Statement of Basis

Final

Best Bath Systems, Inc.
Caldwell, Idaho
Facility ID No. 027-00103
Permit to Construct No. P-2010.0047

June 16, 2010
Ken Hanna
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
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
BMP	best management practices
Btu	British thermal units
CAA	Clean Air Act
CAM	Compliance Assurance Monitoring
CAS No.	Chemical Abstracts Service registry number
CBP	concrete batch plant
CEMS	continuous emission monitoring systems
cfm	cubic feet per minute
CFR	Code of Federal Regulations
CI	compression ignition
CMS	continuous monitoring systems
CO	carbon monoxide
COMS	continuous opacity monitoring systems
DEQ	Department of Environmental Quality
dscf	dry standard cubic feet
EL	screening emission levels
EPA	U.S. Environmental Protection Agency
FEC	Facility Emissions Cap
gpm	gallons per minute
gph	gallons per hour
gr	grain (1 lb = 7,000 grains)
HAP	hazardous air pollutants
HMA	hot mix asphalt
hp	horsepower
hr/yr	hours per year
ICE	internal combustion engines
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
NAICS	North American Industry Classification System
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

PAH	polyaromatic hydrocarbons
PC	permit condition
PCB	polychlorinated biphenyl
PERF	Portable Equipment Relocation Form
PM	particulate matter
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
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTC/T2	permit to construct and Tier II operating permit
PTE	potential to emit
RAP	recycled asphalt pavement
RFO	reprocessed fuel oil
Rules	Rules for the Control of Air Pollution in Idaho
scf	standard cubic feet
SCL	significant contribution limits
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	synthetic minor
SM80	synthetic minor facility with emissions greater than or equal to 80% of a major source threshold
SO_2	sulfur dioxide
SO_x	sulfur oxides
T/yr	tons per consecutive 12-calendar month period
T2	Tier II operating permit
TAP	toxic air pollutants
TEQ	toxicity equivalent
T-RACT	Toxic Air Pollutant Reasonably Available Control Technology
U.S.C.	United States Code
UTM	Universal Transverse Mercator
VOC	volatile organic compounds
yd^3	cubic yards
$\mu g/m^3$	micrograms per cubic meter

FACILITY INFORMATION

Description

Following is a copy of the description of the emission units at the Best Bath Systems, Inc. Caldwell facility as presented in the Permit to Construct (PTC) application. Also, refer to the copy of the floor plan that follows the narrative description. There are seven General Emission Units associated with this PTC application. Where specific manufacturers or model numbers are described below, units that are at least equivalent in performance to the items listed may be used in the future.

EU7- Resin Storage Room

Fiberglass resin is stored in two 5500 gallon capacity tanks in the Resin Storage Room, emission point EU7, located in the southwest corner of the building. The tanks sit inside secondary containment. The room is equipped with a roof-mounted ventilation fan. This centrifugal, up-blast exhaust fan, stack EF7, discharges vertically. The resin tanks are refilled via a supply truck. The resin is composed of styrene and unsaturated polyester polymer in a nominal 35/65 wt% mix. Maximum daily styrene emissions from the room will occur when the tanks are refilled and styrene-saturated air is displaced from the tanks. There is no emission control equipment installed on the exhaust of the Resin Storage Room. The specified exhaust fan is a Carnes Model VUBK15P1, or equivalent.

EU8 – Maintenance Room

The Maintenance Shop is used for miscellaneous equipment fabrication and repair. Maintenance Shop activities periodically require incidental welding. The exhaust fan in the Maintenance Shop is used to exhaust welding fumes but will primarily be used to provide air flow for worker comfort. Makeup air to the Maintenance Shop is drawn in from outside, not from the production area. The maintenance shop pollutant emissions are assumed to be insignificant in comparison to the other facility emissions and will not be included in the PTC analysis.

EU9 – Lamination Area

BBS produces fiberglass shower and tub units primarily using spray layup techniques on open molds. Typically, three polyester-styrene layers are applied to molds to create the units: gel coat, barrier coat, and glass-reinforced resin. A fourth polymeric diisocyanate material, "blue foam," is sprayed on to create reinforced floors. The first three layers are applied in the Lamination Area.

Process Description

The Caldwell facility will employ an "open-plan" production floor in the Lamination Area. The open-plan system improves efficiencies as the units are moved through the production cycle. The production cycle is shown in Figure 3-1. Molds on wheeled carts are brought into the Lamination Area (Room 2) from Mold Storage (Room 1) via a doorway in the northwest corner. The first material, gel coat, is applied to the molds using atomizing, manual spray guns. The molds are then moved east to the next station where a second layer, barrier coat, is applied using atomizing, manual spray guns. The molds are then moved clockwise through two more stations where two layers of resin and chopped glass strand are applied using non-atomizing, manual spray guns. The surface is "rolled" to remove any trapped air. The resin is given time to cure, after which the units are removed from the molds before being moved into the next production area (see Trim/Finish Area).

Equipment

The open plan floor eliminates the traditional spray booths for the different sprayed layers. Instead, air exhaust and emission control are handled differently. Two long, cylindrical horizontal ducts are suspended above the production floor along the north and south Room 2 walls. Fourteen intakes (seven per duct) are spaced along the horizontal ducts. These intakes are 50" by 12" rectangular ducts that descend to the shop floor. Approximately 1 foot above the floor, each intake has a 24" by 24" opening fitted with particulate control filters. Emissions from the Lamination Area stations are drawn via two exhaust fans into and up the intakes, through the horizontal ducts, and discharged outside, vertically, above the roof from stacks EF9 and EF10.

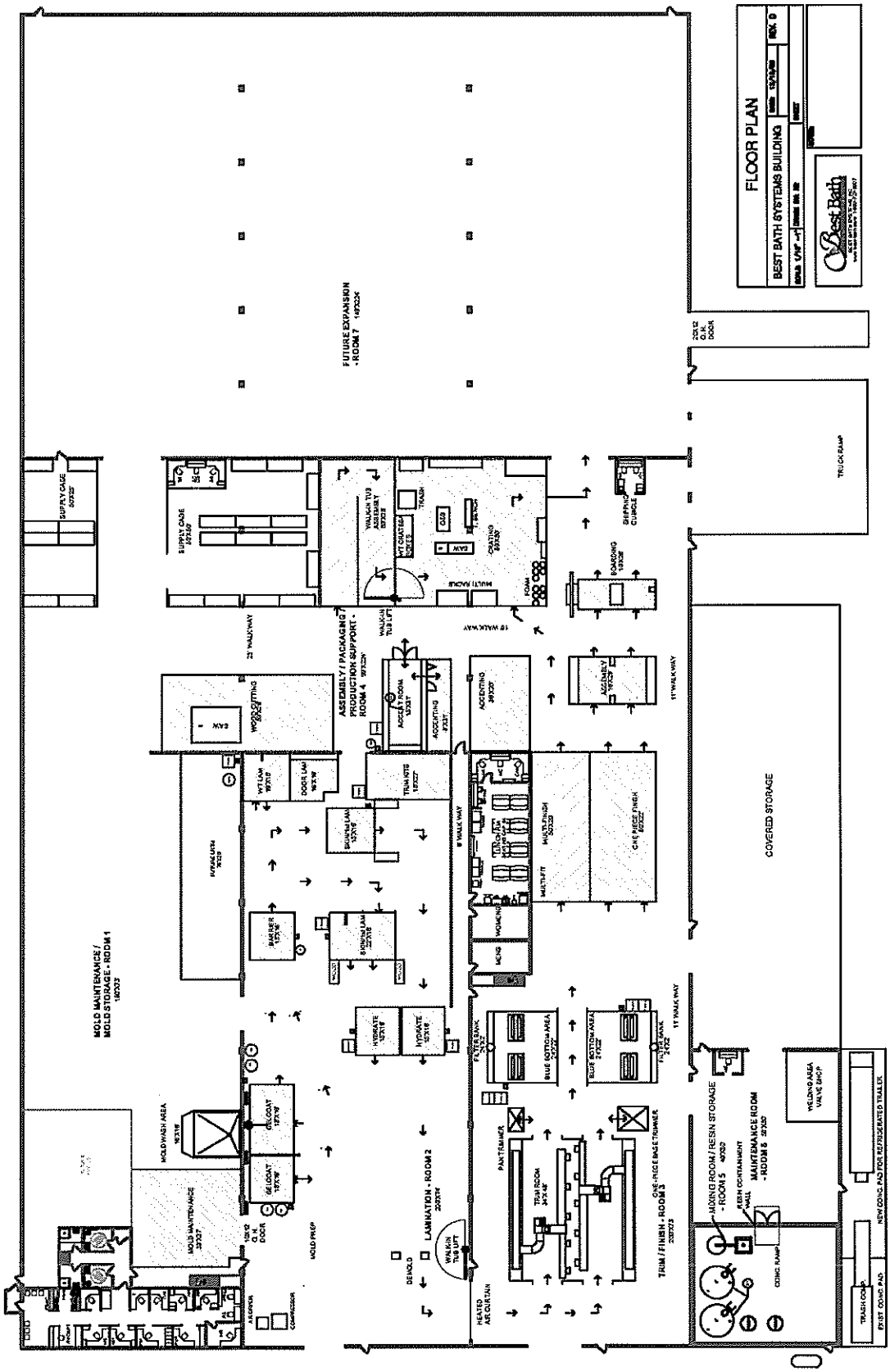
FLOOR PLAN
BEST BATH SYSTEMS BUILDING
FUTURE EXPANSION - ROOM 7
ASSEMBLY / PACKAGING / PRODUCTION SUPPORT - ROOM 4
MOLD MAINTENANCE / MOLD STORAGE - ROOM 1
LAMINATION - ROOM 2
TRIM / FINISH - ROOM 3
MIXING ROOM / RESIN STORAGE - ROOM 5
MAINTENANCE ROOM - ROOM 6
COVERED STORAGE
TRUCK RAMP
SHIPPING CUBICLE
MOLD WASH AREA
WELDING AREA
WALK IN TUB LIFT
HEATED AIR CURTAIN
RESIN CONTAINMENT WALL
TRASH COMP.
EXIST. CONC. PAD
NEW CONC. PAD FOR REFRIGERATED TRAILER

Figure 6-1 Plot Plan

723 Garber Street
Caldwell, Idaho 83605 March 2010

Fresh air to the Lamination Area is provided by a direct-fired, natural gas Make Up Air Unit, MAU1. The Lamination Area is designed to operate under negative pressure. The atomizing spray gun used for the gel and barrier coat application is a Magnum Venus ATG-3500 gel gun. The non-atomizing spray gun used for the resin application is a Magnum Venus TRT-1000-F.

The fourteen exhaust 24" x 24" exhaust air filter units, EC9A to EC9G and EC10A to EC10G, are equipped with two Purolator fiberglass panel filters installed in series: FACET-Aire F312 with an average arrestance of 72 wt% and Purolator Bulk Media with an average arrestance of 84 wt%. Test data for the F312 filter and manufacturer's specification sheets for both filters was provided in the permit application.. Test data to support the manufacturer's spec sheet were not available for the bulk media. The calculated overall arrestance of the two filters in series is:

Overall Arrestance, % = 100% - 100%*(1-0.72)*(1-0.84) = 95.5 wt%

However, because of the lack of test data documentation for the bulk media, for this permit analysis 90% filter efficiency was used. The two Lamination Area exhaust fans, EF9 and EF10, are specified as MK Plastics Model Axijet-S 4900, centrifugal, air foil type. Specification sheets for EF9 and EF10 and discharge velocity and other stack parameter calculations were provided in the permit application.

EU11 - Trim/Finish Area, Process Description

The Trim/Finish Area (Room 3) is used to finish raw edges, install plumbing holes, spray reinforced flooring and touch-up small flaws on the tub and shower units. From the Lamination Area, the units (removed from the molds) enter the Trim/Finish Area through a doorway in the northwest corner of Room 3. The units are moved into one of two Trim Room "alleys". In the Trim Room, the rough edges around the units are finished and plumbing holes are drilled in the units.

Next the units move to the Blue Bottom Area where rigid, floor foam is manually sprayed under the base of each unit. The units then move into the Finish Area for inspection and any required touchup work. Finally, the units proceed to the Assembly/Packaging Area (Room 4) where fixtures are attached and the units are crated for shipping.

Equipment

Fresh air for the Trim/Finish Area is provided by a direct-fired, natural gas Make Up Air Unit, MAU2. Emissions from the Blue Bottom Area stations are drawn via two exhaust fans, EF11 and EF12, located on the roof directly above the Blue Bottom Area. Intake plenums equipped with particulate filters, EC11 and EC12, descend to the shop floor adjacent to the Blue Bottom spray area.

The Trim Room corridors (approximately 15 feet tall) are also equipped with particulate emission control equipment, ECT1 and ECT2. Trim Room fans, RF1 and RF2, draw air from the trimming area through particulate filters. The Trim Room fans discharge the filtered air back into the Trim/Finish Area, not to the outside.

The particulate filters used in the Trim Room corridors and Blue Bottom Area stations are the same as those used in the Lamination Area: FACET-Aire F312 and Purolator Bulk Media. An overall arrestance of 90% is used in the emission estimation calculations for the Trim/Finish Area from EF11 and EF12.

Since the Trim Room fans discharge back into the Trim/Finish Area, particulate not captured by the Trim Room filters could be discharged outside via exhaust fans EF11 or EF12. The Trim Room filters used are high efficiency cartridge filters. To estimate the facility particulate emissions from the Trim Room operations, 80% capture and control efficiency was estimated for the Trim Rooms circulating air treatment system..

EU15/EU16/EU17 – Unit Heaters

There are eleven gas-fired unit heaters installed throughout the facility. These units typically have an input design duty of 300,000 Btu/hr. The combustion gases from these units are vented via 8" ducts directly up through the roof. Because the potential emissions from each of these small units is not large, and because they are clustered together in certain rooms around the facility, groups of heaters were considered to be collocated into three composite point sources for emission estimating and modeling purposes and collectively referred to as EU15, EU16 and EU17. Refer to the following plot plan to see the emission point locations. EU15 is a composite of five unit heaters located in the Mold Maintenance Area (Room 1). EU16 is a composite of four unit heaters located in the Assembly/Packaging Area (Room 4). EU17 is a composite of two unit heaters located in and just outside the Maintenance Room.

MAU1- Make Up Air Unit 1

Fresh air to the Lamination Area is provided by a make up air unit, MAU1, located just outside the west wall of the building. For cold weather operations, MAU1 includes a direct-fired, natural gas fueled air heater with a design input duty of 8.565 MMBtu/hr. A Hastings Model SBD 233 make up air unit has been specified for this service. The unit is direct-fired and the combustion gas will be emitted via the Lamination Area exhaust fans, EF9 and EF10.

MAU2- Make Up Air Heater 2

Fresh air to the Trim/Finish Area is provided by a make up air unit, MAU2, located just outside the west wall of the building. For cold weather operations, MAU2 includes a direct-fired, natural gas fueled air heater with a design input duty of 1.00 MMBtu/hr. A Hastings Model SBD 215 make up air unit has been specified for this service. The unit is direct-fired and the combustion gas will be emitted via the Blue Bottom Area exhaust fans, EF11 and EF12.

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).

June 22, 2010 P-2010.0047, Initial PTC was issued for the facility, Permit status (A)

Application Scope

This permit is the initial PTC for this facility. The applicant has proposed to:

- Install and operate a new manufacturing facility for fiberglass tub and shower units.

Application Chronology

March 29, 2010	DEQ received an application and an application fee.
April 9, 2010	DEQ approved pre-permit construction.
April 12, 2010	DEQ determined that the application was complete.
April 19 – May 4, 2010	DEQ provided an opportunity to request a public comment period on the application and proposed permitting action.
June 4, 2010	DEQ made available the draft permit and statement of basis for peer and regional office review.
June 8, 2010	DEQ made available the draft permit and statement of basis for applicant review.
June 15, 2010	DEQ received comments from Best Bath Systems
June 14, 2020	DEQ received the permit processing fee.
June 22, 2010	DEQ issued the final permit and statement of basis.

TECHNICAL ANALYSIS

Emissions Units and Control Devices

Table 1 EMISSIONS UNIT AND CONTROL DEVICE INFORMATION

Emissions Units / Processes	Emission Control Devices	Emission Points[1]
Coatings applications during fabrication of fiberglass reinforced plastics.	For $PM/PM_{10}/PM_{2.5}$ control: 1-inch fiberglass filter (approximately 72% efficiency); and fiberglass bulk media filter (approximately 84% efficiency) (see descriptions above)	Stacks EF-9, EF-10, EF-11 and EF-12
Accent application in a paint booth	For VOC and HAP control: Control of operations in accordance with NESHAP/MACT requirements	Stack EF-14
Trim and finish operations. Rough edges are trimmed and plumbing holes are drilled. Exhaust from this area is filtered and exhausted back into the Blue Foam work area. It is not directly vented to the outside.	For $PM/PM_{10}/PM_{2.5}$ control: 1-inch fiberglass filter (approximately 72% efficiency); and fiberglass bulk media filter (approximately 84% efficiency) (see descriptions above)	---
Combustion emissions from building unit heaters that are vented thru the roof. There are 11 small gas-fired units installed throughout the facility with a typical design input of 0.30 MMBtu/hr.	Use of natural gas fuel and good combustion control	Each unit heater has its own stack
Combustion emissions from two makeup air units with a combined input rating of approximately 9.6 MMBtu/hr. Emissions from these direct-fired natural gas fueled units are vented thru the fiberglass production area exhaust stacks.	Use of natural gas fuel, and good combustion control	Stacks EF-9, EF-10, EF-11 and EF-12

[1] Refer to the modeling memorandum to see individual stack parameters (height, flow rate, etc.)

