.024
February	4 of 12	0.18	0.74	0.022
February	5 of 12	0.18	0.74	0.020
February	6 of 12	0.18	0.74	0.025
February	7 of 12	0.18	0.74	0.044
February	8 of 12	0.18	0.74	0.225
February	9 of 12	0.18	0.74	0.277
February	10 of 12	0.18	0.74	0.315
February	11 of 12	0.18	0.74	0.240
February	12 of 12	0.18	0.74	0.151
March	1 of 12	0.18	0.74	0.066
March	2 of 12	0.18	0.74	0.043
March	3 of 12	0.18	0.74	0.024
March	4 of 12	0.18	0.74	0.022
March	5 of 12	0.18	0.74	0.020
March	6 of 12	0.18	0.74	0.025
March	7 of 12	0.18	0.74	0.044
March	8 of 12	0.18	0.74	0.225

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
March	9 of 12	0.18	0.74	0.277
March	10 of 12	0.18	0.74	0.315
March	11 of 12	0.18	0.74	0.240
March	12 of 12	0.18	0.74	0.151
April	1 of 12	0.15	0.37	0.105
April	2 of 12	0.15	0.37	0.070
April	3 of 12	0.15	0.37	0.039
April	4 of 12	0.15	0.37	0.039
April	5 of 12	0.15	0.37	0.036
April	6 of 12	0.15	0.37	0.046
April	7 of 12	0.15	0.37	0.074
April	8 of 12	0.15	0.37	0.294
April	9 of 12	0.15	0.37	0.330
April	10 of 12	0.15	0.37	0.391
April	11 of 12	0.15	0.37	0.319
April	12 of 12	0.15	0.37	0.206
May	1 of 12	0.15	0.37	0.105
May	2 of 12	0.15	0.37	0.070
May	3 of 12	0.15	0.37	0.039
May	4 of 12	0.15	0.37	0.039
May	5 of 12	0.15	0.37	0.036
May	6 of 12	0.15	0.37	0.046
May	7 of 12	0.15	0.37	0.074
May	8 of 12	0.15	0.37	0.294
May	9 of 12	0.15	0.37	0.330
May	10 of 12	0.15	0.37	0.391
May	11 of 12	0.15	0.37	0.319
May	12 of 12	0.15	0.37	0.206
June	1 of 12	0.19	0.55	0.245
June	2 of 12	0.19	0.55	0.190
June	3 of 12	0.19	0.55	0.157
June	4 of 12	0.19	0.55	0.150
June	5 of 12	0.19	0.55	0.147

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
June	6 of 12	0.19	0.55	0.162
June	7 of 12	0.19	0.55	0.203
June	8 of 12	0.19	0.55	0.395
June	9 of 12	0.19	0.55	0.438
June	10 of 12	0.19	0.55	0.468
June	11 of 12	0.19	0.55	0.415
June	12 of 12	0.19	0.55	0.343
July	1 of 12	0.19	0.55	0.245
July	2 of 12	0.19	0.55	0.190
July	3 of 12	0.19	0.55	0.157
July	4 of 12	0.19	0.55	0.150
July	5 of 12	0.19	0.55	0.147
July	6 of 12	0.19	0.55	0.162
July	7 of 12	0.19	0.55	0.203
July	8 of 12	0.19	0.55	0.395
July	9 of 12	0.19	0.55	0.438
July	10 of 12	0.19	0.55	0.468
July	11 of 12	0.19	0.55	0.415
July	12 of 12	0.19	0.55	0.343
August	1 of 12	0.19	0.55	0.245
August	2 of 12	0.19	0.55	0.190
August	3 of 12	0.19	0.55	0.157
August	4 of 12	0.19	0.55	0.150
August	5 of 12	0.19	0.55	0.147
August	6 of 12	0.19	0.55	0.162
August	7 of 12	0.19	0.55	0.203
August	8 of 12	0.19	0.55	0.395
August	9 of 12	0.19	0.55	0.438
August	10 of 12	0.19	0.55	0.468
August	11 of 12	0.19	0.55	0.415
August	12 of 12	0.19	0.55	0.343
September	1 of 12	0.19	0.55	0.245
September	2 of 12	0.19	0.55	0.190

