Air Quality Management Division
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STATIONARY SOURCE TECHNICAL SUPPORT DOCUMENT
(STATEMENT of BASIS)

APPLICATION FOR:
Significant Permit Revision

SUBMITTED BY:
Atlas Roofing Corporation

PERMIT NUMBER:
AAIR19-0047

LOCATION:
13695 Mt. Anderson St.

SIC code: 3086, "Plastics Foam Products"

NAICS code: 326140, "Polystyrene Foam Product Manufacturing"

3/12/2025

EXECUTIVE SUMMARY

This TSD establishes the methodology related to the terms and conditions of its Synthetic Minor Permit to Construct (PTC) issued pursuant to DBOH Regulations 030. The TSD shall not serve as the operating authority.

Atlas Roofing Corporation is a foam manufacturing facility, operating in 13965 Mt. Anderson St. Washoe County. The source manufactures polystyrene foam products expanded with pentane gas. This facility is classified under SIC code 3086, "Plastics Foam Products" and NAICS code 326140, "Polystyrene Foam Product Manufacturing".

Atlas Roofing Corporation consists of one (1) block pre-expander, one (1) shape pre-expander, one (1) bead conditioning bag storage enclosure with eighteen (18) bead conditioning bags, one (1) block mold, six (6) shape molds, six (6) hot wire cutters, two (2) densifiers, one (1) VOC control boiler, and one (1) natural gas boiler. The current permitting action is a modification to revise allowable throughput and emissions limits. Pursuant to DBOH Regulations 030, a new minor source must obtain a Permit to Construct (PTC) before beginning construction.

Atlas Roofing Corporation will be classified as a synthetic minor source. It is not a categorical source as defined in DBOH Regulations nor belongs to a stationary source category, which, as of August 7, 1980, is being regulated under Section 111 or Section 112 of the Clean Air Act. Therefore, fugitive emissions are not included in source status determination.

The source PTE is provided below in Table 1. The permit will be issued based on the PTC permit application that was submitted on November 25, 2024.

Table 1: Source PTE – Summary (tons per year)

	Major Source Threshold (PSD)	Major Source Threshold (Part 70)	Minor Source Threshold	Source PTE (Uncontrolled)	Source PTE (Controlled)
PM10	250	100	5	18.78	18.78
PM2.5	250	100	5	18.78	18.78
CO		100	5	7.36	7.36
VOC		100	5	568.0	77.59
NOx	250	100	5	8.76	8.76
SO2	250	100	5	0.05	0.05
Pb			0.3		
H2S			5		
TRS			5		
HAP		10/25[1]		0.16	0.16

[1] 10 for one individual HAP, 25 for total combined HAPs

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ACRONYMS AND ABBREVIATIONS

(These terms may be seen in the technical support document)

AQMD	Washoe County Air Quality Management Division
bhp	brake horsepower
CARB	California Air Resources Board
CE	control efficiency
CF	control factor
CFR	Code of Federal Regulations
CO	carbon monoxide
DBOH Regulations	Washoe County District Board of Health Regulations Governing Air Quality Management
DOM	date of manufacture
EF	emission factor
EI	emission increase
EPA	U.S. Environmental Protection Agency
EU	emission unit
g/kW-hr	grams per kilowatt-hour
gr/dscf	grains per dry standard cubic foot
GDO	gasoline dispensing operation
gpm	gallons per minute
HAP	hazardous air pollutant
H_2S	hydrogen sulfide
HHV	high heating value
HVLP	high volume, low pressure
kW	kilowatt
mg/dscm	milligrams per dry standard cubic meter
MMBtu	British thermal units (in millions)
NAICS	North American Industry Classification System
NO_x	nitrogen oxide
Pb	lead
$PM_{2.5}$	particulate matter less than 2.5 microns in aerodynamic diameter
PM_{10}	particulate matter less than 10 microns in aerodynamic diameter
ppm	parts per million
PSD	Prevention of Significant Deterioration
PTE	potential to emit
RACT	reasonably available control technology
RICE	reciprocating internal combustion engine
SCC	Source Classification Codes
scf	standard cubic feet
SIC	Standard Industrial Classification
SO_2	sulfur dioxide
TSD	Technical Support Document
USGS	U.S. Geological Survey
UTM	Universal Transverse Mercator
VAEL	Voluntarily Accepted Emission Limit
VMT	vehicle miles traveled
VOC	volatile organic compound