Emissions Inventories

An emission inventory was developed for the Best Bath Systems, Inc. Caldwell facility associated with this proposed project (see Appendix A). Emissions estimates of criteria pollutant PTE were based on emission factors and information derived from actual operations at the company's Boise facility and process information specific to the facility for this proposed project. Summaries of the estimated controlled emissions of criteria pollutants, TAPs, and HAPs from the facility are provided in the following tables.

Uncontrolled Emissions:

Estimates of uncontrolled emissions are not needed for this facility. Information in the permit application clearly indicates that the facility classification for this facility is "A" and additional information is not needed in order to determine the facility classification.

Pre-Project Potential to Emit

Since this is the initial permit for a new facility, the pre-project PTE for all emissions units and all pollutants is set to zero in Table 2 (i.e., there are no historical/past emissions for this facility). See Appendix A for a detailed presentation of the calculations of these emissions for each emissions unit.

Table 2 PRE-PROJECT POTENTIAL TO EMIT FOR CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr	T/yr
Point Sources												
All Emission Units	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Pre-Project Totals	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

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

Post Project Potential to Emit

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

Table 3 POST PROJECT POTENTIAL TO EMIT FOR CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/hr[a]	T/yr[b]	lb/qtr	T/yr
Point Sources												
Lamination Area, South MAU1, Stack EF9	0.67	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Lamination Area, North, MAU1, Stack EF10	0.67	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Blue Bottom Area, North, MAU2, Stack EF11	0.13	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Blue Bottom Area, South, MAU2, Stack EF12	0.13	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
Accent Booth, Stack EF14	0.02	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0	0
All VOC sources	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	108[c]	0	0
All natural gas combustion sources	0.096	0.42	0.008	0.33	1.26	5.52	1.06	4.64	0.069	0.30	0.005	0
Post Project Totals	**1.72**	**5.50**	**0.01**	**0.33**	**1.26**	**5.52**	**1.06**	**4.64**	**0.07**	**108.30**	**0.01**	**0.00**

a) Controlled average emission rate in pounds per hour is a daily average, based on the proposed daily operating schedule and daily limits.
b) Controlled average emission rate in tons per year is an annual average, based on the proposed annual operating schedule and annual limits.
c) For details of VOC emissions refer to table 3.3 of the permit application in Appendix A.

As demonstrated in Table 3 and the information for HAP emissions below, this facility has a controlled potential to emit for VOC emissions greater than the Major Source threshold of 100 T/yr and a controlled potential to emit for all other criteria pollutants that is less than the Major Source threshold of 100 T/yr. Therefore, this facility is designated as a Major facility under the Title V program.

Change in Potential to Emit

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

Table 4 CHANGES IN POTENTIAL TO EMIT FOR CRITERIA POLLUTANTS

	PM_{10}		SO_2		NO_X		CO		VOC		Lead	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Sources												
Pre-Project Potential to Emit	0.0	0.0	0.0.	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Post Project Potential to Emit	1.72	5.5	0.01	0.33	1.26	5.52	1.06	4.64	0.07	108	0.01	0.0
Changes in Potential to Emit	**1.72**	**5.50**	**0.01**	**0.33**	**1.26**	**5.52**	**1.06**	**4.64**	**0.07**	**108.00**	**0.01**	**0.00**

Non-Carcinogenic TAP Emissions

A summary of the estimated uncontrolled and controlled non-carcinogenic emissions increase of toxic air pollutants (TAP) is provided in the following table. The estimated controlled emissions increases of some of the TAPs exceed applicable emissions screening levels (EL) (see table). Pre- and post project, as well as the change in, non-carcinogenic TAP emissions are presented in the following table:

Table 5 PRE- AND POST PROJECT NON-CARCINOGENIC TAP EMISSIONS SUMMARY

POTENTIAL TO EMIT

Non-Carcinogenic Toxic Air Pollutants	Pre-Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Post Project 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Change in 24-hour Average Emissions Rates for Units at the Facility (lb/hr)	Non-Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Acetone	0.00E-00	35.2	35.2	119	No
Calcium Carbonate	0.00E-00	0.379	0.379	0.667	No
Carbon Black	0.00E-00	0.020	0.020	0.23	No
Cobalt[a]	0.00E-00	0.130	0.130	0.007	Yes
Cumene	0.00E-00	0.01	0.01	16.30	No
Dimethylphthalate	0.00E-00	0.028	0.028	0.333	No
Ethanol	0.00E-00	0.09	0.09	125	No
Hexylene glycol	0.00E-00	0.03	0.03	0.806	No
Hydrogen peroxide	0.00E-00	0.48	0.48	0.1	Yes
Kaolin	0.00E-00	0.379	0.379	0.133	Yes
Methacrylic acid	0.00E-00	0.02	0.02	4.67	No
MDI	0.00E-00	0.00008	0.00008	0.003	No
Methyl ethyl ketone (MEK)	0.00E-00	1.11	1.11	39.3	No
MEK peroxide	0.00E-00	0.25	0.25	0.01	Yes
Methyl methacrylate	0.00E-00	0.25	0.25	27.3	No
Octane	0.00E-00	0.04	0.04	93.3	No
Silica- amorphous	0.00E-00	4.85	4.85	0.667	No
Silica- crystalline	0.00E-00	0.0106	0.0106	0.0067	Yes
Styrene	0.00E-00	32.0	32.0	6.67	Yes

[a] Cobalt compounds in barrier coat and Ashland colored gel coats are not listed TAPs. Cobalt compounds in white gel coat and resins are not specifically identified so are assumed to be cobalt carbonyl, a listed TAP. Cobalt carbonyl is 34 wt% cobalt

Therefore, modeling is required for the TAPs with estimated emissions that exceed the 24-hour average non-carcinogenic screening EL identified in IDAPA 58.01.01.585.

Carcinogenic TAP Emissions

A summary of the estimated controlled carcinogenic emissions increase of toxic air pollutants (TAP) is provided in the following table. The estimated controlled emissions increases of formaldehyde exceeded applicable emissions screening levels (EL). Pre- and post project, as well as the change in, carcinogenic TAP emissions are presented in the following table:

Table 6 PRE- AND POST PROJECT CARCINOGENIC TAP EMISSIONS SUMMARY POTENTIAL TO EMIT

Carcinogenic Toxic Air Pollutants	Pre-Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Post Project Annual Average Emissions Rates for Units at the Facility (lb/hr)	Change in Annual Average Emissions Rates for Units at the Facility (lb/hr)	Carcinogenic Screening Emission Level (lb/hr)	Exceeds Screening Level? (Y/N)
Formaldehyde	0.00E-00	9.4E-04	9.4E-04	5.1E-04	Yes

Therefore, modeling is required for formaldehyde because the estimated emissions exceed the annual average carcinogenic screening EL identified in IDAPA 58.01.01.586.

Post Project HAP Emissions

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

Table 7 HAP EMISSIONS SUMMARY POTENTIAL TO EMIT

HAP Pollutants	PTE (T/yr)
Acetophenone	1.79
Cobalt Compounds	1.69
Cumene	0.042
Formaldehyde	2.8E-03
Methyl diphenyl isocyanate (MDI)	2.4E-04
Methyl methacrylate	0.74
Styrene	95.9
TOTAL	100.1

Ambient Air Quality Impact Analyses

As presented in the Modeling Memo in Appendix B, the estimated emission rates of PM_{10} and the TAPs listed as "yes" in the last column of Table 5 from this project exceeded applicable screening emission levels (EL) and published DEQ modeling thresholds established in IDAPA 58.01.01.585-586 and in the State of Idaho Air Quality Modeling Guideline[1]. Therefore, emissions of these pollutants were modeled to demonstrate compliance with the Rules. Refer to the Emissions Inventories section above for additional information concerning the emission inventories.

The applicant has demonstrated pre-construction compliance to DEQ's satisfaction that emissions from this facility will not cause or significantly contribute to a violation of any ambient air quality standard. The applicant has also demonstrated pre-construction compliance to DEQ's satisfaction that the emissions increase due to this permitting action will not exceed any acceptable ambient concentration (AAC) or acceptable ambient concentration for carcinogens (AACC) for toxic air pollutants (TAP). A summary of the Ambient Air Impact Analysis for TAPs is provided in Appendix B. Compliance with IDAPA 58.01.01.210 has been demonstrated.

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

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[1] Criteria pollutant thresholds in Table 1, State of Idaho Air Quality Modeling Guideline, Doc ID AQ-011, rev. 1, December 31, 2002.

REGULATORY ANALYSIS

Attainment Designation (40 CFR 81.313)

The facility is located in Canyon 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.

Permit to Construct (IDAPA 58.01.01.201)

IDAPA 58.01.01.201 Permit to Construct Required

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

Tier II Operating Permit (IDAPA 58.01.01.401)

IDAPA 58.01.01.401 Tier II Operating Permit

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

Odors (IDAPA 58.01.01.775)

IDAPA 58.01.01.775 Odors

Odorous gases shall not be emitted to the atmosphere in such quantities as to cause air pollution, as required by IDAPA 58.01.01.775.

Visible Emissions (IDAPA 58.01.01.625)

IDAPA 58.01.01.625 Visible Emissions

The sources of PM_{10} emissions at this facility are subject to the State of Idaho visible emissions standard of 20% opacity.

Standards for New Sources (IDAPA 58.01.01.676)

IDAPA 58.01.01.676 Standards for New Sources

The natural gas-fired fuel burning equipment located at this facility, each has a maximum rated input of ten (10) million BTU per hour or less, and is subject to a particulate matter limitation of 0.015 gr/dscf of effluent gas corrected to 3% oxygen by volume when combusting gaseous fuels. 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. Calculations have been completed to show that compliance with this requirement is assured by combusting only natural gas in this equipment.

Particulate Matter – New Equipment Process Weight Limitations (IDAPA 58.01.01.701)

IDAPA 58.01.01.701 Particulate Matter – New Equipment Process Weight Limitations

IDAPA 58.01.01.701.a sets PM emission limits for process equipment that commenced operation after 10/1/79 and for which the process weight (PW) in pounds per hour is less than 9250 pounds per hour. This facility has a calculated PW rate of 404.3 lb/hr. Therefore, using the equation of in the regulation, the allowable PW rate limit is determined as follows:

For equipment that commenced operation on or after October 1, 1979, the PM allowable emission rate (E) is based on the following equation:

PW Limit E $= 0.045\ (404.3)^{0.60} =$ 1.65 lb/hr of PM

The estimated 24-hr averaged particulate rate for the 'process" at this facility (all particulate assumed to be PM_{10}) is 1.54 lb/hr, as shown in table 3.3 of the application, therefore, compliance with this requirement is demonstrated.

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

IDAPA 58.01.01.301 Requirement to Obtain Tier I Operating Permit

Post project facility-wide emissions from this facility have a potential to emit greater than 100 tons per year of VOC greater than 10 tons per year for any one HAP (i.e., styrene) as shown 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. Therefore, in accordance with IDAPA 58.01.01.313.01.b, the permittee must submit a complete application to DEQ for an initial Tier I operating permit within 12 months of becoming a Tier I source or commencing operation. A condition is included in the permit for the permit submittal requirement.

PSD Classification (40 CFR 52.21)

40 CFR 52.21 Prevention of Significant Deterioration of Air Quality

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

NSPS Applicability (40 CFR 60)

The facility is not subject to any NSPS requirements.

NESHAP Applicability (40 CFR 61)

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

MACT Applicability (40 CFR 63 Subpart WWWW, National Emission Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production)

This subpart establishes national emissions standards for hazardous air pollutants (NESHAP) for reinforced plastic composites production. This subpart also establishes compliance options, operating requirements, and work practice requirements to demonstrate initial and continuous compliance with the hazardous air pollutants (HAP) emissions standards for open molding, polymer casting, mixing, and cleaning of equipment procedures used in reinforced plastic composites manufacture. The requirements of this subpart apply to this facility because the facility-wide HAP emissions of the facility exceed major source thresholds.

40 CFR 63.5785(a)..... Am I subject to this subpart?

The requirements of this subpart apply to this facility because the facility owns or operates a reinforced plastic composites production facility that is located at a major source of HAP emissions.

40 CFR 63.5787 ..... What if I also manufacture fiberglass boats or boat parts?

40 CFR 63.5787(a) applies because the source meets the applicability criteria in 40 CFR 63.5785, and is not subject to the Boat Manufacturing NESHAP (40 CFR part 63, subpart VVVV). The requirements of 40 CFR 63.5785(b) through (d) do not apply because the facility is not subject to the Boat Manufacturing NESHAP (40 CFR part 63, subpart VVVV).

40 CFR 63.5790 ..... What parts of my plant does this subpart cover?

In accordance with 40 CFR 63.5790(a), the facility is subject to this subpart because it is a new or existing facility. In accordance with 40 CFR 63.5790(b), the affected sources located at the facility are open molding, polymer casting, mixing, cleaning of equipment used in reinforced plastic composites manufacture, HAP-containing materials storage, and repair operations on parts the facility manufactures. In accordance with 40 CFR 63.5790(c), the following operations are specifically excluded from any requirements in this subpart: application of mold sealing and release agents; mold stripping and cleaning; repair of parts that you did not manufacture, including non-routine manufacturing of parts; personal activities that are not part of the manufacturing operations (such as hobby shops on military bases); prepreg materials as defined in §63.5935; non-gel coat surface coatings; application of putties, polyputties, and adhesives; repair or production materials that do not contain resin or gel coat; research and development operations as defined in section 112(c)(7) of the CAA; polymer casting; and closed molding operations (except for compression/injection molding). Note that the exclusion of certain operations from any requirements applies only to operations specifically listed in this paragraph. The requirements for any co-located operations still apply.

40 CFR 63.5795 ..... How do I know if my reinforced plastic composites production facility is a new affected source or an existing affected source?

In accordance with 40 CFR 63.5795(a), the facility is a new source because construction commenced after August 2, 2001.

40 CFR 63.5796 ..... What are the organic HAP emissions factor equations in Table 1 to this subpart, and how are they used in this subpart?

This section is informational.

40 CFR 63.5797 ..... How do I determine the organic HAP content of my resins and gel coats?

In accordance with 40 CFR 63.5797, the permittee may rely on information provided by the material manufacturer, such as manufacturer's formulation data and material safety data sheets (MSDS), using the procedures specified in 40 CFR 63.5797(a) through (c).

40 CFR 63.5798 ..... What if I want to use, or I manufacture, an application technology (new or existing) whose organic HAP emissions characteristics are not represented by the equations in Table 1 to this subpart?

This is an optional procedure the permittee has chosen not to use.

40 CFR 63.5799 ..... How do I calculate my facility's organic HAP emissions on a tpy basis for purposes of determining which paragraphs of 40 CFR 63.5805 apply?

In accordance with 40 CFR 63.5799, the facility is a "new" facility, and must use the procedures in either paragraph (b)(1) or (2) of this section to calculate the facility's organic HAP emissions in tpy for purposes of determining which paragraphs in § 63.5805 apply to the facility. The timing and reporting of these calculations is discussed in paragraph (c) of this section.

40 CFR 63.5800 ..... When do I have to comply with this subpart?

In accordance with 40 CFR 63.5800, the permittee must comply with the standards in this subpart upon startup, as shown in Table 2 to this subpart. The permittee has organic HAP emissions standard based on a 12-month rolling average, and, therefore, must begin collecting data on the compliance date in order to demonstrate compliance.

40 CFR 63.5805 ..... What standards must I meet to comply with this?

You must meet the requirements of paragraphs (a) through (h) of this section that apply to you. You may elect to comply using any options to meet the standards described in 40 CFR 63.5810 through 5830. Use the procedures in 40 CFR 63.5799 to determine if you meet or exceed the 100 tpy threshold.

40 CFR 63.5805(a), (a)(1), and (a)(2) of (a) do not apply to the facility because it does not have any centrifugal casting or continuous casting/lamination operations. 40 CFR 63.5805(b) does not apply because the facility is not an existing facility.