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
September	3 of 12	0.19	0.55	0.157
September	4 of 12	0.19	0.55	0.150
September	5 of 12	0.19	0.55	0.147
September	6 of 12	0.19	0.55	0.162
September	7 of 12	0.19	0.55	0.203
September	8 of 12	0.19	0.55	0.395
September	9 of 12	0.19	0.55	0.438
September	10 of 12	0.19	0.55	0.468
September	11 of 12	0.19	0.55	0.415
September	12 of 12	0.19	0.55	0.343
October	1 of 12	0.19	0.74	0.245
October	2 of 12	0.19	0.74	0.188
October	3 of 12	0.19	0.74	0.157
October	4 of 12	0.19	0.74	0.150
October	5 of 12	0.19	0.74	0.147
October	6 of 12	0.19	0.74	0.162
October	7 of 12	0.19	0.74	0.203
October	8 of 12	0.19	0.74	0.395
October	9 of 12	0.19	0.74	0.438
October	10 of 12	0.19	0.74	0.468
October	11 of 12	0.19	0.74	0.415
October	12 of 12	0.19	0.74	0.343
November	1 of 12	0.19	0.74	0.245
November	2 of 12	0.19	0.74	0.188
November	3 of 12	0.19	0.74	0.157
November	4 of 12	0.19	0.74	0.150
November	5 of 12	0.19	0.74	0.147
November	6 of 12	0.19	0.74	0.162
November	7 of 12	0.19	0.74	0.203
November	8 of 12	0.19	0.74	0.395
November	9 of 12	0.19	0.74	0.438
November	10 of 12	0.19	0.74	0.468
November	11 of 12	0.19	0.74	0.415

Time Frequency	Wind Sector	Surface Albedo	Bowen Ratio	Surface Roughness
November	12 of 12	0.19	0.74	0.343
December	1 of 12	0.18	0.74	0.066
December	2 of 12	0.18	0.74	0.043
December	3 of 12	0.18	0.74	0.024
December	4 of 12	0.18	0.74	0.022
December	5 of 12	0.18	0.74	0.020
December	6 of 12	0.18	0.74	0.025
December	7 of 12	0.18	0.74	0.044
December	8 of 12	0.18	0.74	0.225
December	9 of 12	0.18	0.74	0.277
December	10 of 12	0.18	0.74	0.315
December	11 of 12	0.18	0.74	0.240
December	12 of 12	0.18	0.74	0.151

APPENDIX D – FACILITY DRAFT COMMENTS

Blackfoot Facility of Basic American Foods. P-2009 .0043 Draft Permit Facility Review

REFERENCE	EXISTING LANGUAGE	REQUESTED CHANGE	JUSTIFICATION	DEQ Response
1. Table 1. Regulated Sources	Plant Space Heaters	Plant Space Heaters (air makeup units)	"Air makeup units" is the BAF terminology for the units. The addition adds clarity.	Requested change made.
2. Conditions 3.6, 4.6, and 5.6	Process line A shall be identified by signs posted on or near the process line. Each cooler or dryer shall also be identified in a manner that will allow an inspector to identify the equipment that corresponds to the equipment listed in Table 3.1 (parallel language in other cited permit conditions)	To enable an inspector to identify the equipment listed in Table 3.1, each cooler or dryer listed in Table 3.1 shall be identified by signs posted on or near each cooler or dryer. The signage shall identify the emission unit as listed in Table 3.1, and shall indicate the equipment is part of Process A. (with parallel changes in Conditions 4.6 and 5.6)	Inside the plant, the emissions unit trains associated with a process are extensive and occupy multiple building. In some cases, a single building will house multiple process lines, and two processes might move in parallel from one building to another. Hence, signage identifying a specific process line area is impractical. It is more effective and practical for emissions units to be labeled to indicate the emission unit ID (per Table 3.1, 4.1, and 5.1) and the associated process. Thus, for example, the DHQ cooler might have a label that reads, *"Process A, Unit DHQ"*.	DEQ concurs, requested change made.
3. Conditions 3.8, 4.8, and 5.9	3.8 NOx, SO2, and CO Compliance Demonstration In order demonstrate compliance with NOx, SO2, and CO emission limits contained in Table 3.2 the permittee shall calculate and record, on a daily basis, NOx, SO2, and CO emissions from each applicable Process A sources. Should emissions	Consider allowing, BAF to use current monthly NOx, SO2, and CO emissions calculations as an option to demonstrate compliance since natural gas combustion sources associated with Process A do not run at full-fire 8760 hours per year (as is already assumed in the PTE).	Recordkeeping of the type proposed is typically included when permit limits are less than potential emissions. But when a permit is the same as potential emissions, there shouldn't be a need to record operating data for purposes of demonstrating compliance with the permit limit. The CO and NOx combustion products	Applicant has confirmed that emissions estimates from natural gas usage in Process lines A,B and C are based on maximum fuel burning capacity of equipment running 8760 hr/yr.