I. SOURCE INFORMATION

A. General

Preparer:	Brandon Koyama
Action Received:	November 25, 2024
TSD Date:	3/12/2025
Company:	Atlas Roofing Corporation
Responsible Official:	Edouard Selle, Plant Manager
Consultant:	David Sykes, Access Environmental Solutions
Permit Number:	AAIR19-0047
Facility Name:	Atlas Roofing Corporation
Facility Address:	13695 Mt. Anderson St.

B. Facility Description

Atlas Roofing Corporation is an expanded foam product manufacturer located in Hydrographic Area 92A. This source category falls under Standard Industry Classification (SIC) code 3086, "Plastics Foam Products" and North American Industrial Classification System (NAICS) code 326140, "Polystyrene Foam Product Manufacturing". This is a minor source of regulated air pollutants. This source consists of one (1) block pre-expander, one (1) shape pre-expander, one (1) bead conditioning bag storage enclosure with eighteen (18) bead conditioning bags, one (1) block mold, six (6) shape molds, six (6) hot wire cutters, two (2) densifiers, one (1) VOC control boiler, and one (1) natural gas boiler. Pentane emissions from the pre-expanders, molds, and bead conditioning bag storage enclosure are captured and ducted to the bead conditioning bag storage enclosure, then routed to the VOC control boiler for combustion.

C. Permitting History

1. The last ATC was issued on October 26, 2023.
2. The last PTO was issued on October 3, 2024.
3. An application was received on November 25, 2024.
4. The draft ATC and TSD were sent for review on January 28, 2025.
5. This permitting action is to revise allowable throughput and emissions limits.

D. Permitting Action

This permitting action is a minor permit revision to change the source's allowable throughput and emissions limits. Additional administrative changes include the removal of four emissions units from the permit; one EPS storage silo and three shape molds. These emissions units do not exist at the facility and are being removed as part of this permitting action. The system and emissions unit identifications are updated to reflect these changes.

Table 2 below lists affected or relevant units, including SCC.

Table 2: List of Emissions Units

EU	Type	Manufacturer	Model No.	Rating	Serial No.	SCC
A.001	Block Pre-Expander	Kurtz	VSD-3000	3,000 lb/hr	130-230-VD-149	2308000000
B.001	Shape Pre-Expander	Hirsch	Preex 6000	1,170 lb/hr	N/A	2308000000
C.001-C.018	Bead Conditioning Bags	N/A	N/A	240 lb/hr at 1.25 lb/ft^3 bead density	N/A	2308000000
D.001	Block Mold	Kurtz	N/A	3,372 lb/hr	N/A	2308000000
E.001-E.006	Shape Molds	Modix	MDX225	500 lb/hr	N/A	2308000000
F.001-F.006	Hot Wire Cutters	N/A	N/A	N/A	N/A	2308000000
G.001-G.002	Densifiers	N/A	N/A	166.67 lb/hr	N/A	2308000000
H.001	Boiler (VOC Control)	Hurst	Series 500 Scotch Marine	10.5 MMBtu/hr	S1250-150-128	2102006000
I.001	Boiler (Natural Gas)	Hurst	Series 500 Scotch Marine	10.5 MMBtu/hr	SG-2-250-150	2103006000

There are no insignificant emissions units at this facility.

E. Alternative Operating Scenario

No alternative operating scenario proposed.

II. EMISSIONS INFORMATION

A. Total Source Potential to Emit and Source Applicability

DBOH Regulation 030 permitting applicability is determined by calculating the emissions for all proposed emission units using 8,760 hours of operation and emission factors provided by the manufacturer, source test results, EPA AP-42, etc.