40 CFR 63.5805(d)(1) applies if the facility emits 100 tpy or more of HAP from the combination of all open molding, centrifugal casting, continuous lamination/casting, pultrusion, SMC manufacturing, mixing, and BMC manufacturing. 40 CFR 63.5805(d)(1) requires that the facility reduce the total organic HAP emissions from these operations by at least 95 percent by weight and meet any applicable work practice standards in Table 4 of the subpart that applies to it. (See list of applicable work practices listed below). As an alternative to meeting 95 percent by weight, the facility may meet the applicable organic HAP emissions limits in Table 5 to this subpart. The following operations occur at the facility which have emission limits in Tables 5:

- open molding non-CR/HS operations that use manual resin application,
- open molding tooling operations that use manual resin application
- open molding low flame spread/low-smoke product operations that use manual resin application
- open molding shrinkage controlled resins operations that use manual resin application
- open mold gel coat operations that use tooling gel coating
- open mold gel coat operations that use white/off white pigmented gel coating
- open mold gel coat operations that use all other pigmented gel coating

40 CFR 63.5805(d)(2) does not apply because the facility does not manufacture large reinforced plastic composite parts.

40 CFR 63.5805(c) applies to the facility. The facility is a new facility that currently has actual emissions less than 100 tpy of HAP and, therefore, is required under 40 CFR 63.3805(c) to meet the applicable organic HAP emissions limits in Table 3 and work practice standards in Table 4. In addition, the facility is subject to 40 CFR 63.5805(e), which requires a facility subject to paragraph (c) that subsequently meets or exceeds the 100 tpy threshold to notify the permitting authority in its compliance report. Paragraph (e) also allows request of a one-time exemption for exceedance of the 100 tpy threshold so long as certain conditions are met.

The facility is allowed to use actual emissions to determine whether the facility's HAP emissions are below the 100 tpy threshold. See Frequently Asked Questions About the Reinforced Plastic Composites Production NESHAP, May 16, 2006, Q.6.3. See also, 40 CFR Subpart WWWW, Table 2 (exceeding 100 tpy threshold is based on "actual organic HAP emissions").

All work practices in Table 4 apply except 1, 4, 5, and 9. The following operations occur at the facility which have emission limits in Tables 3:

- open molding non-CR/HS operations that use manual resin application,
- open molding tooling operations that use manual resin application
- open molding low flame spread/low-smoke product operations that use manual resin application
- open molding shrinkage controlled resins operations that use manual resin application
- open mold gel coat operations that use tooling gel coating
- open mold gel coat operations that use white/off white pigmented gel coating
- open mold gel coat operations that use all other pigmented gel coating

If the facility subsequently increases its actual organic HAP emissions to 100 tpy or more then the facility must comply with the standards in 40 CFR 63.5805(d) within 3 years of the date the semi-annual compliance report indicates that the facility meets or exceeds the 100 tpy threshold, subject to the provisions of 40 CFR 63.5805(e) and 63.5805(f)

40 CFR 63.5805(f) and (g) apply. 40 CFR 63.5805(h) does not apply because the facility does not use an add-on control device to comply with this subpart.

40 CFR 63.5810 ..... What are my options for meeting the standards for open molding and centrifugal casting operations at new and existing sources?

The facility must use one of the methods in 40 CFR 63.5810 paragraphs (a) through (d) to meet the standards for open molding in Table 3 of this subpart.

40 CFR 63.5820 ..... What are my options for meeting the standards for continuous lamination/casting operations?

Paragraphs (a) through (d) of this section do not apply to the facility because the facility has open molding operations, and is not subject to the standards for continuous lamination/casting operations.

40 CFR 63.5830 ..... What are my options for meeting the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement?

40 CFR 63.5830 and paragraphs (a) through (e) of the section do not apply to the facility because the facility has open molding operations, and is not subject to the standards for pultrusion operations subject to the 60 weight percent organic HAP emissions reductions requirement.

40 CFR 63.5835 ..... What are my general requirements for complying with this subpart?

Paragraph (a) of this section applies to the facility and requires the facility to be in compliance at all times with the work practice standards in Table 4 and the organic HAP emissions limits in Table 3. Paragraphs (b) and (d) of this section do not because the facility does not use add-on controls. Paragraph (c) of 40 CFR 63.5835 generally applies to all facilities subject to 40 CFR 63, Subpart WWWW.

40 CFR 63.5840 ..... By what date must I conduct a performance test or other initial compliance demonstration?

The facility must comply with the data collection and compliance demonstration requirements of this paragraph by the compliance date specified by 40 CFR 63.5800. In accordance with 40 CFR 63.5800, the permittee must comply with the standards in this subpart upon startup, as shown in Table 2 to this subpart.

40 CFR 63.5845 ..... When must I conduct subsequent performance tests?

This section does not apply to the permittee because it does not operate an add-on control device to meet a standard.

40 CFR 63.5850 ..... How do I conduct performance tests, performance evaluations, and design evaluations?

This section does not apply to the permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5855 ..... What are my monitor installation and operation requirements?

This section does not apply to the permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5860 ..... How do I demonstrate initial compliance with the standards?

Paragraph (a) of this section applies to the facility and requires the facility demonstrate initial compliance with each applicable organic HAP emissions standard in 40 CFR 63.5805 paragraphs (a) through (h) by using the procedures shown in Tables 8 and 9 of this subpart . Specifically, only item 1 of Table 8 applies, and items 2, 3, and 8 of Table 9 apply. Paragraph (b) of this section does not apply to the permittee because these requirements apply to facilities that operate an add-on control device to meet a standard.

40 CFR 63.5865-5890 ..... What data must I generate to demonstrate compliance with the standards for continuous lamination/casting operations?

This section does not apply to the permittee because these requirements apply to facilities that have continuous lamination/casting operations. The facility has open molding operations.

40 CFR 63.5895 ..... How do I monitor and collect data to demonstrate continuous compliance?

Paragraph (a) of this section does not apply to the permittee because this requirement applies to facilities that operate an add-on control device to meet a standard. Paragraphs (b), (b)(1) through (b)(3), (c) and (d) of this section apply. Paragraph (e) of this section does not apply to the permittee because this requirement applies to facilities that operate pultrusion machines.

40 CFR 63.5900 ..... How do I demonstrate continuous compliance with the standards?

Paragraph (a)(1) and (d) of this section do not apply to the permittee because these requirements apply to facilities that operate an add-on control device to meet a standard. Paragraphs (a)(2) through (a)(4), (b), (c) and (e) of this section apply.

40 CFR 63.5905 ..... What notifications must I submit and when?

Paragraphs (a) and (b) of this section apply.

40 CFR 63.5910 ..... What reports must I submit and when?

Paragraphs (a), (b), (b)(1) through (b)(5), (c), (c)(1) through (c)(5), (g), (h), and (i) of this section apply. Paragraphs (c)(6), (e), and (e)(1) through (e)(12) do not apply because the facility does not operate a continuous monitoring system. Paragraph (f) will apply if 40 CFR 63.5805(d) applies.

40 CFR 63.5915 ..... What records must I keep?

Paragraphs (a), (a)(1) through (3), (c), and (d) of this section apply. Paragraphs (b) of this section does not apply to the permittee because this requirement applies to facilities that operate an add-on control device, which the permittee does not. Paragraphs (e)(1) through (4) of this section do not apply because the facility does not have new or existing continuous lamination/ casting operations.

40 CFR 63.5920 ..... In what form and how long must I keep my records?

Paragraphs (a) through (d) of this section apply.

40 CFR 63.5925 ..... What parts of the General Provisions apply to me?

This section and Table 15 of Subpart WWWW, applies to this facility as specified.

40 CFR 63.5930 ..... Who implements and enforces this subpart?

The responsibility to implement and enforce 40 CFR 63 Subpart WWWW, National Emission Standards for Hazardous Air Pollutants for Reinforced Plastic Composites Production has been delegated to the Idaho DEQ by EPA Region 10. A copy of the delegation letter can be viewed on the EPA Region 10 website, and here:

http://www.deq.idaho.gov/air/prog_issues/toxics/epa_neshaps_ltr_0608.pdf

40 CFR 63.5935 ..... What definitions apply to this subpart?

The definitions of this section apply to the facility.

Permit Conditions Review

This section describes the permit conditions, including the monitoring, recordkeeping and reporting requirements (MRRR) for limits and standards that are included in this initial permit.

Permit Condition 5, PM_{10} & VOC Emission Limits

This permit condition establishes a short term pound per hour limit from Stacks EF-9, EF-10, EF-11 and EF-12 for PM_{10} to assure protection of the PM_{10} NAAQS for this project. The emission limit is set for the most substantial PM_{10} sources at this facility (lamination areas and blue bottom areas) and by limiting the larger/dominant sources, limits on the smaller sources is not necessary. The PM_{10} limits are based on the emissions estimates used in the permit application for the NAAQS compliance demonstration for this project.

This permit condition also establishes an annual VOC limit for stacks EF-9, EF-10, EF-11 and EF-12. The limit is established to assure that the actual emissions from the facility remain consistent with the levels estimated in the permit application to demonstrate compliance with applicable requirements such as the TAPs requirements under Section 210.

MRRR for Permit Condition 5: Permit Conditions 11, 13, 14, 15, 17, 20

As a means to demonstrate compliance with the pound per hour PM_{10} emission limit, permit conditions were established to specify requirements for the following: the type of spray guns used for production operations; the combined collection efficiency of the air filters used to control particulate matter emissions from the lamination area and blue bottom areas shall be at least 90% for PM_{10}; an operations and maintenance manual shall be created and followed to assure the dust collection system is operated as designed so that it remains effective for the control of PM_{10} emissions at all times the facility is operated; and PM_{10} performance testing; . Compliance with Permit Conditions 11, 15, 17 and 20 will demonstrate compliance with the PM_{10} emission rate limit.

As a means to demonstrate compliance with the annual VOC emission limit, permit conditions were established to specify requirements for the following: maintain material usage records to provide data to determine the amount of VOC containing materials that are used at the facility; and maintain monthly records of the calculated amount of VOC emissions, expressed as tons per consecutive 12-month period to directly show compliance with the VOC limit. Compliance with Permit Conditions 13 and 14 will demonstrate compliance with the VOC emission rate limit.

An out of compliance situation with one of these MRRR permit conditions will not necessarily result in non-compliance with the emission rate limit. If this occurs, the situation will have to be evaluated based on the information available at that time to determine the compliance status.

Permit Condition 6, MACT Limitations, Work Practice Standards, & Compliance Deadlines

This permit condition sets forth MACT requirements that apply to the facility. Refer to the Regulatory Analysis Section above for details regarding applicability of specific MACT requirements.

MRRR for Permit Condition 6: Permit Conditions 12 and 22

Monitoring, recordkeeping, testing, and reporting requirements necessary to demonstrate compliance with the MACT limitations, work practice standards, and compliance dates are specified by the MACT requirements in Permit Conditions 12 and 22. Refer to the Regulatory Analysis Section above for details regarding applicability of specific MACT requirements.

Permit Condition 7, Opacity Limit

This permit condition sets forth the opacity requirement that applies to all point sources under IDAPA 58.01.01.625.

MRRR for Permit Condition 7: Permit Condition 18

As a means to demonstrate compliance with the opacity standard, periodic visual inspections of the facility's exhaust stacks shall be conducted and recorded.

Permit Condition 8, Reasonable Control of Fugitive Dust Emissions

This permit condition sets forth the rules for the reasonable control of fugitive dust that apply to all sources of fugitive dust at the facility.

MRRR for Permit Condition 8: Permit Condition 19

As a means to demonstrate compliance with the fugitive dust rules, the permittee is required to perform and record the results of periodic facility-wide fugitive dust inspections to demonstrate that the measured employed to control fugitive dust emissions are effective.

Permit Condition 9, Odorous Emissions

This permit condition establishes the requirements for the control of odorous emissions from the facility in accordance with IDAPA 58.01.01.775.

MRRR for Permit Condition 9: Permit Condition 16

As a means to demonstrate compliance with the rules for odorous emissions, Best Bath is required to develop and implement a site-specific Odor Management Plan. Details and minimum requirements for the plan are specified in this permit condition. A copy of this plan should be maintained on-site and may be requested by DEQ at any time. When requested, the Plan shall be provided to DEQ in accordance with PTC General Provision 31.

Permit Condition 10, Use of Natural gas in Fuel Burning Equipment

This permit condition requires the facility to use only natural gas as fuel in the fuel burning equipment (i.e., the building heaters) at the facility. Compliance with this requirement will assure compliance with the PM_{10} NAAQS, as demonstrated in the permit application.

MRRR for Permit Condition 10

No specific permit conditions or written records are necessary to demonstrate compliance with this requirement. An inspector will be able to verify compliance with this requirement by visual inspection at the time the facility is inspected.

Initial Permit Condition 23

The duty to comply general compliance provision requires that the permittee comply with all of the permit terms and conditions pursuant to Idaho Code §39-101.

Initial Permit Condition 24

The maintenance and operation general compliance provision requires that the permittee maintain and operate all treatment and control facilities at the facility in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 25

The obligation to comply general compliance provision specifies that no permit condition is intended to relieve or exempt the permittee from compliance with applicable state and federal requirements, in accordance with IDAPA 58.01.01.212.01.

Initial Permit Condition 26

The inspection and entry provision requires that the permittee allow DEQ inspection and entry pursuant to Idaho Code §39-108.

Initial Permit Condition 27

The construction and operation notification provision requires that the permittee notify DEQ of the dates of construction and operation, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 28

The performance testing notification of intent provision requires that the permittee notify DEQ at least 15 days prior to any performance test to provide DEQ the option to have an observer present, in accordance with IDAPA 58.01.01.157.03.

Initial Permit Condition 29

The performance test protocol provision requires that any performance testing be conducted in accordance with the procedures of IDAPA 58.01.01.157, and encourages the permittee to submit a protocol to DEQ for approval prior to testing.

Initial Permit Condition 30

The performance test report provision requires that the permittee report any performance test results to DEQ within 30 days of completion, in accordance with IDAPA 58.01.01.157.04-05.

Initial Permit Condition 31

The monitoring and recordkeeping provision requires that the permittee maintain sufficient records to ensure compliance with permit conditions, in accordance with IDAPA 58.01.01.211.

Initial Permit Condition 32

The excess emissions provision requires that the permittee follow the procedures required for excess emissions events, in accordance with IDAPA 58.01.01.130.

Initial Permit Condition 33

The certification provision requires that a responsible official certify all documents submitted to DEQ, in accordance with IDAPA 58.01.01.123.

Initial Permit Condition 34

The false statement provision requires that no person make false statements, representations, or certifications, in accordance with IDAPA 58.01.01.125.

Initial Permit Condition 35

The tampering provision requires that no person render inaccurate any required monitoring device or method, in accordance with IDAPA 58.01.01.126.

Initial Permit Condition 36

The transferability provision specifies that this permit to construct is transferable, in accordance with the procedures of IDAPA 58.01.01.209.06.

Initial Permit Condition 37

The severability provision specifies that permit conditions are severable, in accordance with IDAPA 58.01.01.211.

PUBLIC REVIEW

Public Comment Opportunity

An opportunity for public comment period on the application was provided in accordance with IDAPA 58.01.01.209.01.c or IDAPA 58.01.01.404.01.c. During this time, there were no specific comments on the application and there was not a request for a public comment period on DEQ's proposed action. Refer to the chronology for public comment opportunity dates.

Public Comment Period and Hearing

A public comment period and hearing were not requested nor required. Refer to the "Public Comment Opportunity" information above.