REFERENCE	EXISTING LANGUAGE	REQUESTED CHANGE	JUSTIFICATION	DEQ Response
	sources. Should emissions calculations be based in natural gas combustion, the permittee shall monitor and record on a daily basis, the calendar date and the total dryer natural gas usage from each Process A emission unit. Emissions calculation shall use only DEQ approved emission factors or methods. Records shall be maintained on site for the most recent five-year period and shall be made available to DEQ representatives upon request.	the PTE).	The CO and NOx combustion products emission limits in Tables 3.2, 4.2 and 5.2 are PTE; hourly and 24-hr emission rates assumes the units are operating at full fire, and the annual emission rates assume the units operate at full-fire 8760 hr./yr. For process units that are NG-fired, SO2 emissions are the sum of product sulfite losses and SO2 resulting from NG combustion. As with CO and NOx emissions, the fuel combustion portions of the sulfite. Also, the combustion portion of SO2 emissions is based on combustion PTE. Accordingly, there should be no need to monitor gas usage at individual sources.	running 8760 hr/yr. Therefore since emission limits currently listed in permit are based off these estimates compliance is inherently shown by the maximum physical operation of Process A,B, and C equipment. Accordingly these permit conditions have been removed from the permit.
4. Conditions 3.9.3; 4.9.3; and 5.10.3	Compliance with the daily limits shall be based on pounds per standard 24-hour period from midnight to subsequent midnight for each day of the calendar year.	Compliance with the daily limits shall be based on pounds per daily production period. Daily production records may be maintained on a work-day basis, in which a work day commences at a specific time of day and lasts for 24 consecutive hours.	Like many manufacturing operations, BAF maintains records based on work-shift days rather than clock days.	This language matches the language of the facility's other permits. Requested change made.
5. Condition 5.6	Process Line A shall be identified by …	Process Line C shall be identified by …	Typo correction.	Requested change made.

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6. Condition 6.1	The BAF Blackfoot Facility has natural gas-fired space heaters ranging in size from less than 200,000 Btu/hr. to 13.5 MMBtu/hr. At the time of permit issuance, total space heater combustion capacity is 77.6 MMBtu/hr. …	The BAF Blackfoot Facility has natural gas-fired space heaters ranging in size from less than 200,000 Btu/hr. to 13.5 MMBtu/hr. At the time of permit issuance, total space heater combustion capacity is 77.6 MMBtu/hr. On an annual basis, space heaters operate at no more than 50% of combustion capacity. …	BAF believes the permit documentation should note that on an annual basis, space heaters operate at no more than 50% of rated capacity. BAF proposes to add language to Condition 6.1, but we recognize this could also be documented in the Statement of Basis.	DEQ has noted typical operation of plant space heaters is significantly less than assumed 50% combustion capacity under Permit Condition Review section in the Statement of Basis.
7. Condition 6.3 and 6.4	6.3 Emission Limits The emissions from the Plant Space Heaters stack shall not exceed any corresponding emissions rate limits listed in Table 6.1. 6.4 PM10 and PM2.5 Compliance Demonstration In order demonstrate compliance with PM10 and PM2.5 emission limits contained in Table 6.1 the permittee shall calculate and record, on a daily basis, PM10 and PM2.emissions from the Plant Space Heaters. Should emissions calculations be based in natural gas combustion, the permittee shall monitor and record, on a daily basis, the calendar date and the total Plant Space Heater natural gas usage. Emissions calculation shall use only DEQ approved emission factors or methods. Records shall be maintained on site for the most recent five-year period and shall	Consider allowing BAF to use current monthly PM10/2.5 emissions calculations as an option to demonstrate compliance since natural gas space heaters at this facility do not run at full-fire 8760 hours per year (as is already assumed in the PTE).	See discussion re Conditions 3.8, 4.8, 5.9, and 6.1. Recordkeeping of the type proposed is typically included when permit limits are less than potential emissions. But when a permit is the same as potential emissions, there shouldn't be a need to record operating data for purposes of demonstrating compliance with the permit limit. The emission limits in Table 6.1 is PTE, Also, the combustion portion of SO2 emissions is based on combustion PTE. Accordingly, there is no need to monitor gas usage at individual sources.	Upon further DEQ review it is confirmed that lb/hr (and by extension lb/day) emissions estimates from natural gas usage in plant space heaters are based on maximum fuel burning capacity of equipment. Therefore since lb/day emission limits currently listed in permit are based off these estimates compliance is inherently shown by the maximum physical operation of plant space heaters. However, current T/yr emission limit is based off assumption that the facility operates plant space heaters at no more than

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	be made available to DEQ representatives upon request.			50% of rated capacity. Therefore facility will demonstrate compliance by monitoring natural gas usage on a 12 month rolling basis; similar to how is currently done in the FEC permit.