The source provided new PTE calculations for Systems A through G. Calculations were based on maximum equipment capacities and pentane content for the beads at each stage of the process. Pentane content was determined during a source test conducted at Atlas' Byron Center, Michigan facility in 2024. The block mold D.001 has a maximum equipment capacity of 3,372 pounds of EPS processed per hour, but it is bottlenecked by the block pre-expander A.001. Therefore, the

maximum capacity of A.001 was used as the maximum capacity of D.001. Emissions from Systems A, B, C, D, and E are controlled by the VOC control boiler H.001. VOC capture and destruction rate were determined using source test results conducted at the Reno facility in August 2021. The combustion of the captured pentane was also assumed to be similar in nature to the combustion of natural gas, so AP-42 emission factors for natural gas combustion were applied to calculate PTE for the VOC control boiler H.001. The PTE for DBOH Regulation 030 applicability is shown in Table 3.

Table 3. Source Applicability Emissions (tons per year)

	Major Source Threshold (PSD)	Major Source Threshold (Part 70)	Minor Source Threshold	Source PTE (Uncontrolled)	Source PTE (Controlled)
PM10	250	100	5	18.78	18.78
PM2.5	250	100	5	18.78	18.78
CO		100	5	7.36	7.36
VOC		100	5	568.0	77.59
NOx	250	100	5	8.76	8.76
SO2	250	100	5	0.05	0.05
Pb			0.3		
H2S			5		
TRS			5		
HAP		10/25[2]		0.16	0.16

DBOH Regulations 030.200 states a source with a PTE for any regulated pollutant equal to or greater than the threshold of 5 tons per year shown in Table 4, will be applicable to the permitting requirements of 030.

This source exceeds the applicability limit for PM10, PM2.5, CO, VOC, and NOx and is required to obtain an air quality permit as shown in Table 4.

B. Emission Units and PTE

The source PTE per system is shown below in Table 3.

Table 3: Systems and Controlled PTE (tons per year)

	System A	System B	System C	System D	System E	System F	System G	System H	System I
PM_{10}						18.11		0.33	0.33
$PM_{2.5}$						18.11		0.33	0.33
CO								3.68	3.68
VOC	19.90	7.76	27.90	1.52	11.76	0.56	7.71	0.24	0.24
NO_x								4.38	4.38
SO_2								0.03	0.03

[2] 10 for one individual HAP, 25 for total combined HAPs

H2S									
TRS									
HAP								0.08	0.08

C. Emissions Increase

No emissions units will be constructed, modified, removed, or classified as insignificant in this permitting action. The emissions increase associated with this permitting action is due to the adjustment of allowable throughput limits. The emissions increase summary is shown below in Table 4. A BSC analysis will not be required as the application for this permitting action was submitted prior to the revised DBOH Regulations 030 going into effect on January 1, 2025.

Table 4: Permitting Action Emissions Increase (tons per year)

	Emissions Increase Due to ATC Units	Emissions Increase Due to Modified Emission Units	Emissions Decrease Due to Removed Units	Emissions Decrease Due to Units Reclassified as Insignificant	Permitting Action Emissions Increase	Minor Source Significance Threshold
PM10					17.53	15
PM2.5					17.86	10
CO						100
VOC					13.43	20
NOx						20
SO2						40
Pb						0.6
H2S						5
TRS						5
HAP						

D. Operational Limits

The source has not requested any operational limits.

E. Control Technology

The facility uses the VOC control boiler H.001 to control VOC emissions. Based on a source test conducted in 2021, the capture efficiency was determined to be 87.69%, and the destruction efficiency was determined to be 99.999% for an overall control efficiency of 87.69%. The AQMD considers the boiler an add-on control device, therefore pre-control and post-control PTE were used to determine applicability. Since the source's post-control PTE falls below the major source threshold, the source is considered a synthetic minor source.

F. Emissions Limits

The following quantities of emissions are the facility's allowable emissions based upon the source's potential to emit, as determined by the physical and operational design of the equipment and any practically enforceable permit conditions that limit the emissions of the source based on use of emissions control equipment, controlled operating rates, hours of operation, or other emissions control methods. The following quantities are used to determine annual permit maintenance fees and are enforceable emissions limits:

1. The discharge of PM10 to the atmosphere shall not exceed 18.78 tons per year.
2. The discharge of PM2.5 to the atmosphere shall not exceed 18.78 tons per year.
3. The discharge of sulfur dioxide to the atmosphere shall not exceed 0.05 tons per year.
4. The discharge of nitrous oxides to the atmosphere shall not exceed 8.76 tons per year.
5. The discharge of carbon monoxide to the atmosphere shall not exceed 7.36 tons per year.
6. The discharge of volatile organic compounds to the atmosphere shall not exceed 77.59 tons per year.