APPENDIX A – EMISSIONS INVENTORIES

Table 3-3: Permit Chemical Usage Emissions Analysis

Feed Type	Compounds	Product code(s)	Permit Analysis Quantity (lbs)[1]	Pollutant	Pollutant Conc. (wt%)	Pollutant in Feed (lb/yr)	NESHAP Emission Factor (lb/ton)[2]	Pollutant Retention/ Conversion (wt%)	Pollutant Uncontrolled Emissions (lb/yr)	Operating Days per Year	Pollutant Uncontrolled Emissions (lb/hr)	Control Equipment Arrestance (wt%)[3]	Pollutant Controlled Emissions (lb/hr)	Point Source ID
Adhesive	Plexus	MA 330	1484	methacrylic acid	10%	149	–	0%	148	250	0.025			EF11 & 12
	Plexus	MA 330		methyl methacrylate	80%	638	–	0%	496		0.110			
Finishing	Tempro	[illegible]	1497	VOC	5%	75	–	0%	75		8.5E-03			EF11 & 12
	TR Buffing Compound	TR-311	413	formaldehyde	2%	8	–	0%	8		8.4E-04			
				VOC	20%	83	–	0%	83		0.014			
Foam Fill	[illegible] Flow	[illegible] "A"	65263	methyl diphenyl isocyanate[5]	50%	30,231	–	99.99930%	0		0.00			EF11 & 12
	[illegible] Packing	Component "A"	45733	methyl diphenyl isocyanate[5]	45%	18,310	–	99.99930%	0		0.000			
Gel & Barrier Coats	Ashland White	WO-10-8045	363814	calcium carbonate, PM_{10}	25%	90,953	–	75%	22,738		3.790	90%	0.378	EF9 & 10
				cobalt compounds (TAP)	0.5%	3274	8.0		1457		0.243			
				kaolin, PM_{10}	25%	90,953	–	75%	22,738		3.790	90%	0.378	
				silica, amorphous, PM_{10}	25%	90,953	–	75%	22,738		3.790	90%	0.378	
				styrene	30%	109,144	247		48,568		8.095			
				VOC	30%	109,144	247		48,568		8.095			
	Ashland Colors	WO-2X8113, WO-2X8139, WO-2X8135, WO-2X8117	57379	silica, amorphous, PM_{10}	5%	2868	–	75%	717		0.120	90%	0.012	
				silica, quartz, PM_{10}	0.5%	287	–	75%	72		0.012	90%	0.0012	
				Co compounds (non-TAP)	0.5%	287	5.0		144		0.024			
				styrene	37%	21,230	375		10,644		1.775			
				VOC	37%	21,230	375		10,648		1.775			
	Valspar Clear	97/C93541	15711	methyl methacrylate	5%	786	64		504		0.084			
				styrene	45%	7070	579		4549		0.758			
				VOC	50%	7856	643		5054		0.842			
	Cabinet and... GCP all colors	Ocarcoal Amorfde	3065	methyl methacrylate	5%	153	50		77		0.013			
				styrene	28%	858	287		414		0.074			
				VOC	34%	1042	341		523		0.087			
	Barrier coat	VTRO-017	449626	carbon black, PM_{10}	1%	4494	–	75%	1124		0.187	90%	0.019	
				Co compounds (non-TAP)	0.5%	2247	4.9		1100		0.187			
				silica, amorphous, PM_{10}	5%	22,471	–	75%	5618		0.936	90%	0.094	
				silica, quartz, PM_{10}	0.5%	2247	–	75%	562		0.094	90%	0.009	
				styrene	32.9%	147,853	247		65,118		10.853			
				VOC	40%	179,775	356		79,898		13.316			
Initiators	Norox	MEKP-9H, MCP-75	38370	acetophenone	2%	1.0	5		3580		0.597			EF9 & 10
				cumene	2%	720	6		83		0.014			
				dimethylphthalate	40%	15,545	147		168		0.028			
				hydrogen peroxide	1%	384	5		2500		0.417			
				MEK	2%	720	6		6527		1.090			
				MEK peroxide	34%	13,040	156		499		0.083			
				VOC	76%	29,279	283		83		0.014			
	Luperox	DDM-9	12701	hexylene glycol	6%	762	37		174		0.029			
				hydrogen peroxide	1%	127	5		28		0.005			
				MEK	2%	254	9		58		0.010			
				MEK peroxide	34%	4318	156		648		0.108			
				VOC	43%	5462	187		1250		0.208			
Paints[6]	BASF Bases & Colors	UNO HD/SC	617	VOC	85%	453	–	0%	453	100	0.189			EF14
				carbon black[6]	5%	26.8	–	25%	20		0.011	90%	0.0011	
	BASF Reducer	UR50	166	VOC	100%	166	–	0%	166		0.069			
	BASF Hardener	[illegible]	98	VOC	37%	36	–	0%	36		0.015			
	All paint Products		784	PM_{10}	76%	597	–	25%	447		0.184	90%	0.0184	
Resins	Resins	Cook, Eastman, Evercast, [illegible]	1511036	cobalt compounds (TAP)	0.5%	7555	1.1		843	250	0.141			EF9 & 10
				styrene	35%	528,863	78		58,022		9.670			
				PM_{10}[7]	5%	75,552		80%	15,110		2.518	90%	0.252	EF11 & 12
				VOC	35%	528,863	78		58,022		9.670			EF9 & 10
	Styrene Monomer	Ashland 64843	24882	styrene	100%	24,882	223		2775		0.462			
				VOC	100%	24,882	223		2775		0.462			
Solvents	Acetone		211463	acetone	100%	211,463	–	0%	211,463		35.24			
	Denatured alcohol		551	ethanol/VOC	100%	551	–	0%	551		0.092			
Waxes & Parting Agents	Frekote	FRP-NC, FMS	5072	octane	5%	254	–	0%	254		0.042			EF9 & 10
				VOC	100%	5072	–	0%	5072		0.845			
	TR Products, Partall Products	TR-104, TR-210, Partall 2, Film #10	1706	VOC	80%	1365	–	0%	1365		0.227			

Notes:

1. See Table 3-2
2. Individual pollutant emission factor equals the NESHAP HAP Emission Factor (see Table 3-1) adjusted for relative concentration of pollutant. Example: Valspar Clear MMA EF = Valspar Clear NESHAP EF * %MMA in Feed ÷ %HAPs in Feed = (578 lb HAP/ton feed) * 5% MMA in Feed ÷ 45.5% HAPs in Feed = 64 lbs MMA emitted per ton of Valspar Clear Feed
3. Two particulate control filters used in series with an overall arrestance of 99.5 wt%. 90 wt% arrestance used for these calculations.
4. Cobalt compounds in barrier coat and Ashland colored gel coats are not listed TAPs. Cobalt compounds in white gel coat and resins are not specifically identified so are assumed to be cobalt carbonyl, a listed TAP. Cobalt carbonyl is 34 wt% cobalt.
5. MDI emission rate based on methods detailed in "MDI/PMDI Emissions Reporting Guidelines for the Polyurethane Industry," by the Alliance for the Polyurethane Industry, 2002. See calculations in Appendix A.
6. See Table 4.1 for Paint TAP analysis. Only carbon black contributes to facility wide analysis. Note that Accent Booth is only operated 2-3 days per week. 100 annual operating days used for these calculations.
7. PM_{10} "concentration" based on 5% of the resin applied is generated as PM_{10} during the edge finishing and plumbing hole cutting steps. 80% pollutant retention based on estimated capture and control efficiency of Trim Booth and filters. The Trim Booth discharges inside the building. It is assumed that any PM_{10} not captured by the Trim Booth filters will discharge externally via EF11 and EF12, located in the adjacent production zone.

Toxic Air Pollutants	TAP Type (24 hr or Annual Averaging)	Screening Emission Level (lb/hr)	Uncontrolled Emissions (lb/hr)	Controlled Emissions (lb/hr)	Point Source ID
Acetone	585 (24 hr)	119	35.3		
Calcium Carbonate	585 (24 hr)	0.667	3.79	0.379	
Carbon Black	585 (24 hr)	0.23	0.198	0.020	
Cobalt[4]	585 (24 hr)	0.007	0.198		EF9 & 10
Cumene	585 (24 hr)	16.30	0.01		
Dimethylphthalate	585 (24 hr)	0.333	0.028		
Ethanol	585 (24 hr)	125	0.09		
Formaldehyde	586 (Annual)	5.1E-04	8.4E-04		EF11 & 12
Hexylene glycol	585 (24 hr)	0.800	0.03		
Hydrogen peroxide	585 (24 hr)	0.1	0.42		EF9 & 10
Kaolin	585 (24 hr)	0.133	3.79	0.379	EF9 & 10
Methacrylic acid	585 (24 hr)	4.67	0.02		
MDI	585 (24 hr)	0.003	0.00008		
MEK	585 (24 hr)	39.3	1.11		
MEK peroxide	585 (24 hr)	0.09	0.19		EF9 & 10
Methyl methacrylate	585 (24 hr)	27.3	0.29		
Naphtha (petroleum distillates)	585 (24 hr)	20			
Octane	585 (24 hr)	93.3	0.04		
Silica, amorphous	585 (24 hr)	0.667	4.85	0.485	
Silica, crystalline	585 (24 hr)	0.0067	0.139	0.0139	EF9 & 10
Styrene	585 (24 hr)	6.67	30.6		EF9 & 10

Requires air dispersion modeling

Criteria Pollutants	Emission Rate (tons/yr)	Emission Rate (lb/hr)	Point Source ID
PM_{10}	3.855	1.717	EF9 & 10
	0.758	0.252	EF11 & 12
	0.0222	0.0184	EF14
	4.58	1.54	Total
VOC	120.3	–	

Hazardous Air Pollutants	Emission Rate (tons/yr)
Acetophenone	1.79
Cobalt Compounds	1.00
Cumene	0.042
Formaldehyde	7.0E-03
MDI	2.4E-04
Methyl methacrylate	0.74
Styrene	95.8
TOTAL	100.1

DEQ AIR QUALITY PROGRAM
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline - 1-877-5PERMIT

PERMIT TO CONSTRUCT APPLICATION
Revision 3
4/5/2007

Please see instructions on page 2 before filling out the form.

Company Name: **Best Bath Systems, Inc.**
Facility Name:
Facility ID No.:
Brief Project Description: PTC for a new fiberglass tub and shower unit manufacturing facility

SUMMARY OF FACILITY WIDE EMISSION RATES FOR CRITERIA POLLUTANTS - POINT SOURCES

1.	2.	3.											
		PM_{10}		SO_2		NO_X		CO		VOC		Lead	
Emissions units	Stack ID	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Point Source(s)													
Lamination Area S, MAU1	EF9	0.67	2.05	0.00	0.01	0.42	1.84	0.35	1.55	0.02	0.10	0.00	0.00
Lamination Area N, MAU1	EF10	0.67	2.05	0.00	0.01	0.42	1.84	0.35	1.55	0.02	0.10	0.00	0.00
Blue Bottom N, MAU2	EF11	0.13	0.38	0.00	0.00	0.05	0.21	0.04	0.18	0.00	0.01	0.00	0.00
Blue Bottom S, MAU2	EF12	0.13	0.38	0.00	0.00	0.05	0.21	0.04	0.18	0.00	0.01	0.00	0.00
Accent Booth	EF14	0.02	0.22										
Unit Heaters N	EF15	0.01	0.05	0.00	0.00	0.15	0.64	0.12	0.54	0.01	0.04	0.00	0.00
Unit Heaters E	EF16	0.01	0.04	0.00	0.00	0.12	0.52	0.10	0.43	0.01	0.03	0.00	0.00
Unit Heaters S	EF17	0.00	0.02	0.00	0.00	0.06	0.26	0.05	0.22	0.00	0.01	0.00	0.00
Total		1.64	5.19	0.01	0.03	1.26	5.53	1.06	4.64	0.07	0.30	0.00	0.00

The two Lamination Area exhaust fans, EF9 and EF10, are specified as MK Plastics Model Axijet-S 4900, centrifugal, air foil type. Specification sheets for EF9 and EF10 and discharge velocity and other stack parameter calculations are provided in Appendix B.

3.3.3 Emission Estimates

Emissions from the Caldwell facility will be primarily VOCs and organic HAPs associated with resin application. The Caldwell facility will be regulated under 40 CFR Part 63 National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production (NESHAP Subpart WWWW). Because of the Subpart WWWW regulation requiring 95% organic HAP reduction if a facility meets or exceeds 100 tons per year of applicable HAP emissions, BBS plans to remain below this threshold. Current operations at the Boise facility are well below this threshold. Therefore, the PTC emissions analysis is based on operations at this threshold, the worst case emission scenario for the Caldwell facility.

NESHAP Subpart WWWW clearly defines emission factors to be used for the process steps included in that regulation. For the processes not regulated by NESHAP Subpart WWWW, emission factors from AP-42 and/or other accepted methods are used to estimate maximum emission rates.

BBS expects to use resins, gel coats and other chemicals in relative amounts similar to those used during 2009 at the Boise facility. The 2009 Chemical Usage can be used to determine baseline NESHAP Subpart WWWW HAP emission rates and factors. The baseline emissions and chemical use can then be prorated up to the 100 ton per year NESHAP threshold for the PTC eligibility analysis.

Emission Inventory Methodology-
1. Calculate 2009 NESHAP Subpart WWWW HAP emissions using 2009 Chemical Usage data for the regulated processes (Table 3.1).
2. Determine the PTC Multiplier by dividing 99 tons/year by 2009 Subpart WWWW HAP Emissions (Table 3.1).
3. Multiply all facility 2009 Chemical Usage by the PTC Multiplier to determine PTC Analysis Chemical Usage (Table 3.2).
4. Calculate HAP, TAP and criteria emissions based on PTC Analysis Chemical Usage (Table 3.3).
5. Calculate combustion emissions based on gas-fired heaters' design duties (Tables 3.4-3.7).
6. Analyze all facility HAP, TAP and criteria emissions for eligibility for an Air Quality Permit to Construct.

A NESHAP analysis of BBS' 2009 Boise operations is provided in Table 3-1, attached. Sample calculations are included in the table. The estimated NESHAP Subpart WWWW HAP 2009 emissions for 2009 are 36 tons.

To calculate facility-wide emissions for the PTC analysis, the 2009 Chemical Usage is multiplied by the ratio of 99 tons/36 tons, or 2.76, in Table 3.2. There are non-NESHAP-related processes and chemicals used at BBS. Therefore, a facility-wide emissions analysis must consider the increase for all BBS materials and processes when the facility is operating just below the NESHAP 100 ton per year threshold.

A maximum TAP and HAP emissions analysis based on the PTC Analysis Chemical Usage is provided in Table 3-3. For chemical feeds that are part of the NESHAP analysis, the NESHAP emission factor determined in Table 3-1 is used to estimate emissions.

Sample calculation for the cobalt in Ashland White Gel Coat:

Ashland White Permit Analysis Quantity = 363814 lb/yr
" " Cobalt compound concentration (per MSDS) = 0.9 wt%
White gel coat NESHAP Emission Factor (EF) = 275 lb HAP/ton Ash. White plus initiator (Table 3-1)
White gel coat HAP Concentration = 30.9 wt% (Table 3.1)
BBS Operating Days = 250 per year
58.01.01 Emission Screening Level for cobalt carbonyl = 0.007 lb/hr (as Co, Co carbonyl is 34% Co)

$$\text{Co comp. NESHAP EF} = \frac{275 \text{ lb HAP}}{\text{ton White GC}} * \frac{0.009 \text{ lb Co comp.}}{\text{lb Ashland White}} * \frac{\text{lb White Gel Coat}}{0.309 \text{ lb HAP}} = \frac{8.0 \text{ lb Co compound}}{\text{ton Ashland White}}$$

$$\text{Co comp. estimated emissions} = \frac{363814 \text{ lb AW}}{\text{Year}} * \frac{8.0 \text{ lb Co comp.}}{\text{ton A.White}} * \frac{\text{ton}}{2000 \text{ lb}} = 1457 \text{ lb/year}$$

$$\text{Co comp. estimated emissions} = \frac{1457 \text{ lb}}{\text{Year}} * \frac{\text{year}}{250 \text{ op days}} * \frac{\text{day}}{24 \text{ hr}} = 0.243 \text{ lb/hr Co. compounds}$$

The specific cobalt compounds present in Ashland White are not listed in the MSDS, so they are included as TAPs. However, cobalt accelerators are typically cobalt octoate or cobalt naphthenate. For these calculations, the cobalt concentration of the unspecified cobalt compounds is estimated at 34 wt%.

Cobalt estimated emissions = 0.243 lb Co. comp * 34% = 0.0826 lb/hr Co from Ashland White.

This rate is added to the estimated resin cobalt emissions to estimate total cobalt uncontrolled emissions.

For the TAP components that are not part of the NESHAP analysis, emissions are estimated using material specifications, equipment specifications and engineering judgement.

TORF ENVIRONMENTAL MANAGEMENT

Sample calculation for the methacrylic acid in Plexus adhesives:

Plexus Adhesive Permit Analysis Quantity – 1494 lb/yr
" " Methacrylic Acid concentration (per MSDS) = 10 wt%

1494 lb adhesive * 10 wt% meth. acid * 0% retention (VOC) = 149 lb/yr methacrylic acid emitted

$$\frac{149\ \text{lb}}{\text{Year}} * \frac{\text{year}}{250\ \text{op days}} * \frac{\text{day}}{24\ \text{hr}} = 0.0249\ \text{lb/hr methacrylic acid emitted}$$

Emissions of non-volatile TAPs (kaolin, silica, etc.) are estimated assuming 25% mold overspray (conservative) and 90% filter arrestance. These non-volatile TAPs are conservatively assumed to be emitted as PM_{10}.

3.4 EU11 - Trim/Finish Area

3.4.1 Process Description

The Trim/Finish Area (Room 3) is used to finish raw edges, install plumbing holes, spray reinforced flooring and touch-up small flaws on the tub and shower units. From the Lamination Area, the units (removed from the molds) enter the Trim/Finish Area through a doorway in the northwest corner of Room 3. The units are moved into one of two Trim Room "alleys". In the Trim Room, the rough edges around the units are finished and plumbing holes are drilled in the units.

Next the units move to the Blue Bottom Area where rigid, floor foam is manually sprayed under the base of each unit. The units then move into the Finish Area for inspection and any required touch-up work. Finally, the units proceed to the Assembly/Packaging Area (Room 4) where fixtures are attached and the units are crated for shipping.

3.4.2 Equipment

Fresh air for the Trim/Finish Area is provided by a direct-fired, natural gas Make Up Air Unit, MAU2 (see Section 3.7). Emissions from the Blue Bottom Area stations are drawn via two exhaust fans, EF11 and EF12, located on the roof directly above the Blue Bottom Area. Intake plenums equipped with particulate filters, EC11 and EC12, descend to the shop floor adjacent to the Blue Bottom spray area.

The Trim Room corridors (approximately 15 feet tall) are also equipped with particulate emission control equipment, ECT1 and ECT2. Trim Room fans, RF1 and RF2, draw air from the trimming area through particulate filters. The Trim Room fans discharge the filtered air back into the Trim/Finish Area, not to the outside.

The particulate filters used in the Trim Room corridors and Blue Bottom Area stations are the same as those used in the Lamination Area: FACET-Aire F312 and Purolator Bulk Media. An overall arrestance of 90% is used in the emission estimation calculations for the Trim/Finish Area from EF11 and EF12.