Blackfoot Facility of Basic American Foods. P-2009 .0043 Draft Statement of Basis Facility Review

REFERENCE	EXISTING LANGUAGE	REQUESTED CHANGE	JUSTIFICATION	DEQ Response
1. Facility Information Description (page 5)	*The facility is classified as an existing major stationary source, as defined in 40 CFR 52.21(b)(1), because the facility's estimated emissions of PM2.5/PM10, SO2, NOX, and CO have the potential to exceed major stationary source thresholds of 100 tons per year.*	The 100 tpy major source threshold only applies to sources that are listed in 40 CFR 52.21(b)(1)(a). Since the Blackfoot Facility is not a source listed in 52.21(b)(1)(a), the applicable major stationary source threshold is the 250 tpy threshold of 40 CFR 52.21(b)(1)(b).	Correction	DEQ acknowledges a typo in limits between Title V and PSD thresholds. Section has been updated to indicate facility is not a PSD major facility.
2. Alternate Compliance Plan (page 6)	On January 20, 2011, DEQ issued to BAF a PTC, P-2009.0043. This permit includes a compliance plan /schedule that required BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS.	On January 20, 2011, DEQ issued to BAF ~~a~~ PTC~~,~~ P-2009.0043. This permit includes a compliance plan /schedule that ~~required~~ requires BAF to implement certain proposed stack changes that would enable BAF to demonstrate compliance with the PM_{10} NAAQS.	Typos and verb tense consistency.	Requested change made
3. Permitting History (page 6)		Add the following language (largely copied from "Emissions Inventories" portion of the document): Since the previous permit was issued January 20, 2011, the following permitting projects have been completed: - Permit P-2010.0057 Project 61651 issued 1/28/2016 - Permit P-2017.0011 Project 61851 issued 7/31/2016 - Permit P-2017.0031 Project 61894 issued 9/12/2017 Although these projects are outside the scope of this permit, the ambient	Clarification. In addition, BAF believes it is important to document that the ACP demonstrates compliance for the facility as it exists now, including the identified PTC, and not only the emissions sources regulated under the PTC. This will avoid potentially having the reestablish the scope of the ACP in future permitting actions.	Typically the Permitting History section only lists the historic action of the permit at hand. However DEQ has added clarifying language to "Alternative Compliance Plan" section above.

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		the scope of this permit, the ambient impacts analysis provided for the Alternate Compliance Plan incorporated these projects. Accordingly, the ambient impacts analysis provided for this project reflects facility-wide impacts as of the date issuance of this permit, including projects that have been permitted but are not included in the scope of this permit.		
4. Regulatory Analysis (page 10)	*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 …*	Change to read "Post project non-fugitive facility-wide emissions from this facility …"	Because the Blackfoot Facility is not a listed source, fugitive emissions are not included in the Title V classification analysis.	Requested change made.
5. Permit Conditions Review (page 10)	*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 …*	Change to read "Post project non-fugitive facility-wide emissions from this facility …"	Because the Blackfoot Facility is not a listed source, fugitive emissions are not included in the Title V classification analysis.	Duplicate request, no action.
6. New Permit Condition 5.1 (page 13)	*as those sources are not regulated under current permit*	as those sources are ~~not~~ now regulated under current permit		Requested change made.
7. Previous Permit Condition 8.5	*BAF shall determine the total natural gas usage of plant space heaters on a monthly basis. Natural gas combusted in the plant space heaters will be calculated as the difference between total facility natural gas*	Retain this language.	BAF believes this the proper permit language and should be retained. Permit condition 6.4 should be revised accordingly.	Current permit condition 6.4 reflects this request.

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	usage less natural gas combusted in the boilers and process dryers. Emissions shall be calculated using the emission factors in the appendices of the permit.			

APPENDIX E – RESPONSE TO PUBLIC COMMENT