G. Monitoring

As a source seeking exemption from Title V as a synthetic minor source, Atlas Roofing Corporation is required to monitor consumption of natural gas, pounds of pentane consumed, and hours of operation on a daily basis. The source is also required to calculate 12-month rolling total regulated air pollutant emissions to demonstrate compliance with the emissions limits. Specific requirements will be included in the permit.

H. Increment

Figure 1 below shows the PSD triggered areas in Washoe County.

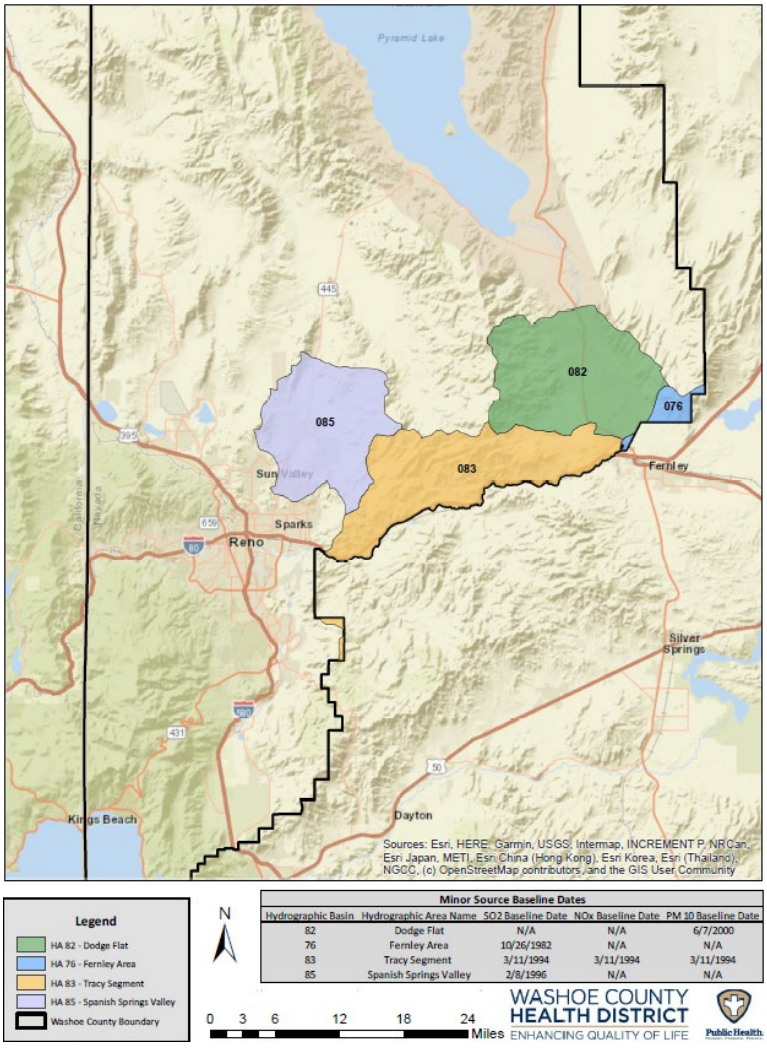

Figure 1: Washoe County PSD Triggered Areas

This source does not exist in HA 76, HA 82, HA 83, nor HA 85 and will not be subject to increment consumption tracking.

I. Performance Testing

Atlas Roofing Corporation is required to conduct performance testing at least once every five years to determine capture and destruction efficiency of the VOC control boiler H.001. Federal Reference Method 25A shall be used to determine the volatile organic compound concentration. Federal Reference Method 18 or 320 may be used in conjunction with 25A to break out the organic compounds that are not considered VOCs by definition per 40 CFR 51.100(s).

III. REGULATORY REVIEW

A. Local Regulatory Requirements

Atlas Roofing Corporation is subject to the permitting requirements of DBOH Regulations 030 and the synthetic minor requirements of DBOH Regulations 010.090.

B. Federally Applicable Regulations

No federal regulations apply to this source.