Since the Trim Room fans discharge back into the Trim/Finish Area, particulate not captured by the Trim Room filters could be discharged outside via exhaust fans EF11 or EF12. To estimate the facility particulate emissions from the Trim Room operations, 80% capture and control efficiency was estimated for the Trim Rooms circulating air treatment system.

TORF ENVIRONMENTAL MANAGEMENT

3.4.3 Emission Estimates

Emissions from the Trim/Finish Area are VOCs associated with adhesives, finishing compounds and foams used in the area, and particulates generated from the sanding and drilling plumbing holes in the units.

Volatile emissions calculations assume all material is emitted and are shown in Table 3-3.

Particulate emissions from the Trim Booth are estimated conservatively assuming that 5% of the resin applied to the molds is removed as PM_{10} during edge trimming and hole drilling. The 5% estimate is based on comparing the potential trimmed resin volume to the complete unit. This analysis is provided in Appendix A. The rest of the PM_{10} emission calculations are provided in Table 3.3 in the Resins category.

The "blue foam" sprayed in the Blue Bottom Area and Instapak packing foam, sprayed in the Assembly/Packaging Area contain methyl diphenyl isocyanate (MDI), a TAP, in one of the two feed components that are mixed when the material is sprayed. The MDI polymerizes instantaneously when the two component parts are mixed, but there is the possibility of unreacted MDI emissions. MDI emissions were estimated using procedures detailed in "MDI/PMDI Emissions Reporting Guidelines for the Polyurethane Industry."[3] The basic assumption used in calculating MDI releases from cavity processes is that MDI saturated air first fills the volume of the mold cavity during each use and is forced out into the environment as the chemicals are added. Pertinent excerpts from the guidance paper and MDI emission calculations for the BBS facility are included in Appendix A.

The estimated total MDI emission rate is less than 0.0001 pounds per year based on 101,295 lbs per year of MDI-containing feeds. This is far below the TAP emission screening level of 0.003 lb/hr. While the MDI release calculations provided in Appendix A indicate higher conversion, an MDI conversion factor of 99.9990% was used for the Table 3-3 permit analysis. Estimated MDI emissions in Table 3-3 are still below the emission screening level.

[3] "MDI/PMDI Emissions Reporting Guidelines for the Polyurethane Industry," Alliance for the Polyurethane Industry, 2002.

3.5 EU15/EU16/EU17 – Unit Heaters

There are eleven gas-fired unit heaters installed throughout the facility. These units typically have an input design duty of 300,000 Btu/hr. The combustion gases from these units are vented via 8" ducts directly up through the roof. The location of the unit heaters is shown on Figure 6-1 Plot Plan.

Because the potential emissions from each of these small units is not large, and because they are clustered together in certain rooms around the facility, groups of heaters are collocated into three composite point sources for emission estimating and modeling purposes.

EU15 is a composite of five unit heaters located in the Mold Maintenance Area (Room 1). The combustion emissions from EU15 are estimated in Table 3-5a. Emissions are estimated at the design capacity of 1.5 MMBtu/hr and 8760 hours per year.

EU16 is a composite of four unit heaters located in the Assembly/Packaging Area (Room 4). The combustion emissions from EU16 are estimated in Table 3-5b. Emissions are estimated at the design capacity of 1.2 MMBtu/hr and 8760 hours per year.

EU17 is a composite of two unit heaters located in and just outside the Maintenance Room. The combustion emissions from EU17 are estimated in Table 3-5c. Emissions are estimated at the design capacity of 0.6 MMBtu/hr and 8760 hours per year.

3.6 MAU1- Make Up Air Unit 1

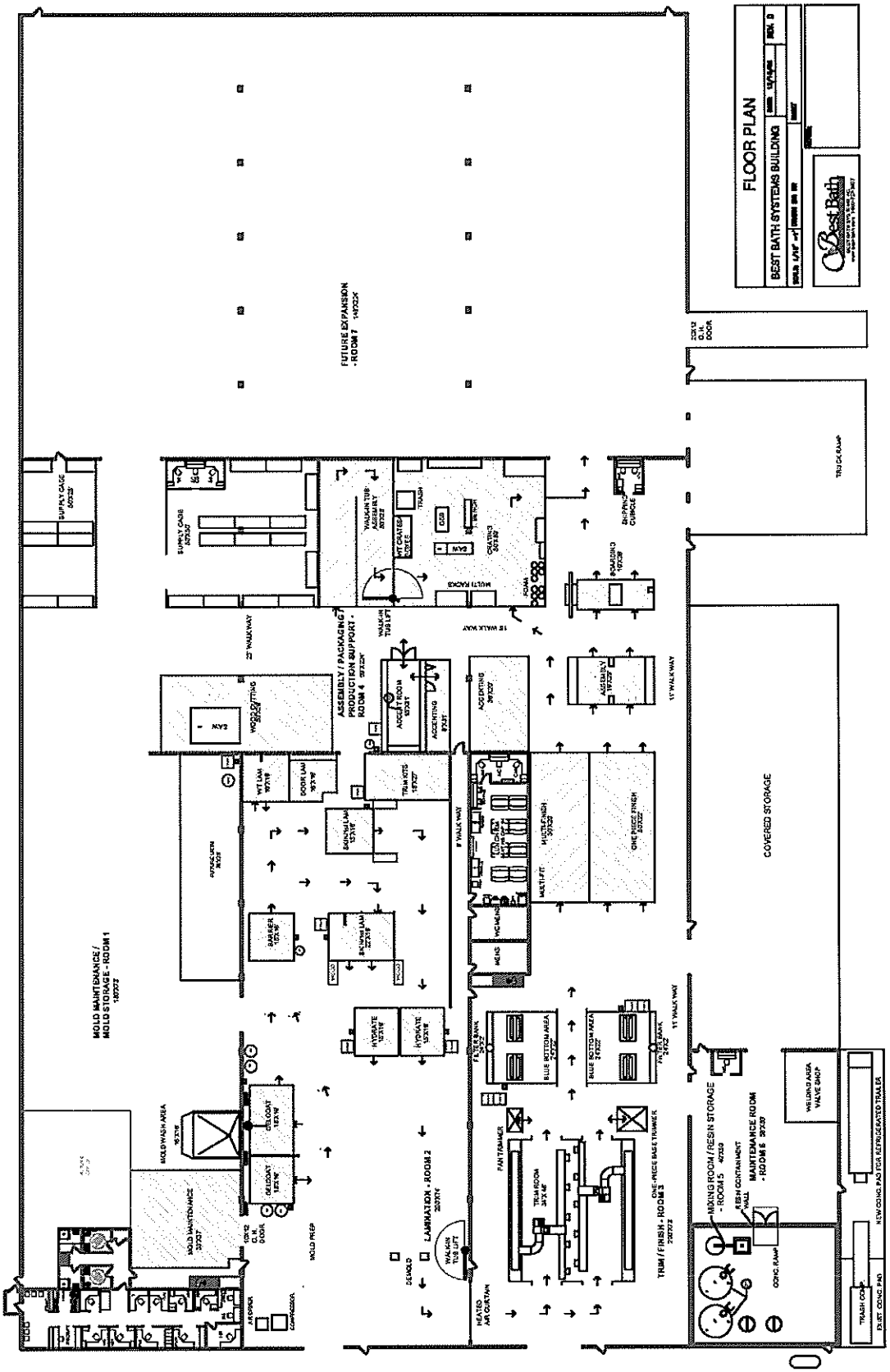
Fresh air to the Lamination Area is provided by a make up air unit, MAU1, located just outside the west wall of the building. For cold weather operations, MAU1 includes a direct-fired, natural gas fueled air heater with a design input duty of 8.565 MMBtu/hr. A Hastings Model SBD 233 make up air unit has been specified for this service. Equipment specification sheets are provided in Appendix B.

Combustion gas emissions from MAU1 are estimated in Table 3-6. Emissions are estimated at the design capacity and 8760 hours per year. The unit is direct-fired and the combustion gas will be emitted via the Lamination Area exhaust fans, EF9 and EF10.

3.7 MAU2- Make Up Air Heater 2

Fresh air to the Trim/Finish Area is provided by a make up air unit, MAU2, located just outside the west wall of the building. For cold weather operations, MAU2 includes a direct-fired, natural gas fueled air heater with a design input duty of 1.00 MMBtu/hr. A Hastings Model SBD 215 make up air unit has been specified for this service. Equipment specification sheets are provided in Appendix B.

Combustion gas emissions from MAU2 are estimated in Table 3-7. Emissions are estimated at the design capacity and 8760 hours per year. The unit is direct-fired and the combustion gas will be emitted via the Blue Bottom Area exhaust fans, EF11 and EF12.


FLOOR PLAN
BEST BATH SYSTEMS BUILDING
Best Bath
FUTURE EXPANSION
- ROOM 7 - 14'X20'
ASSEMBLY / PACKAGING / PRODUCTION SUPPORT -
ROOM 4
COVERED STORAGE
MOLD MAINTENANCE /
MOLD STORAGE - ROOM 1
LAMINATION - ROOM 2
TRIM / FINISH - ROOM 3
MIXING ROOM / RESIN STORAGE
- ROOM 5
MAINTENANCE ROOM
- ROOM 6
WELDING AREA
VALVE SHOP
TRUCK RAMP
MOLD WASH AREA
MOLD PREP
HEATED
AIR CURTAIN
OZONE RAMP
TRASH COMP.
EXIST. CONC. PAD
NEW CONC. PAD FOR REFRIGERATED TRAILER

Best Bath
Caldwell, Idaho

Table 3-1: Air Quality Permit NESHAP Analysis

Process Step	Process Feeds	Product code	2009 Feed Quantity (lbs)	Hazardous Air Pollutants (HAP) in Feed	HAP Content (MSDS wt%)	2009 HAP Quantity (lb)	HAP Conc.[b] (avg. wt%)	Subpart WWWW Table 1 Emission Factor	Emission Factor[c] (lb HAP/ ton feed)	Overall Emission Factor[d] (wtd. lb HAP/tn fd)	Subpart WWWW Table 3 Emission Limit	Emission Limit[e] (lb HAP/ ton feed)	Overall Emission Limit[f] (wtd. lb HAP/tn fd)	2009 Total Emissions (ton HAP per yr)	Permit Multiplier: 99 ton HAP/yr
Initiators	Norox	MEKP- 9H	8736	dimethyl phthalate	43.0%	3756	30.4%	Initiators are used evenly among the gel coats, barrier coat and resins on a weight basis							2.76
	Norox	MCP-75	4462	DMP,cumene,acetophenone	37.0%	1651									
	Luperox	DDM-9	4608		0.0%	0									
1 Gel Coat	White gelcoat	WG-TS-8045	131992	styrene, Co	30.9%	40786	30.9%	1. Open molding f. atomized spray gel coat application w/ nonvapor-suppressed gel coat	275	160	6.Open molding-gel coat b.white/off white gel coat	267	178	36	
	Initiator (calc'd)[a]		2671	DMP,cumene,acetophenone	30.4%	811									
	Bone gelcoat	WG-2X8113	7888	styrene, Co	36.8%	2911	36.5%		366		6. Open molding- gel coat c. all other pigmented gel coating	377			
	Almond gelcoat	WG-2X8120	6383	styrene, Co	36.8%	2349									
	Linen gelcoat	WG-2X8125	1180	styrene, Co	37.0%	437									
	Bisquit gelcoat	WG-2X8117	5366	styrene, Co	37.1%	1991									
	Sofas all colors	Granicoat	732	styrene, MMA	28.0%	205									
	GCP all colors	Armorflex	380	styrene, Co, MMA	34.0%	129									
	Initiator (calc'd)		444	DMP,cumene,acetophenone	30.4%	135									
	Clear blend	577C90045	5700	styrene, MMA	50.0%	2850	49.6%		638		6.Open molding-gel coat f.clear production gel coat	522			
	Initiator		115	DMP,cumene,acetophenone	30.4%	35									
2 Barrier	Barrier coat	VPRO-012	163052	styrene, Co	32.9%	53644	32.8%		292		6. Open molding- gel coat c. all other pigmented	377			
	Initiator (calc'd)		3300	DMP,cumene,acetophenone	30.4%	1002									
3 Resin and Fiber	Bulk resin	733-7954-xx	535706	styrene, Co	35.5%	190176	35.3%	1. Open molding c. nonatomized mech. resin application i. nonvapor-suppressed resin	81		2. Open molding- non-CR/IS a. mechanical resin application	88			
	Resin	733-8650-xx	3800	styrene, Co	35.5%	1349									
	Resin	040-5985	7500	styrene	32.2%	2415									
	Duraglas	24059	1200	styrene	20.0%	240									
	Styrene	54940	9020	styrene	100.0%	9020									
	Initiator (calc'd)		11276	DMP,cumene,acetophenone	30.4%	3424									
			897705	lbs Total			35.0%	Overall HAP							

Sample Calculations:

a. Initiator (calc'd) = 2009 quantity of initiator used with associated coating = Total 2009 Initiator Use * 2009 assoc. Gel/Barrier/Resin Use / 2009 Total Gel/Barrier/Resin Use

2009 Total Gel/Barrier/Resin Use = 131992+7888+6383+1180+5366+732+380+5700+163052+535706+3800+7500+1200+ 9020 lbs = 879899 lbs

White Gelcoat Initiator (calc'd) = (8736+4462 +4608 lbs initiator in 2009) * (131992 lbs 2009 White Gelcoat) / (879899 lbs 2009 Total G/B/R Use) = 2671 lbs White Gelcoat Initiator

b. HAP Conc. (avg. wt%) = Weight of HAP in combined 2009 coating / 2009 combined coating use

White gelcoat HAP Conc. = (40786 + 811) / (131992 + 2671) *100% = 30.9%

c. Individual Emission Factors from Table 1, Subpart WWWW of Part 63. Formula used dependent of whether %HAP is > or < 33%.

30.9 wt% HAP White gelcoat Emission Factor = 0.445 * %HAP * 2000 = 0.445 * 0.309 * 2000 = 275 (Table 1.f. open molding with atomized spray gel coat application)

d. Overall Emission Factor = SUM(Individual Coatings Emission Factor * Weight of Individual Coatings) / Total Weight of Coatings

Total Weight of Coatings = 131992+2671+7888+6383+1180+5366+732+380+444+5700+115+163052+3300+535706+3800+7500+1200+9020+11276 = 897705 lbs

Overall Emission Factor = [275*(131992+2671) + 366*(7888+6383+1180+5366+732+380+444) + 638*(5700+115) + 292*(163052+3300) + 81*(535706+3800+7500+1200+9020+11276)] / 897705 = 160

e. Individual Emission Limits from Table 3, Subpart WWWW of Part 63.