IV. COMPLIANCE

A. Compliance Certification

Atlas Roofing Corporation is required to submit to the AQMD the 12-month rolling total of regulated air pollutants emissions by March 31 each year.

B. Summary of Monitoring for Compliance

Monitoring, recordkeeping, and reporting requirements will all be included for specified requirements in the permit.

The permittee is required to monitor and keep records for all limitations specified in the permit. There are no new monitoring or reporting requirements added in this permitting action.

V. NAAQS ANALYSIS

The NNPH AQMD does not require modeling for stationary sources to demonstrate NAAQS compliance, and therefore, no modeling was required for this source. Area monitoring throughout Washoe County is used to demonstrate compliance with the NAAQS. Table 5 below summarizes Washoe County's current design values in comparison to the NAAQS.

Table 5: Design Values and Attainment Status (as of December 31, 2023)

NAAQS			Designations	
Pollutant (Averaging Time)	Level	Design Value	Unclassifiable/ Attainment, or Maintenance	Non-Attainment (classification)
O_3 (8-hour)	0.070 ppm	0.069 ppm	All HA's	---
$PM_{2.5}$ (24-hour)	35 µg/m^3	59 µg/m^3	All HA's	---
$PM_{2.5}$ (Annual)	12.0 µg/m^3	9.7 µg/m^3	All HA's	---
PM_{10} (24-hour)	150 µg/m^3	4.3 Expected Exceedances	All HA's[1]	---
CO (1-hour)	35 ppm	2.6 ppm	All HA's	---
CO (8-hour)	9 ppm	1.8 ppm	All HA's[2]	---

NO_2 (1-hour)	100 ppb	48 ppb	All HA's	---
NO_2 (Annual Mean)	53 ppb	11 ppb	All HA's	---
SO_2 (1-hour)	75 ppb	3 ppb	All HA's	---
Pb (Rolling 3-month average)	0.15 µg/m^3	n/a	All HA's	---

[1] Maintenance Area for PM_{10} (1st 10-year maintenance plan expires January 6, 2026) **80 FR 76232**
[2] Maintenance Area for CO (2nd 10 year maintenance plan expires October 31, 2026) **81 FR 59490**

VI. PUBLIC PARTICIPATION

A Notice of Proposed Action (NPA), draft PTC, TSD, and application will be posted to the AQMD's website for a 30-day public notice and review period. Persons wishing to comment on this permitting action may follow the procedures outlined on the NPA.

VII. RECOMMENDED ACTION

The AQMD recommends issuing a synthetic minor source Permit to Construct to Atlas Roofing Corporation for the following emissions units and control devices:

System A – Block Pre-Expander and Fluid Bed
- A.001: Kurtz VSD-3000 Pre-Expander

System B – Shape Pre-Expander
- B.001: Hirsch Preex 6000 Pre-Expander

System C – Bead Conditioning Bag Storage Enclosure
- C.001-C.018: Bead Conditioning Bags

System D – Block Mold
- D.001: Kurtz Block Mold

System E – Shape Molds
- E.001-E.006: Shape Molds

System F – Hot Wire Cutters
- F.001-F.006: Hot Wire Cutters

System G – Densifiers
- G.001-G.002: Densifiers

System H – Boiler (VOC Control)
- H.001: Hurst Series 500 Scotch Marine 10.5 mmBTU/hr boiler

System I – Boiler (Natural Gas)
I.001: Hurst Series 500 Scotch Marine 10.5 mmBTU/hr boiler

Date	Brandon Koyama Environmental Engineer II Air Quality Management Division Northern Nevada Public Health
Date	Genine Rosa, MS Senior Air Quality Specialist Air Quality Management Division Northern Nevada Public Health

VIII. ATTACHMENTS

System #	Unit Description	Stack Parameters		Operating Hours		Heat Input (MMBtu)		Throughput/ Fuel Usage			Power Output		Controls		Emission Factor			Potential to Emit Emission Rate		Permitted Emission Rate		Reference	Notes
				Daily	Annual	Hour	Annual	Hour	Annual	Units	Amount	Units	Technology	Efficiency	Pollutant	Factor	Unit	Hourly (lb/hr)	Annual (ton/yr)	Hourly (lb/hr)	Annual (ton/yr)		
A	**Block Pre-Expander**																						
A.001	Kurtz VSD-3000 Pre-Expander SN 130-230-VD-149	Height (ft)	N/A	24	8760			3000	26,280,000	lb			Thermal Destruction EU H.001	88%	VOC	0.01	% VOC	36.90	161.62	4.54	19.90	Calculation assumes maximum equipment capacity of 36 tons of beads expanded per 24 hour period. Emission factor assumes raw bead pentane content of 6.5% and 20.50% pentane released at bead expansion based on bead testing conducted at Atlas' Byron Center, Michigan facility in 2024. Control device efficiency based on testing conducted August 3-5, 2021	
		Diameter (in)	6																				
		Temperature (F)	N/A																				
		Exhaust Volume (ft^3/min)	N/A																				
B	**Shape Pre-Expander**																						
B.001	Hirsch Preex 6000 Pre-Expander SN N/A	Height (ft)	N/A	24	8760			1170	10,249,200	lb			Thermal Destruction EU H.001	88%	VOC	0.01	% VOC	14.39	63.03	1.77	7.76	Calculation assumes maximum equipment capacity of 1170 lbs of beads expanded per hour. Emission factor assumes bead pentane content of 6% and 20.5% pentane released at bead expansion based on testing conducted at Atlas' Byron Center, Michigan facility in 2024. Control device efficiency based on testing conducted August 3-5, 2021	
		Diameter (in)	6																				
		Temperature (F)	N/A																				
		Exhaust Volume (ft^3/min)	N/A																				
C	**Bead Conditioning Bag Storage Enclosure**																						
C.001	Bead Conditioning Bag 1	Height (ft)	N/A	24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.002	Bead Conditioning Bag 2	Diameter (in)	N/A	24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.003	Bead Conditioning Bag 3	Temperature (F)	N/A	24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.004	Bead Conditioning Bag 4	Exhaust Volume (ft^3/min)	N/A	24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.005	Bead Conditioning Bag 5			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.006	Bead Conditioning Bag 6			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.007	Bead Conditioning Bag 7			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.008	Bead Conditioning Bag 8			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.009	Bead Conditioning Bag 9			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.010	Bead Conditioning Bag 10			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.011	Bead Conditioning Bag 11			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.012	Bead Conditioning Bag 12			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.013	Bead Conditioning Bag 13			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.014	Bead Conditioning Bag 14			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.015	Bead Conditioning Bag 15			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.016	Bead Conditioning Bag 16			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.017	Bead Conditioning Bag 17			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
C.018	Bead Conditioning Bag 18			24	8760			240	2,098,750	lb			Thermal Destruction	88%	VOC	0.012	% VOC	2.88	12.59	0.35	1.55		
								4313	37777500	lb			EU H.001				System Total	51.75	226.67	6.37	27.90	Bead capacity for each bag is 2,300 ft^3. Bead aging time and throughput depends on density of beads. For PTE calculations, assumed worse-case scenario of bead density of 1.25 lbs per ft^3, which require 12 hrs of aging time. This results in bead throughput of ~240 lbs per hour per bag. Emission factor assumes bead pentane content of 6% and 20% pentane released at bead aging. Control device efficiency based on testing conducted August 3-5, 2021.	
D	**Block Mold**																						
D.001	Kurtz Block Mold SN N/A	Height (ft)	36	24	8,760			3000	26,280,000	lb			Thermal Destruction EU H.001	88%	VOC	0.00	%VOC	2.83	12.38	0.35	1.52	Actual maximum equipment capacity is 3372 pounds of beads molded per hour, but process is bottlenecked by A.001. Equipment capacity set to 3000 pounds per hour to match A.001 capacity. Emission factor assumes bead pentane content of 6% and 1.57% pentane released during molding based on testing conducted at Atlas' Byron	
		Diameter (in)	8																				
		Temperature (F)	N/A																				
		Exhaust Volume (ft^3/min)	N/A																				
E	**Shape Mold**																						
E.001	Shape Mold 1	Height (ft)	N/A	24	8760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	%VOC	3.64	15.93	0.45	1.96		
E.002	Shape Mold 2	Diameter (in)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.003	Shape Mold 3	Temperature (F)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.004	Shape Mold 4	Exhaust Volume (ft^3/min)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.005	Shape Mold 5			24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.006	Shape Mold 6 - Modix MDX225			24	8,760			500	4,380,000	lb			Thermal Destruction EU H.001	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96	Calculation assumes maximum equipment capacity of 6 tons of beads molded per 24 hour period. Emission factor assumes bead pentane content of 2.02% and 36% pentane released during moding based on testing conducted at Atlas' Gainesville, Georgia facility in 2009. Control device efficiency based on testing conducted August 3-5, 2021	
																	System Total	21.82	95.55	2.69	11.76		