White gelcoat Emission Limit = 267 lb/ton (Table 3.6.b: Open Molding with white/off white pigmented gel coating)

f. Overall Emission Limit = SUM(Individual Coatings Emission Limits * Weight of Individual Coatings) / Total Weight of Coatings

Table 3-2: Chemical Use Calculation

Feed Type	Compounds	Product code(s)	2009 Quantity (lbs)	99 ton/yr Permit Multiplier[1]	Permit Analysis Quantity (lbs)
Adhesive	Plexus	MA 300	321		885
	Plexus	MA 320	221		609
Finishing	Trempro	644 Sealant	543		1497
	TRI Buffing Compound	TR-311	150		413
Foam Fill	Hydroseal Floor	1027-7-50S "A"	21972		60562
		1027-7-50S "B"	20382		56180
	Instapack Packing	Component "A"	14778		40733
		Component "B"	19928		54928
Gel & Barrier Coats	Ashland White	WG-TS-8045	131992		363814
	Ashland Colors	WG-2X8113	7888		21742
		WG-2X8120	6383		17594
		WG-2X8125	1180		3252
		WG-2X8117	5366		14790
	Valspar Clear	577C90045	5700		15711
	Safas all colors	Granicoat	732		2018
	GCP all colors	Armorflex	380		1047
	Barrier coat	VPRO-012	163052		449426
Initiators	Norox	MEKP- 9H	8736		24079
		MCP-75	4462	2.76	12299
	Luperox	DDM-9	4608		12701
Paints	BASF Bases and Colors	UNO HD/SC	253		697
	BASF Reducer	UR50	60		165
	BASF Hardener	DH46ZZ	35		96
Resins	Resins	Hexion	535706		1476584
		Eastman	3800		10474
		Cook	7500		20672
		Duraglass	1200		3308
	Styrene Monomer	Ashland 54940	9020		24862
Solvents	Acetone		76719		211463
	Denatured alcohol		200		551
Waxes & Parting Agents	Frekote	FRP-NC	1050		2894
	Frekote	FMS	790		2178
	TRI	TR-104	86		237
	TRI	TR-210	50		138
	TRI	TR-111	72		198
	Partall	Paste #2	375		1034
	Partall	Film #10	36		99

Notes: 1. See Table 3-1

Table 3-4: Facility-Wide Combustion Emissions

FACILITY-WIDE DUTY:

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

12.865 MMBtu/hr / 1,020 MMBtu/MMscf = 1.26E-02 MMscf/hr **Fuel Use:** **0.303 MMscf/day**

Operating Assumptions: **24** hr/day **110.488 MMscf/year**

8,760 hr/yr

Criteria Air Pollutants	Emission Factor	Emissions			Modeling Threshold	Modeling Required ?	Modeling Threshold	Modeling Required ?
	lb/MMscf	lb/hr	T/yr		2002 Guidance		Case-by-Case	
NO2	100	1.26E+00	5.52E+00		1 T/yr	YES	7 T/yr	No
CO	84	1.06E+00	4.64E+00		14 lb/hr	No	70 lb/hr	No
PM10	7.6	9.59E-02	4.20E-01		0.2 lb/hr	No	0.9 lb/hr	No
		9.59E-02	4.20E-01		1 T/yr	No	7 T/yr	No
SOx	0.6	7.57E-03	3.31E-02		0.2 lb/hr	No	0.9 lb/hr	No
		7.57E-03	3.31E-02		1 T/yr	No	7 T/yr	No
VOC	5.5	6.94E-02	3.04E-01		40 T/yr	No		
Lead	0.0005	6.31E-06	2.76E-05		0.6 T/yr	No		
Lead, continued			5.37E-03	lb/quarter	10 lb/mo	No		
		TOTAL	1.09E+01	T/yr				

Note: 100 lb/mo Pb in guidance reduced by factor of 10 based on latest Pb NAAQS (reduced in 2008 from 1.5 ug/m3 to 0.15 ug/m3)

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Exceeds EL/ Modeling Required?
	lb/MMscf	lb/hr	EL (lb/hr)	
PAH HAPs				
2-Methylnaphthalene	2.40E-05	3.03E-07	9.10E-05	No
3-Methylchloranthrene	1.80E-06	2.27E-08	2.50E-06	No
Acenaphthene	1.80E-06	2.27E-08	9.10E-05	No
Acenaphthylene	1.80E-06	2.27E-08	9.10E-05	No
Anthracene	2.40E-06	3.03E-08	9.10E-05	No
Benzo(a)anthracene	1.80E-06	2.27E-08	9.10E-05	See POM
Benzo(a)pyrene	1.20E-06	1.51E-08	2.00E-06	See POM
Benzo(b)fluoranthene	1.80E-06	2.27E-08		See POM
Benzo(g,h,i)perylene	1.20E-06	1.51E-08	9.10E-05	No
Benzo(k)fluoranthene	1.80E-06	2.27E-08		See POM
Chrysene	1.80E-06	2.27E-08		See POM
Dibenzo(a,h)anthracene	1.20E-06	1.51E-08		See POM
Dichlorobenzene	1.20E-03	1.51E-05	9.10E-05	No
Fluoranthene	3.00E-06	3.78E-08	9.10E-05	No
Fluorene	2.80E-06	3.53E-08	9.10E-05	No
Indeno(1,2,3-cd)pyrene	1.80E-06	2.27E-08		See POM
Naphthalene	6.10E-04	7.69E-06	3.33	No
Naphthalene	6.10E-04	7.69E-06	9.10E-05	No
Phenanathrene	1.70E-05	2.14E-07	9.10E-05	No
Pyrene	5.00E-06	6.31E-08	9.10E-05	No
Polycyclic Organic Matter (POM)	7-PAH G	1.44E-07	2.00E-06	No
Non-PAH HAPs				
Benzene	2.10E-03	2.65E-05	8.00E-04	No
Formaldehyde	7.50E-02	9.46E-04	5.10E-04	YES
Hexane	1.80E+00	2.27E-02	12	No
Toluene	3.40E-03	4.29E-05	25	No
Non-HAP Organic Compounds				
7,12-Dimethylbenz(a)anthrace	1.60E-05	2.02E-07		
Butane	2.10E+00	2.65E-02		
Ethane	3.10E+00	3.91E-02		
Pentane	2.60E+00	3.28E-02	118	No
Propane	1.60E+00	2.02E-02		
Metals (HAPs)				
Arsenic	2.00E-04	2.52E-06	1.50E-06	YES
Barium	4.40E-03	5.55E-05	0.033	No
Beryllium	1.20E-05	1.51E-07	2.80E-05	No
Cadmium	1.10E-03	1.39E-05	3.70E-06	YES
Chromium	1.40E-03	1.77E-05	0.033	No
Cobalt	8.40E-05	1.06E-06	0.0033	No
Copper	8.50E-04	1.07E-05	0.013	No
Manganese	3.80E-04	4.79E-06	0.067	No
Mercury	2.60E-04	3.28E-06	0.003	No
Molybdenum	1.10E-03	1.39E-05	0.333	No
Nickel	2.10E-03	2.65E-05	2.70E-05	No
Selenium	2.40E-05	3.03E-07	0.013	No
Vanadium	2.30E-03	2.90E-05	0.003	No
Zinc	2.90E-02	3.66E-04	0.667	No

Case-by-Case Modeling Thresholds may be used ONLY with prior DEQ Approval: ***Approved by DEQ (C.Robinson, 3/12/2010)***

- requires air dispersion modeling

Total Combustion HAPs =	0.106	ton/yr

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

Best Bath
Caldwell, ID

Table 3-5a: North Unit Heaters (EU15) Emissions

EU15 Duty

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

1.5 MMBtu/hr / 1,020 MMBtu/MMscf = 1.47E-03 MMscf/hr

Fuel Use:
0.035 MMscf/day
12.882 MMscf/year

Operating Assumptions: 24 hr/day
8,760 hr/yr

Criteria Air Pollutants	Emission Factor	Emissions		Emission Source
	lb/MMscf	lb/hr	T/yr	
NO2	100	1.47E-01	6.44E-01	
CO	84	1.24E-01	5.41E-01	
PM10	7.6	1.12E-02	4.90E-02	EF15
		1.12E-02	4.90E-02	
SOx	0.6	8.82E-04	3.86E-03	
		8.82E-04	3.86E-03	
VOC	5.5	8.09E-03	3.54E-02	
Lead	0.0005	7.35E-07	3.22E-06	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	1.27E+00	T/yr

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Emission Source
	lb/MMscf	lb/hr	EL (lb/hr)	
Formaldehyde	7.50E-02	1.10E-04	5.10E-04	EF15
Arsenic	2.00E-04	2.94E-07	1.50E-06	
Cadmium	1.10E-03	1.62E-06	3.70E-06	
Cobalt	8.40E-05	1.24E-07	0.0033	

requires air dispersion modeling

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

Best Bath
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Table 3-5b: East Unit Heaters (EU16) Emissions

EU16 Duty

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

1.2 MMBtu/hr / 1,020 MMBtu/MMscf = 1.18E-03 MMscf/hr **Fuel Use:**

Operating Assumptions: 24 hr/day **0.028 MMscf/day**

8,760 hr/yr **10.306 MMscf/year**

Criteria Air Pollutants	Emission Factor	Emissions		Emission Source
	lb/MMscf	lb/hr	T/yr	
NO2	100	1.18E-01	5.15E-01	
CO	84	9.88E-02	4.33E-01	
PM10	7.6	8.94E-03	3.92E-02	EF16
		8.94E-03	3.92E-02	
SOx	0.6	7.06E-04	3.09E-03	
		7.06E-04	3.09E-03	
VOC	5.5	6.47E-03	2.83E-02	
Lead	0.0005	5.88E-07	2.58E-06	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	1.02E+00	T/yr

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Emission Source
	lb/MMscf	lb/hr	EL (lb/hr)	
Formaldehyde	7.50E-02	**8.82E-05**	5.10E-04	EF16
Arsenic	2.00E-04	**3.00E+00**	1.50E-06	
Cadmium	1.10E-03	**1.29E-06**	3.70E-06	
Cobalt	8.40E-05	**9.88E-08**	0.0033	

- requires air dispersion modeling

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

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Table 3-5c: South Unit Heaters (EU17) Emissions

EU17 Duty

0.6 MMBtu/hr / 1,020 MMBtu/MMscf = 5.88E-04 MMscf/hr

Operating Assumptions: 24 hr/day
8,760 hr/yr

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

Fuel Use:
0.014 MMscf/day
5.153 MMscf/year

Criteria Air Pollutants	Emission Factor	Emissions		Emission Source
	lb/MMscf	lb/hr	T/yr	
NO2	100	5.88E-02	2.58E-01	
CO	84	4.94E-02	2.16E-01	
PM10	7.6	4.47E-03	1.96E-02	EF16
		4.47E-03	1.96E-02	
SOx	0.6	3.53E-04	1.55E-03	
		3.53E-04	1.55E-03	
VOC	5.5	3.24E-03	1.42E-02	
Lead	0.0005	2.94E-07	1.29E-06	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	5.09E-01	T/yr

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Emission Source
	lb/MMscf	lb/hr	EL (lb/hr)	
Formaldehyde	7.50E-02	**4.41E-05**	5.10E-04	EF17
Arsenic	2.00E-04	**1.18E-07**	1.50E-06	
Cadmium	1.10E-03	**6.47E-07**	3.70E-06	
Cobalt	8.40E-05	4.94E-08	0.0033	

- requires air dispersion modeling

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

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Table 3-6: Make-up Air Unit #1 (MAU1) Emissions

MAU1 Duty

8.565 MMBtu/hr / 1,020 MMBtu/MMscf = 8.40E-03 MMscf/hr

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

Fuel Use:
0.202 MMscf/day
73.558 MMscf/year

Operating Assumptions:
24 hr/day
8,760 hr/yr

Criteria Air Pollutants	Emission Factor	Emissions		Emission Source
	lb/MMscf	lb/hr	T/yr	
NO2	100	8.40E-01	3.68E+00	
CO	84	7.05E-01	3.09E+00	
PM10	7.6	6.38E-02	2.80E-01	EF9 & 10
		6.38E-02	2.80E-01	
SOx	0.6	5.04E-03	2.21E-02	
		5.04E-03	2.21E-02	
VOC	5.5	4.62E-02	2.02E-01	
Lead	0.0005	4.20E-06	1.84E-05	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	7.27E+00	T/yr

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Emission Source
	lb/MMscf	lb/hr	EL (lb/hr)	
Formaldehyde	7.50E-02	**6.30E-04**	5.10E-04	EF9 & 10
Arsenic	2.00E-04	**1.68E-06**	1.50E-06	
Cadmium	1.10E-03	**9.24E-06**	3.70E-06	
Cobalt	8.40E-05	**7.05E-07**	0.0033	

- requires air dispersion modeling

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

Best Bath
Caldwell, ID

Table 3-7: Make-up Air Unit #2 (MAU1) Emissions

MAU2 Duty

EMISSION FACTORS: NATURAL GAS COMBUSTION, AP-42 SECTION 1.4 (7/98)

1 MMBtu/hr / 1,020 MMBtu/MMscf = 9.80E-04 MMscf/hr **Fuel Use:**

Operating Assumptions: 24 hr/day **0.024 MMscf/day**

8,760 hr/yr **8.588 MMscf/year**

Criteria Air Pollutants	Emission Factor	Emissions		Emission Source
	lb/MMscf	lb/hr	T/yr	
NO2	100	9.80E-02	4.29E-01	
CO	84	8.24E-02	3.61E-01	
PM10	7.6	7.45E-03	3.26E-02	EF11 & 12
		7.45E-03	3.26E-02	
SOx	0.6	5.88E-04	2.58E-03	
		5.88E-04	2.58E-03	
VOC	5.5	5.39E-03	2.36E-02	
Lead	0.0005	4.90E-07	2.15E-06	
Lead, continued			5.37E-03	lb/quarter
		TOTAL	8.49E-01	T/yr

Hazardous Air Pollutants (HAPs) and Toxic Air Pollutants (TAPs)				Emission Source
	lb/MMscf	lb/hr	EL (lb/hr)	
Formaldehyde	7.50E-02	7.35E-05	5.10E-04	EF11 & 12
Arsenic	2.00E-04	**1.96E-07**	1.50E-06	
Cadmium	1.10E-03	**1.08E-06**	3.70E-06	
Cobalt	8.40E-05	8.24E-08	0.0033	

- requires air dispersion modeling

NOTE: TAPs lb/hr emissions are 24-hour averages unless shown in bold. Bold emissions are annual averages for carcinogens.

4. SPRAY PAINT BOOTHS – FORM EU3 DOCUMENTATION

One spray booth is located in the Assembly/Packaging Area (Room 4, see Figure 3-1).

4.1 EU14 - Accent Booth

The Accent Booth is used to apply trim color to certain tub and shower units. Automotive paint is applied with a manual spray gun. Accent painting is not done on every tub and shower unit. Therefore the paint booth typically operates 2-3 days per week.

The booth is equipped with an exhaust fan, EF14, which draws booth air through overspray filters and discharges through a roof stack. BBS will install overspray air filters and pre-filters with a minimum combined capture efficiency of 90%. The Accent Booth exhaust fan is a Greenheck Model TAB-30-030T3, operating at 12,600 CFM. An equipment specification sheet for EF14 is included in Appendix B with stack parameter calculations. The Accent Booth roof stack is 30" in diameter and releases vertically. A flapper on the outlet will open fully when the exhaust fan is operating.

Wet coatings will be applied using a Sata Jet gravity-feed manual spray gun. The EPA reports typical transfer efficiency of 25% for wet coating spray application.[4] A detailed TAP emissions estimate for the paint emissions based on 1000 lbs per year of coatings and 100 operating days per year is provided in Table 4-1. All paint components are well below TAP emission screening levels.

The paint emissions that contribute to the facility-wide emissions analysis are included in Table 3-3. Carbon black is the only paint component that is also emitted in significant quantities elsewhere in the facility, so it is included in the Table 3-3 TAP emission calculations. VOC and particulate emissions are also estimated in Table 3-3. All volatile wet coating components are assumed to be completely emitted. All wet coating particulate emissions are conservatively assumed to be PM_{10}.

[4] AP-42, Chapter 4.2.2.12, Table 4.2.2.12-1.

Table 4-1: Accent Booth (EU14) Emissions Analysis

Coating ID Name Manufacturer	Permit Analysis Usage			HAP/TAP Component	CAS Number	Comp. Conc. (MSDS, wt%)	Coating Retention (%)[2]	Component Uncontrolled Emissions	
	lb/yr	days/yr	lb/day			max		lb/day	lb/yr
DH46 Hardener BASF	96	100	1.0	Hexamethylene Diisocyanate	822-06-0	1.0%	0.0%	0.010	0.96
				Methyl Amyl Ketone	110-43-0	35%	0.0%	0.338	33.8
UNO-HD SC403 Black BASF	697		7.0	Aluminum (metal and OH)	7429-90-5	10.0%	25.0%	0.52	52.3
				Aromatic Hydrocarbon	64742-95-6	25.0%	0.0%	1.74	174.3
				n-Butyl Acetate	123-86-4	30.0%	0.0%	2.09	209.2
				Carbon Black	1333-86-4	5.0%	25.0%	0.26	26.2
				Ethyl Benzene	100-41-4	3.0%	0.0%	0.21	20.9
				1-Methoxy 2-Propyl Acetate	108-65-6	10.0%	0.0%	0.70	69.7
				MIBK	108-10-1	10.0%	0.0%	0.70	69.7
				Stoddard Solvent	8052-41-3	3.0%	0.0%	0.21	20.9
				Trimethyl Benzene	25551-13-7	10.0%	0.0%	0.70	69.7
				Xylenes	1330-20-7	10.0%	0.0%	0.70	69.7
UR50 Mid Temp Reducer BASF	165		1.7	Aromatic Hydrocarbon	64742-#-#	15.0%	0.0%	0.25	24.8
				n-Butyl Acetate	123-86-4	65.0%	0.0%	1.07	107.5
				1-Methoxy 2-Propyl Acetate	108-65-6	20.0%	0.0%	0.33	33.1
				Stoddard Solvent	8052-41-3	15.0%	0.0%	0.25	24.8
				Trimethyl Benzene	25551-13-7	3.0%	0.0%	0.05	5.0

Toxic Air Pollutants - Accent Booth Summary	TAP Type (24 hr or Annual Averaging)	Screening Emission Level (lb/hr)	Booth Uncontrolled Emissions (lb/hr)[1,3]	Booth Uncontrolled Emissions (% of EL)
Aluminum	585 (24 hr)	0.667	0.022	3.3%
n-Butyl Acetate	585 (24 hr)	47.3	0.13	0.3%
Carbon Black	585 (24 hr)	0.23	0.011	5%
Ethyl Benzene	585 (24 hr)	29	0.01	0.0%
Hexamethylene diisocyanate	585 (24 hr)	0.002	0.0004	20%
1-Methoxy 2-Propyl Acetate	585 (24 hr)	24	0.04	0.2%
Methyl Amyl Ketone	585 (24 hr)	16	0.0	0.1%
MIBK	585 (24 hr)	13.7	0.03	0.2%
Stoddard Solvent	585 (24 hr)	35	0.02	0.1%
Toluene (Aromatic HCs)	585 (24 hr)	25	0.08	0.3%
Trimethyl Benzene	585 (24 hr)	8.2	0.03	0.4%
Xylene	585 (24 hr)	29	0.03	0%

5. EMISSION INVENTORY WORKBOOK FORMS EI1-EI4 DOCUMENTATION

HAP, TAP and criteria pollutant emissions from BBS manufacturing activities are summarized in Table 3.3. HAP, TAP and criteria pollutant emissions from the BBS combustion units are summarized in Table 3.4.