Figure 2: PTE Calculations for Systems A Through E

D	**Block Mold**																						
D.001	Kurtz Block Mold SN N/A	Height (ft)	36	24	8,760			3000	26,280,000	lb			Thermal Destruction EU H.001	88%	VOC	0.00	%VOC	2.83	12.38	0.35	1.52	Actual maximum equipment capacity is 3372 pounds of beads molded per hour, but process is bottlenecked by A.001. Equipment capacity set to 3000 pounds per hour to match A.001 capacity. Emission factor assumes bead pentane content of 6% and 1.57% pentane released during molding based on testing conducted at Atlas' Byron
		Diameter (in)	8																				
		Temperature (F)	N/A																				
		Exhaust Volume (ft^3/min)	N/A																				
E	**Shape Mold**																						
E.001	Shape Mold 1	Height (ft)	N/A	24	8760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	%VOC	3.64	15.93	0.45	1.96		
E.002	Shape Mold 2	Diameter (in)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.003	Shape Mold 3	Temperature (F)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.004	Shape Mold 4	Exhaust Volume (ft^3/min)	N/A	24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.005	Shape Mold 5			24	8,760			500	4,380,000	lb			Thermal Destruction	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96		
E.006	Shape Mold 6 - Modix MDX225			24	8,760			500	4,380,000	lb			Thermal Destruction EU H.001	88%	VOC	0.01	% VOC	3.64	15.93	0.45	1.96	Calculation assumes maximum equipment capacity of 6 tons of beads molded per 24 hour period. Emission factor assumes bead pentane content of 2.02% and 36% pentane released during moding based on testing conducted at Atlas' Gainesville, Georgia facility in 2009. Control device efficiency based on testing conducted August 3-5, 2021
																	System Total	21.82	95.55	2.69	11.76		
F	**Hot Wire Cutters**																						
F.001	Hot Wire Cutter 1	Height (ft)	N/A	24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02		
		Diameter (in)	N/A												PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
		Temperature (F)	N/A												PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
		Exhaust Volume (ft^3/min)	N/A												VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
F.002	Hot Wire Cutter 2			24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02		
															PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
															PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
															VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
F.003	Hot Wire Cutter 3			24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02		
															PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
															PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
															VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
F.004	Hot Wire Cutter 4			24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02	Calculation assumes cutting of 4 ft x 3 ft x 16 ft foam block with maximum cutting rate of 15 blocks per hour for the whole system. Block is first cut in half to make two 4 ft x 3 ft x 8 ft blocks, then cut lengthwise to make 4 ft x 8 ft panels, each 1.5 in thick. Wire thickness assumed to be 0.02 in. Block density assumed to be 0.835 lb/ft^3. Material loss assumed to be 13.82% of theoretical material loss. PM emissions assumed to be 97% of material loss. PM10 and PM2.5 assumed to be equivalent to PM. Pentane emissions assumed to be 3% of material loss.
															PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
															PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
															VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
F.005	Hot Wire Cutter 5			24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02		
															PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
															PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
															VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
F.006	Hot Wire Cutter 6			24	8760			5.14	45,038	lb			Uncontrolled	0%	PM	0.134	% PM	0.69	3.02	0.69	3.02		
															PM10	0.134	%PM10	0.69	3.02	0.69	3.02		
															PM2.5	0.134	%PM2.5	0.69	3.02	0.69	3.02		
															VOC	0.004	%VOC	0.02	0.09	0.02	0.09		
																	System Total	**PM**	**4.14**	**18.11**	**4.14**	**18.11**	
																		PM10	**4.14**	**18.11**	**4.14**	**18.11**	
																		PM2.5	**4.14**	**18.11**	**4.14**	**18.11**	
																		VOC	**0.13**	**0.56**	**0.13**	**0.56**	
G	**Densifiers**																						
G.001	Densifier 1	Height (ft)	N/A	24	8760			166.667	1,460,000	lb			Uncontrolled	0%	VOC	0.01	% VOC	0.88	3.85	0.88	3.85	Calculation assumes maximum equipment capacity of 4 tons per 24 hour period for the whole system. Emission factor assumes incoming material has pentane content of 0.9%, while outgoing material material has pentane content of 0.372%. Emissions
G.002	Densifier 2	Diameter (in)	N/A	24	8760			166.667	1,460,000	lb			Uncontrolled	0%	VOC	0.01	% VOC	0.88	3.85	0.88	3.85		
		Temperature (F)	N/A														System Total	1.76	7.71	1.76	7.71		