5.1 Criteria Pollutant Facility-Wide Point Source Emissions

Estimated criteria pollutant emissions at BBS are summarized on Permit Form EI1. All particulate emissions are conservatively assumed to be PM_{10}. Lamination area and MAU1 (make up air heater) PM_{10} emissions are evenly distributed between EF9 and EF10. Trim/Finish Area and MAU2 PM_{10} emissions are evenly distributed between EF11 and EF12.

5.2 Criteria Pollutant Facility-Wide Fugitive Emissions

BBS is an indoor production facility with point sources of emissions. The building operates at negative pressure. There are no outdoor stockpiles or unpaved roads. There are no known sources of fugitive emissions.

5.3 Criteria Pollutant Facility-Wide Point Source and Fugitive Emissions Increase

This is a new facility that has never been permitted so it is not possible to calculate a pollutant emissions increase.

5.4 Toxic Air Pollutant Facility-Wide Emissions

Estimated uncontrolled and controlled TAP emissions from BBS are summarized in Tables 3-3 for the manufacturing processes and Table 3-4 for the combustion equipment. The only TAP emissions not included in these tables are the 0.221 lb/hr styrene emitted from the Resin Storage Room (see Section 3.1).

5.5 Toxic Air Pollutant Facility-Wide Emissions Increase

See Section 5.3.

5.6 Hazardous Air Pollutant Facility-Wide Emissions

Estimated HAP emissions from the manufacturing processes are 100.1 tons per year from the fabrication process (see Table 3-1), 0.18 tons per year from the Accent Booth (see Table 4.1), and 0.11 tons per year from the combustion equipment (see Table 3.4). Therefore, total HAP emissions are 100.4 tons per year.

5.7 Facility-Wide Total Pollutant Emissions Increase

See Section 5.3.

APPENDIX B – AMBIENT AIR QUALITY IMPACT ANALYSES

MEMORANDUM

DATE: April 9, 2010

TO: Ken Hanna, Permit Engineer, Air Quality Division

FROM: Cheryl Robinson, P.E., Air Quality Engineer/Modeling Analyst, Air Quality Division

PROJECT NUMBER: P-2010.0047

SUBJECT: **Modeling Review for Fiberglass Systems, Inc., dba Best Bath Systems, Caldwell**
Facility ID: 027-00103
Project: 15-Day Pre-Permit Construction Authorization for New Facility

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1.0 Summary

Fiberglass Systems, Inc., dba Best Bath Systems (Best Bath) submitted a Permit to Construct (PTC) application for a new fiberglass tub and shower manufacturing facility to be located in an existing building at 723 Garber Street in Caldwell, Idaho. The application requests pre-permit construction authorization in accordance with Section 213 of the Rules for the Control of Air Pollution in Idaho (IDAPA 58.01.01, Idaho Air Rules).

The emissions inventory and ambient air quality impact analyses for this project were prepared by Best Bath's consultant, Torf Environmental Management (Torf) of Boise, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were performed to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]).

The submitted analyses: 1) utilized appropriate methods and models; 2) were conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the ambient air boundary. Key assumptions used in the modeling analyses and the impact of these assumptions on the compliance demonstration are shown in Table 1. Compliance has been demonstrated only if the facility is operated in accordance with these assumptions.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result		Explanation/Consideration
Operating Hours: 24 hours per day and 8,760 hours per year		The pound per hour emission rates were calculated based on the maximum annual use of each feed material (set to ensure that total emissions of HAPs did not exceed ~100 tons per year) was used for 24 hours per day and 250 days per year (for adhesives, finishing, foam fill, gel & barrier coats, initiators, resins, solvents, and waxes and parting agents), and 100 days per year for paints. The modeling analyses, however, very conservatively presumed that these pound-per-hour emission rates occurred 8,760 hours per year. (see Section 3.2.3 of this memo for details).
Maximum Emissions:		
PM_{10}	39.34 lb/day and 7.18 T/yr	
Cobalt	3.13 lb/day	
Hydrogen Peroxide	11.4 lb/day	
MEK Peroxide	6.0 lb/day	
Styrene	772 lb/day	
Kaolin	9.1 lb/day	
Silica (quartz)	0.25 lb/day	

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance for Best Bath's new facility at 723 Garber Street in Caldwell, Idaho. Approximate UTM coordinates of this facility are 523.5 km Easting and 4834.7 km Northing, in UTM Zone 11.

2.1.1 Area Classification

The Best Bath Caldwell facility will be located within Canyon County which is designated as an attainment or unclassifiable area for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone, particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) and 2.5 micrometers ($PM_{2.5}$), and sulfur oxides (SO_x). There are no Class I areas within 10 kilometers of this location.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the existing unpermitted facility exceed the significant contribution levels (SCLs) of Section 006 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho (Idaho Air Rules), then a cumulative impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. The SCLs and the modeled value that must be used for comparison to the NAAQS are also listed in Table 2.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual[f]	1.0	50[g]	Maximum 1st highest[h]
	24-hour	5.0	150[i]	Maximum 6th highest[j]
$PM_{2.5}$[k]	Annual	Not established	15	Use PM_{10} as surrogate
	24-hour	Not established	35	Use PM_{10} as surrogate

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	**Averaging Period**	**Significant Contribution Levels[a] ($\mu g/m^3$)[b]**	**Regulatory Limit[c] ($\mu g/m^3$)**	**Modeled Value Used[d]**
Carbon monoxide (CO)	8-hour	500	10,000[l]	Maximum 2nd highest[h]
	1-hour	2,000	40,000[l]	Maximum 2nd highest[h]
Sulfur Dioxides (SO_x)	Annual	1.0	80[g]	Maximum 1st highest[h]
	24-hour	5	365[l]	Maximum 2nd highest[h]
	3-hour	25	1,300[l]	Maximum 2nd highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1st highest[h]
Lead (Pb)	Quarterly	NA	1.5[i]	Maximum 1st highest[h]
	Rolling 3-month average	NA	0.15[i]	Maximum 1st highest[h]

[a] Idaho Air Rules Section 006

[b] Micrograms per cubic meter.

[c] Federal NAAQS incorporated by reference in Idaho Air Rules Section 107.

[d] The maximum 1st highest modeled value is always used for significant impact analysis.

[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers.

[f] The annual PM_{10} standard was revoked in 2006. The standard is still listed because compliance with the annual $PM_{2.5}$ standard is demonstrated by a PM_{10} analysis that demonstrates compliance with the revoked PM_{10} standard.

[g] Never expected to be exceeded in any calendar year.

[h] Concentration at any modeled receptor.

[i] Never expected to be exceeded more than once in any calendar year. Demonstration of compliance with the 0.15 $\mu g/m^3$ rolling 3-month average standard promulgated by EPA in late 2008 became effective in the Idaho NSR program when this standard was incorporated by reference into the Idaho Air Rules, i.e., when the Idaho Legislature adjourned *sine die* on March 29, 2010.

[j] Concentration at any modeled receptor when using five years of meteorological data (the maximum 2nd highest value is used when less than five years of applicable meteorological data used).

[k] Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.

[l] Not to be exceeded more than once per year.

New source review requirements for assuring compliance with $PM_{2.5}$ standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum (the Seitz memo) that compliance with $PM_{2.5}$ standards will be assured through an air quality analysis for the corresponding PM_{10} standard. Although the PM_{10} annual standard was revoked in 2006, compliance with the revoked PM_{10} annual standard must be demonstrated as a surrogate to the annual $PM_{2.5}$ standard.

2.1.3 Toxic Air Pollutant Analyses

Compliance with state-only toxic air pollutant (TAP) requirements is not required for this project.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Background concentrations were revised for all areas of Idaho by DEQ in March 2003[2]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources. For this facility, DEQ recommended using default background concentrations as evaluated in that memorandum for small town/suburban areas because of the proximity to other industrial facilities and the city of Caldwell. These values are shown in Table 3.

Table 3. BACKGROUND CONCENTRATIONS

Pollutant	Averaging Period	Background Concentration ($\mu g/m^3$)[a]
PM_{10}[b]	24-hour	81
	Annual	27
Carbon monoxide (CO)	1-hour	10,200
	8-hour	3,400
Sulfur dioxide (SO_2)	3-hour	42
	24-hour	26
	Annual	8
Nitrogen dioxide (NO_2)	Annual	32
Lead (Pb)	Quarterly	0.03
	Rolling 3-month average[c]	0.03

a. Micrograms per cubic meter.

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

c. Demonstration of compliance with this standard became required by the Idaho NSR program when the Idaho Legislature adjourned *sine die* on March 29, 2010.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

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

2 Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

3.1.1 Overview of Analyses

A brief description of parameters used in the submitted modeling analyses is provided in Table 4.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 09292
Meteorological data	Years: 2001-2005 Surface: Boise: Upper Air: Boise	National Weather Service surface data and upper air data from the Boise airport. Data processed through AERSURFACE (version 08009) and AERMET (version 06341) were provided to Torf by DEQ
Terrain	Considered	AERMAP (version 09040) was used to extract data from a National Elevation Dataset (NED) 1-arc-second digital elevation map (DEM) file based on datum NAD 83. Default rural dispersion was used.
Building downwash	Considered	Building downwash parameters were calculated using the BPIP PRIME algorithm (version 04274).
Receptor Grid	Receptors	Receptor locations were reportedly defined in UTM coordinates (NAD27). AERMAP (v. 09040) converts terrain and receptors to the same datum.
	"Fenceline Grid"	10-meter spacing along the exterior wall of the Best Bath building.
	Grid 1	25-meter spacing in a square grid out to about 100 meters (m).
	Grid 2	50-meter spacing in a square grid between 100 m and 400 m.
	Grid 3	100-meter spacing in a square grid between 400 m and 1,000 m (1 km)
	Grid 4	250-meter spacing in a square grid between 1 km and 3 km
	Grid 5	500-meter spacing in a square grid between 3 km and 5 km.

3.1.2 Modeling Protocol and Methodology

A modeling protocol was submitted by Torf and approved with comment by DEQ on March 18, 2010. Modeling was generally conducted using data described in the protocol and methods described in the State of Idaho Air Quality Modeling Guideline.

3.1.3 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. EPA provided a one-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

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 offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer.
- Improved plume rise and buoyancy calculations.
- Improved treatment of terrain affects on dispersion.
- New vertical profiles of wind, turbulence, and temperature.

AERMOD was used for the submitted analyses for this project.

3.1.4 Meteorological Data

Best Bath's Caldwell facility is located about 29.5 miles west-northwest of the meteorological station operated at the Boise airport. The facility is located in an industrial area with primarily agricultural lands to the north, west, and southwest, with primarily residential land use to the east and southeast. DEQ determined that the surface data and upper air meteorological data collected from 2001-2005 at the Boise airport were the best representative pre-processed data available at this time. These meteorological data were previously processed through AERMET—the meteorological data preprocessor for AERMOD—using AERMET version 06341. Surface characteristics were analyzed using AERSURFACE (08009).

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in these site-specific analyses. Torf used a feature available in Oris Solutions BEEST program to calculate the approximate domain based on a 10% hill height. Torf used AERMAP (version 09040) to extract building, emission source, and receptor elevations and determine the controlling hill height elevation from a National Elevation Dataset (NED) 1-arc-second digital elevation map (DEM) file based on datum NAD 83 for this domain. The NED domain included the area between 116.875 and 116.5 degrees (west) longitude and 43.5 and 43.75 degrees (north) latitude.

The domain used for the modeling analyses is shown in Figure 3-1.

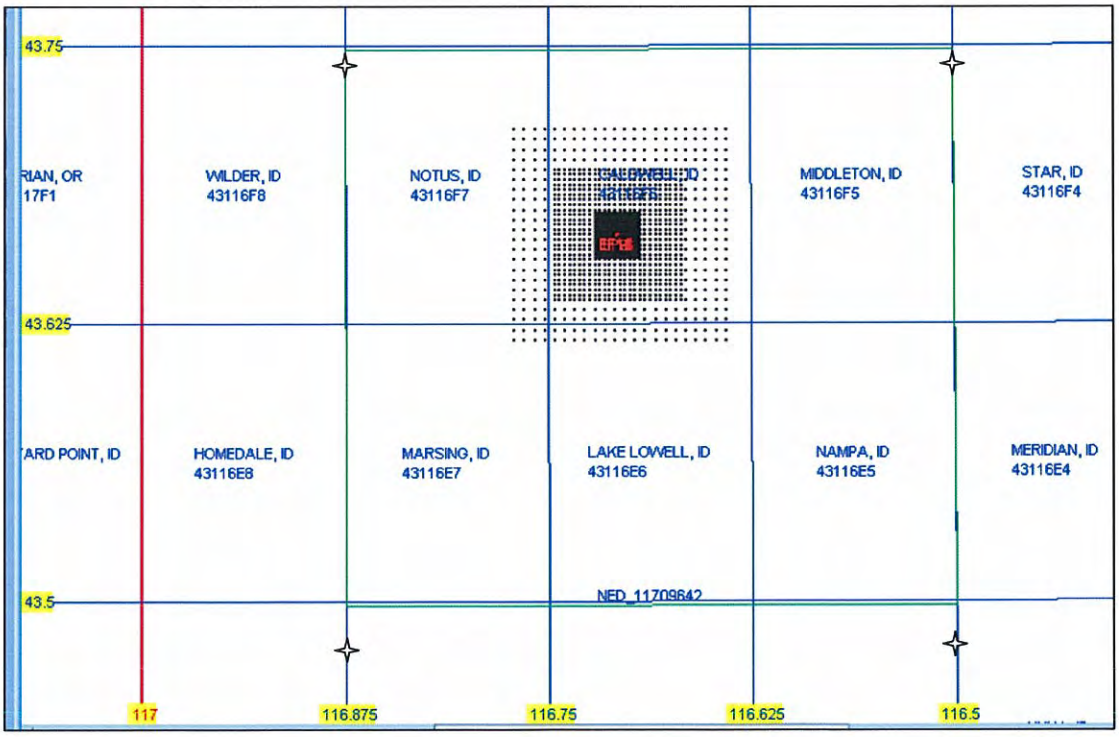

Figure 3-1. BEST BATH CALDWELL MODELING DOMAIN

3.1.6 *Facility Layout*

The facility layout, property boundary, and emission point locations are shown in Figure 3-2 (Figure 6-1 from the submitted application).

Figure 3-2. BEST BATH'S CALDWELL FACILITY LAYOUT AND EMISSION POINTS

3.1.7 Building Downwash

Plume downwash effects caused by the main facility structure were accounted for in the submitted modeling analyses. The application describes this building as having a sloped roof with a center peak running east to west. To be conservative, the entire building was assumed to be as high as the roof peak.

The closest neighboring building (Kit Manufacturing (is located across Garber Street to the northwest. The closest corner-to-corner distance is 330 feet. This neighboring building is more than "5L" feet away from the Best Bath building, where L is the smaller of the Best Bath building width or height. The building dimensions are 440 feet in length, 275 feet in width, and 29.4 feet in height. At 330 feet, the distance to the Kit Manufacturing building is more than twice the value of 5L (~150 feet), so downwash from this building is not expected to affect the plume(s) emitted from Best Bath. The Building Profile Input Program with Plume RIse Model Enhancements (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emission release parameters for input to AERMOD.

3.1.8 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." For most sources, the property boundary is typically used as the ambient air boundary. Because there are no fences around the facility, however, Torf very conservatively presumed that ambient air was anywhere outside the Best Bath building.

3.1.9 Receptor Network

The receptor grids used for the submitted modeling analyses and DEQ verification analyses are summarized in Table 4. The full receptor grid is illustrated in Figure 3-1, and the near-field grid and is shown in Figure 3-3 (Figure 7-1 from the submitted application).