Figure 3: PTE Calculations for Systems D Through G

H	**Boiler (VOC Control)**																						
H.001	Hurst Series 500 Scotch Marine steam generator and control device SN S1250-150-128	Height (ft)	36	24	8760	10.5	91,980	0.01	87.6	10^6 scf			Uncontrolled	0%	PM	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Diameter (in)	18												PM10	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Temperature (F)	328												PM2.5	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Exhaust Volume (ft^3/min)	2237												SO2	0.60	lb/10^6scf	0.01	0.03	0.01	0.03	AP-42 Chapter 1.4, Table 1.4-2	Combustion of pentane emissions captured in the process assumed to be similar to natural gas combustion.
															NOX	100.00	lb/10^6scf	1.00	4.38	1.00	4.38	AP-42 Chapter 1.4, Table 1.4-1	
															VOC	5.50	lb/10^6scf	0.06	0.24	0.06	0.24	AP-42 Chapter 1.4, Table 1.4-1	
															CO	84.00	lb/10^6scf	0.84	3.68	0.84	3.68	AP-42 Chapter 1.4, Table 1.4-2	
															HAP	1.88	lb/10^6scf	0.02	0.08	0.02	0.08	AP-42 Chapter 1.4, Table 1.4-2	
I	**Boiler (Natural Gas)**																						
I.001	Hurst Series 500 Scotch Marine steam generator SN SG-2-250-150	Height (ft)	36	24	8760	10.5	91,980	0.01	87.6	10^6 scf			Uncontrolled	0%	PM	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Diameter (in)	18												PM10	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Temperature (F)	400												PM2.5	7.60	lb/10^6scf	0.08	0.33	0.08	0.33	AP-42 Chapter 1.4, Table 1.4-2	
		Exhaust Volume (ft^3/min)	3560												SO2	0.60	lb/10^6scf	0.01	0.03	0.01	0.03	AP-42 Chapter 1.4, Table 1.4-2	
															NOX	100.00	lb/10^6scf	1.00	4.38	1.00	4.38	AP-42 Chapter 1.4, Table 1.4-1	
															VOC	5.50	lb/10^6scf	0.06	0.24	0.06	0.24	AP-42 Chapter 1.4, Table 1.4-1	
															CO	84.00	lb/10^6scf	0.84	3.68	0.84	3.68	AP-42 Chapter 1.4, Table 1.4-2	
															HAP	1.88	lb/10^6scf	0.02	0.08	0.02	0.08	AP-42 Chapter 1.4, Table 1.4-2	
IA	**Insignificant Activities**																						
	N/A																						

	Facility-Wide Emission Rate (PTE)		Facility-Wide Emission Rate	
	Hourly (lb/hr)	Annual (ton/yr)	Hourly (lb/hr)	Annual (ton/yr)
PM	4.29	18.78	4.29	18.78
PM_{10}	4.29	18.78	4.29	18.78
$PM_{2.5}$	4.29	18.78	4.29	18.78
SO_2	0.01	0.05	0.01	0.05
NO_X	2.00	8.76	2.00	8.76
VOC	129.08	508.00	17.72	77.59
CO	1.68	7.36	1.68	7.36
Pb	-	-	-	-
H2S	-	-	-	-
TRS	-	-	-	-
HAP	0.04	0.16	0.04	0.16

Figure 4: PTE Calculations for Systems H and I and Facility-Wide Emissions Summary