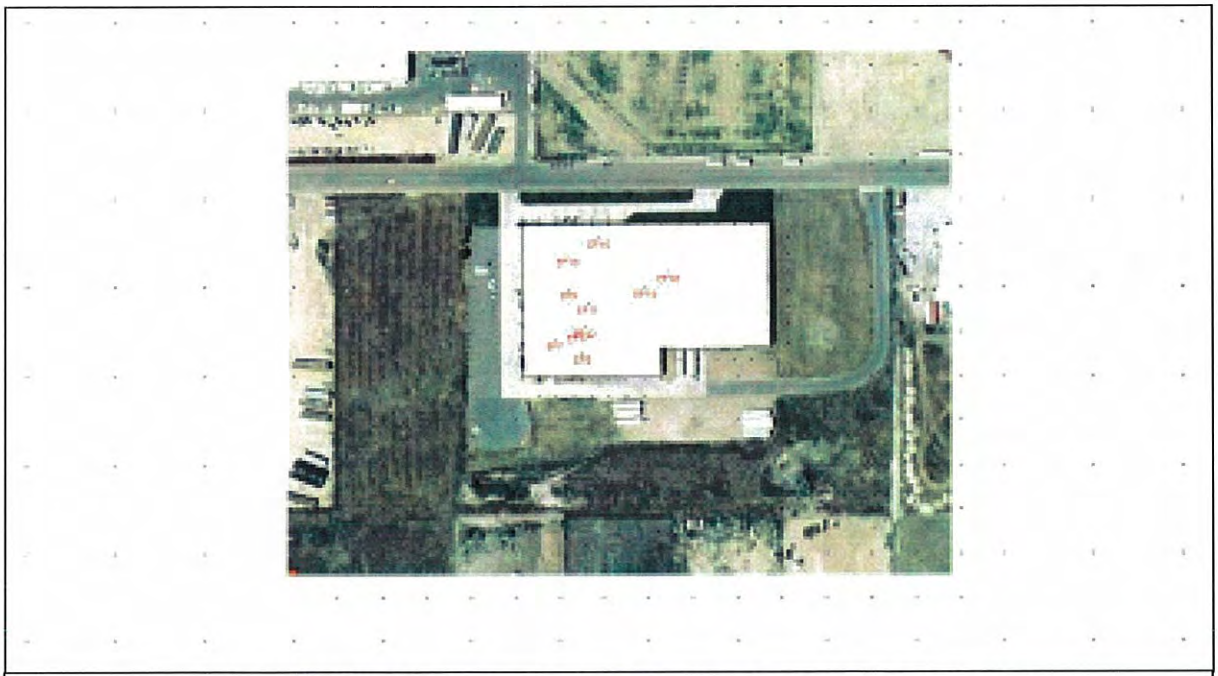

Figure 3-3. BEST BATH'S CALDWELL FACILITY NEAR-FIELD RECEPTOR GRID

3.2 Emission Release Parameters and Emission Rates

3.2.1 Point Source Release Parameters

Emission release parameters for this facility are shown in Table 5. Stack parameters appear to be appropriate and within expected ranges. Horizontal releases were modeled by setting the exit velocity to 0.001 meters per second (m/sec).

Table 5. EMISSION RELEASE PARAMETERS – POINT SOURCES

Source ID	Description	UTM Zone 11 (NAD27)		Elevation (m) [a]	Stack Height (ft) [b]	Stack Temp. (°F) [c]	Stack Velocity (m/sec) [d]	Stack Diameter (ft) [b]	Stack Orientation [e]
		Easting (m) [a]	Northing (m) [a]						
EF7	Chemical Storage Room	523546.9	4834721	717.2	20.37	70.1	2.77	2.17	Default
EF8	Maintenance Shop	523562.6	4834713	717.2	19.75	70.1	2.48	2.56	Default
EF9	Fabrication area S	523554.8	4834749	717.3	46.46	70.1	32.01	3.51	Default
EF10	Fabrication area N	523554.2	4834768	717.3	46.46	70.1	29.49	3.51	Default
EF11	Blue Bottom N	523565.7	4834741	717.3	35.17	70.1	16.25	1.41	Default
EF12	Blue Bottom S	523563.8	4834728	717.3	56.14	70.1	16.25	1.41	Default
EF14	Accent Booth	523598.3	4834750	717.3	35.01	70.1	13.04	2.49	Default
EF15	Unit Heaters N	523572.3	4834778	717.3	26.57	350.3	0.001	0.66	Horizontal
EF16	Unit Heaters E	523611.6	4834759	717.3	31.73	350.3	0.001	0.66	Horizontal
EF17	Unit Heaters S	523560.8	4834725	717.2	22.38	350.3	0.001	0.66	Horizontal

Table 5 Notes

[a] m = meters

[b] ft = feet

[c] °F = degrees Fahrenheit

[d] m/sec = meters per second.

[e] Default stack orientation is vertical and uncapped. Where exit velocity is set to 0.001 m/sec, these stacks exhaust in the horizontal direction.

3.2.2 Volume Source Release Parameters

The description of the proposed facility notes that the interior of the building will be kept at a slightly negative pressure compared to ambient air, and that building exterior doors are kept closed during facility operations. DEQ concurred that under normal operations, there would be negligible fugitive emissions from these building openings. As a result, no volume sources were included in the analyses.

3.2.3 *Criteria Pollutant and Toxic Air Pollutant (TAP) Emissions Rates*

Based on a review of the proposed Best Bath facility buildout and the proximity to existing emission sources in Caldwell, the use of DEQ's "case-by-case" modeling thresholds was approved for this project. Modeling for criteria pollutants is not required if facility-wide emissions for each pollutant and averaging period do not exceed "case-by-case" thresholds. A comparison of DEQ modeling thresholds and facility-wide emissions from the new Best Bath facility is shown in Table 6. As shown in the table, modeling was required to demonstrate compliance only for the PM_{10} 24-hour NAAQS.

Table 6. COMPARISON WITH DEQ CRITERIA POLLUTANT MODELING THRESHOLDS

NAAQS		2002 Guidance		Case-by-Case		Natural Gas Combustion	Process Emissions	Total Emissions	Modeling Required?
NO_2	Annual	1	T/yr	7	T/yr	5.52		5.52	No
CO	1-hr and 8-hr	14	lb/hr	70	lb/hr	4.64		4.64	No
PM_{10}	**24-hr**	0.2	lb/hr	**0.9**	**lb/hr**	0.42	1.54	**1.96**	**Yes**
PM_{10}	Annual	1	T/yr	7	T/yr	0.42	4.59	5.01	No
SO_2	24-hr	0.2	lb/hr	0.9	lb/hr	0.03		0.03	No
SO_2	Annual	1	T/yr	7	T/yr	0.03		0.03	No
VOCs	---	---	---			0.30	108.3	108.6	No
Lead	quarterly	0.06	T/yr			2.8E-05		2.8E-05	No
Lead	quarterly	10	lb/mo			0.01		0.01	No

Note: 100 lb/mo and 0.6 T/yr lead thresholds in the 2002 guidance were reduced by factor of 10 based on the lead NAAQS of 0.15 $\mu g/m^3$, promulgated by EPA in October 2008. This NAAQS became effective for NSR permitting in Idaho when the 2010 Legislature adjourned *sine die* on March 29, 2010.

The modeled emission rates for this project are shown in Table 7. These emission rates were based on the following assumptions:

- All natural gas combustion sources operate at design heat input capacity for 8,760 hours per year.
- Combustion emissions from the 8.565 MMBtu/hr Makeup Air Unit 1 are emitted through the Lamination Area exhaust fans, EF9 (50%) and EF10 (50%).
- Combustion emissions from the 1.0 MMBtu/hr Makeup Air Unit 2 are emitted through the Blue Bottom Area exhaust fans, EF11 (50%) and EF12 (50%).
- There are eleven gas-fired unit heaters installed throughout the facility, each with an input design capacity of approximately 0.3 MMBtu/hr. The combustion gases from each of these units are vented through 8-inch ducts directly up through the roof. The location of the unit heaters is shown on Figure 6-1 Plot Plan, in the application. Because the potential emissions from each of these small units is not large, and because they are clustered together in certain rooms around the facility, groups of heaters are collocated into three composite point sources for emission estimating and modeling purposes, as follows:
  - EU15 (EF15) is a composite of five unit heaters located in the Mold Maintenance Area (Room 1). Emissions are estimated at the design capacity of 1.5 MMBtu/hr.
  - EU16 (EF16) is a composite of four unit heaters located in the Assembly/Packaging Area (Room 4). Emissions are estimated at the design capacity of 1.2 MMBtu/hr.

- EU17 (EF17) is a composite of two unit heaters located in and just outside the Maintenance Room. Emissions are estimated at the design capacity of 0.6 MMBtu/hr.

- The pound per hour emission rates were calculated based on the maximum annual use of each feed material (set to ensure that total emissions of HAPs did not exceed 100 tons per year) was used for 24 hours per day and 250 days per year (for adhesives, finishing, foam fill, gel & barrier coats, initiators, resins, solvents, and waxes and parting agents), and 100 days per year for paints. The modeling analyses, however, very conservatively presumed that these pound-per-hour emission rates occurred 8,760 hours per year.

Table 7. MODELED EMISSION RATES[a]

Source ID	Description	PM_{10}	As	Cd	Co	Formalde	H_2O_2	MEK Peroxide	Styrene	Kaolin	Silica Quartz
		(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)	(lb/hr)
EF7	Chemical Storage Rm	---	---	---	---	---	---	---	0.22	---	---
EF8	Maintenance Shop	---	---	---	---	---	---	---	---	---	---
EF9	Fabrication area "S"	6.68E-01	8.40E-07	4.62E-06	0.0652	3.15E-04	0.238	0.124	16.0	0.189	5.28E-03
EF10	Fabrication area "N"	6.68E-01	8.40E-07	4.62E-06	0.0652	3.15E-04	0.238	0.124	16.0	0.189	5.28E-03
EF11	Blue Bottom "N"	1.30E-01	9.80E-08	5.39E-07	4.12E-08	5.09E-04	---	---	---	---	---
EF12	Blue Bottom "S"	1.30E-01	9.80E-08	5.39E-07	4.12E-08	5.09E-04	---	---	---	---	---
EF14	Accent Booth	1.84E-02	---	---	---	---	---	---	---	---	---
EF15	Unit Heaters "N"	1.12E-02	2.94E-07	1.62E-06	1.24E-07	1.10E-04	---	---	---	---	---
EF16	Unit Heaters "E"	8.94E-03	2.35E-07	1.29E-06	9.88E-08	8.82E-05	---	---	---	---	---
EF17	Unit Heaters "S"	4.47E-03	1.18E-07	6.47E-07	4.94E-08	4.41E-05	---	---	---	---	---

Table 7 Notes:

As = arsenic

Cd = cadmium

Co = cobalt

Formalde = formaldehyde

H_2O_2 = hydrogen peroxide

MEK = methyl ethyl ketone (peroxide)

[a] BEEST output "SUM" files show that all emission rates were multiplied by 10^6 in the submitted analyses, to avoid truncation errors when doing calculations with very small numbers. These emission rates were multiplied by 10^7 (Arsenic), 10^6 (Cd), 10^4 (formaldehyde) and 10^3 (silica quartz), in DEQ's verification analyses.

3.3 Results for Significant and Full NAAQS Impact Analyses

This is a new facility. Torf appropriately submitted full impact analyses to evaluate compliance with applicable standards for PM_{10} . Results of the cumulative NAAQS impact analyses are provided in Table 8. As noted in the application, the maximum modeled PM_{10} impacts occurred at a distance of 210 meters to the northwest of the facility (see Figure 3-4).

Table 8. RESULTS FOR FULL IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Ambient Impact ($\mu g/m^3$)	Background Concentration ($\mu g/m^3$)	Total Ambient Impact ($\mu g/m^3$)	NAAQS[a] ($\mu g/m^3$)	Percent of NAAQS
PM_{10}	24-hour	5.01	81	86.01	150	57.3%
	Annual	0.87	27	27.87	50	55.7%

[a] Federal NAAQS are incorporated by reference in Idaho Air Rules Section 107.

3.4 Results for TAPs Analyses

Torf performed a TAPs impact analyses to evaluate compliance with applicable acceptable ambient concentration (AAC) for noncarcinogens and acceptable ambient concentration for a carcinogen (AACC) increments listed in Sections 585 and 586 of the Rules. The results of the modeling are shown in Table 9. Because the arsenic impact was reported as zero in the submitted analyses, DEQ reran the TAPs analyses. Very small emission rates input into AERMOD were multiplied by orders of magnitude to avoid truncation errors in the program. As noted in the application, except for arsenic and cadmium, the maximum modeled TAPs impacts occurred at a distance of 210 meters to the northwest of the facility (see Figure 3-4). Maximum cadmium impacts were predicted to occur near the south side of the Best Bath building. Maximum arsenic impacts predicted by the DEQ analyses (shown in parentheses in the table) occurred at the northwest corner of the building.

Table 9. RESULTS FOR TAP IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Ambient Impact ($\mu g/m^3$)	AAC/AACC[a] ($\mu g/m^3$)	Percent of AAC/AACC
Arsenic	Annual	- 0 – (4.7E-06)	2.3E-04	2.0%
Cadmium	Annual	3.0E-05	5.6E-04	5.5%
Cobalt	24-hour	0.53	2.5	21.2%

Formaldehyde	Annual	2.43E-03	7.7E-02	3.2%
Hydrogen Peroxide	24-hour	1.94	75	2.5%
MEK Peroxide	24-hour	1.01	7.5	13.5%
Styrene	24-hour	131.6	1000	13.2%
Kaolin	24-hour	1.54	100	1.5%
Silica-quartz	24-hour	0.052	5	1.0%

[a] Defined in Sections 585 and 586 of the Idaho Air Rules.

[b] For the DEQ verification analyses, model results were multiplied by 10^{-7} (Arsenic), 10^{-6} (Cd), 10^{-4} (formaldehyde) and 10^{-3} (silica quartz), to avoid truncation errors when doing calculations with very small numbers.

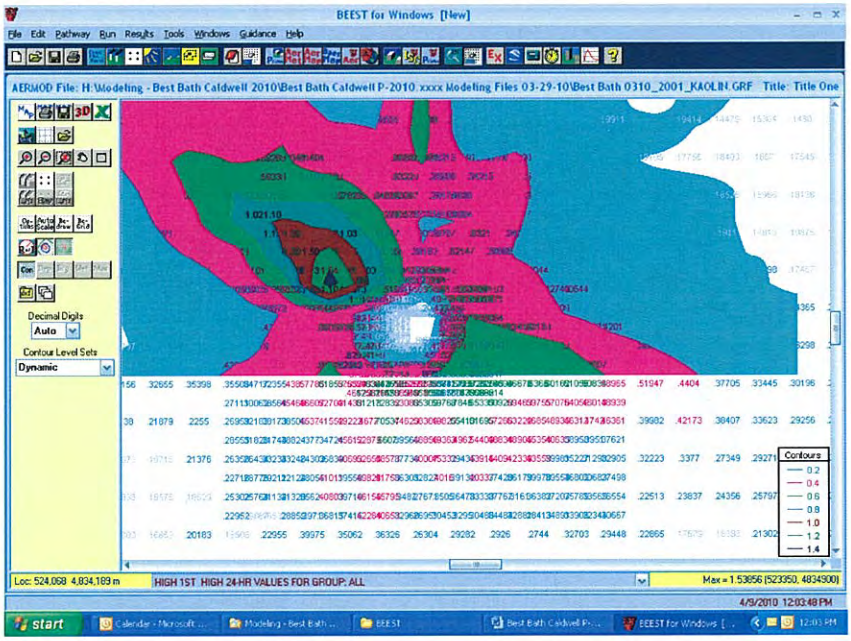

Figure 3-4. Ambient Impact Contours – 24-hr (Kaolin)

4.0 Conclusions

The submitted ambient air impact analyses, combined with DEQ's verification analyses, demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

APPENDIX C – FACILITY DRAFT COMMENTS

The following comments were received from the facility on June 15, 2010:

Facility Comment: Change address and phone number on cover page of permit.

DEQ Response: The information was changed as requested.

Facility Comment: Permit Condition 4 and Table 2, Process Description. Indicate that the exhaust exits through a fiberglass bulk media filter and then through a 1-inch fiberglass filter. Note that the exhaust from the trim area is filtered and exhausted back in to the "Trim Room" instead of to the "Blue Foam" work area. The Trim and Finish area filters will be high efficiency cartridge filters with a minimum efficiency of 90%. Makeup air unit capacity is 9.6 MMBtu/hr.

DEQ Response: The description was changed in the permit and Statement of Basis.

Facility Comment: Permit Condition 5. The PM_{10} emission limit should be 1.60 lb/hr to accommodate the makeup air unit emissions in addition to the production area emissions.

DEQ Response: The change was made.

Facility Comment: Permit Condition 17, PM Performance Test, third bullet item. Indicate that the maximum number of "spray areas" will be in operation during the test, including records of the number "and type of spray guns" (i.e., not booths) being used. Since an open plan system is used there are no spray booths. Suggest using number of guns in operation with material and throughput instead.

DEQ Response: The change is consistent with the analyses used to demonstrate compliance. The change was made.

Facility Comment: Permit Condition 19, Fugitive Dust Monitoring. Weekly inspections and record-keeping seem excessive for an indoor facility with no unpaved roads or outdoor stockpiles and no expected fugitive emissions (negative pressure building). Respectfully suggest quarterly inspections instead. The Boise Site permit specifies quarterly inspections.

DEQ Response: The fugitive dust monitoring was changed to be quarterly, consistent with the Boise Site.

Facility Comment: Statement of Basis, page 5, Resin Storage Room Description. Indicate that the resin is composed of styrene and unsaturated polyester polymer in a "nominal" 35/65 wt% mix. The 35/65 wt% mix can vary slightly depending on resin suppliers and resin chemistry.

DEQ Response: The change was made.

APPENDIX D – PROCESSING FEE

Company:	**Best Bath Systems, Inc.**
Address:	**723 Garber Street**
City:	**Caldwell**
State:	**ID**
Zip Code:	
Facility Contact:	**See Permit**
Title:	**See Permit**
AIRS No.:	**027-00103**

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

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO_X	5.5	0	5.5
SO_2	0.3	0	0.3
CO	4.6	0	4.6
PM10	5.5	0	5.5
VOC	108	0	108.0
TAPS/HAPS	0.0	0	0.0
Total:	0.0	0	**123.9**
Fee Due	**$ 7,500.00**		

Comments: