Stantec

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DEPARTMENT OF ENVIRONMENTAL QUALITY
STATE A Q PROGRAM

September 6, 2016
File: 203701065

Attention: Darrin Pampaian, P.E.
Permit Coordinator
1410 N Hilton Street
Boise, Idaho 83706

Dear Mr. Pampaian,

Reference: EM Tanner & Sons PTC Modification

Stantec Consulting Services (Stantec), on behalf of EM Tanner & Sons (Tanner), is submitting a Permit to Construct (PTC) Permit Application for a modification of permit P-2009.0102, issued September 30, 2009. This application has been developed to ensure all applicable state requirements as defined in IDAPA 58.01.01 are met. In addition, applicable federal requirements have been included. The intent of this application is to modify the urethane usage of B601.

This submittal includes the PTC application, a detailed emissions inventory and modeling files (electronic only). This is due to the fact that the GI Form and application fee was inadvertently sent in by the facility prior to completion of the application material. I have corresponded with Tom Burnham and he stated that electronic copies were satisfactory.

Pursuant to IDAPA.01.01.123, all information contained within this application has been certified to be true, accurate and complete by Aaron Turner of EM Tanner. As confirmed via phone call on September 2, 2016 with Tom, the initial application fee of $1,000 was and GI Form submitted by Tanner.

Should you have any questions please do not hesitate to call Aaron Turner at (208) 785-1450 or myself at the number below.

Regards,

Eric E. Clark

Eric Clark, P.E.
Project Engineer
Phone: (208) 853-0883 x 102
Fax: (208) 853-0884
eric.clark@stantec.com

Attachment: PTC Application

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EM Tanner & Sons Permit Modification

Update to Urethane Usage

Prepared for:
EM Tanner & Sons, Inc.
221 Airport Road
Blackfoot, Idaho 83221
Contact: Aaron Tanner
Phone: (208) 785-1450

Prepared by:
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September 6, 2016

Sign-off Sheet

This document entitled EM Tanner & Sons Permit Modification was prepared by Stantec Consulting Services Inc. ("Stantec") for the account of EM Tanner (the "Client"). Any reliance on this document by any third party is strictly prohibited. The material in it reflects Stantec's professional judgment in light of the scope, schedule and other limitations stated in the document and in the contract between Stantec and the Client. The opinions in the document are based on conditions and information existing at the time the document was published and do not take into account any subsequent changes. In preparing the document, Stantec did not verify information supplied to it by others. Any use which a third party makes of this document is the responsibility of such third party. Such third party agrees that Stantec shall not be responsible for costs or damages of any kind, if any, suffered by it or any other third party as a result of decisions made or actions taken based on this document.

Prepared by Eric E. Clark
(signature)

Eric Clark, P.E.

Reviewed by Daniel Heiser
(signature)

Daniel Heiser, P.E.

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1.0 INTRODUCTION

EM Tanner & Sons, Inc. (Tanner) owns and operates a manufacturing facility specializing in fabrication and painting of potato processing equipment. The facility is located in Blackfoot, ID. The facility layout is in Appendix A. Operations at the facility include equipment fabrication and assembly, mold production, welding and equipment painting.

The facility currently operates under a Permit to Construct (PTC) from the Idaho Department of Environmental Quality (IDEQ) for operations at the facility. Permit P-2009.0102 was issued September 30, 2009. Tanner is proposing to modify their permit by increasing the allowable usage of Vibrathane B601. The annual usage is currently limited to 1,040 gallons per year. Usage rate is proposed to be increased to 5,000 gallons per year.

The purpose of this document is to provide information to accompany the PTC application, and includes information regarding facility processes, emissions sources and air dispersion modeling performed in support of the PTC application. All PTC application forms are included in Appendix B.

2.0 PROCESS DESCRIPTION

Raw metal is received at the facility. The metal pieces are then may be bent, cut and welded together to form the desired piece of equipment. On occasion, a part must be made using a urethane mold casting operation. The machine components are then brought into a booth in the paint room.

2.1 PAINT ROOM

Once the machine components have been fabricated they are brought into the paint room. Tanner applies a base coat and top coat paint to each part in the same spray booth. Equal amounts of base coat and top coat are applied. The paint comes in five gallons pails and is sprayed directly from the container. Generally, thinning of the paint is not done at the facility. However, on occasion and depending on the temperature and/or atmospheric pressure, a small amount of solvent is added to the paint. The paint is dispersed by a spray gun which has a maximum capacity of 3.34 gallons/ hour. Currently, painting the parts is performed at a maximum of 5 hours/day, year around, resulting in a maximum total of 1,825 hours/year.

Tanner uses three paint colors – black, white, and burnt orange enamel. Only one type of paint is used at a time and only a small amount of solvent is added to the paint. However, to be conservative, the emissions used in the air dispersion model assume the material being sprayed contains the highest concentration of each constituent. Painting emissions remain unchanged from the previous permitting action.

The paint booth has been updated to state of the art system by AMC Finishing Systems. The previous filtration system and paint booth described in the current PTC has been dismantled and a new booth was constructed. The particulate filter efficiency has increased from 95% to 97.3%. New exhaust parameters were developed based on manufacturer email correspondence. These include: stack height of 1 foot above roof level (20 feet ground level), flow rate of 24,000 cfm and an exhaust diameter of 42 inches. The temperature was not provided by the manufacturer, but estimated to be similar to the rubber room and the previous booth (72 °F).

Note that no emissions associated with the paint room are increasing from the 2009 permit. All toxic pollutant emissions are unchanged and particulates have decreased.

2.2 RUBBER ROOM

On occasion, smaller parts are made using an open mold casting operation. The molds have a thin coat of mold release applied, and then a machine is used to mix the urethane resin and hardener and dispense the mixture into the mold. If the piece being molded has a metal core, the core will be painted with a layer of adhesive and placed in the mold prior to pouring. At the end of resin/hardener mixture pour cycle, the mixing/dispensing portion of the machine is

flushed with methylene chloride. A summary of emissions from each material used in the mold casting operation is included in Appendix C.

The previous permit required that the rubber room exhaust either be equipped with an exhaust fan, rated for a maximum of 16,000 ACFM and build a 35 foot stack or construct a 25 foot stack along with a minimum fan flow rate of 22,000 ACFM. Tanner constructed the 25 foot stack with the "new" 22,000 AFCM fan. This scenario is consistent with current operations.

3.0 PERMIT MODIFICATIONS

3.1 URETHANE USAGE RATES

Condition 2.7 within PTC P-2009.0102 states that Vibrathane B601 use shall exceed 1,040 gallons per year or equivalent. Tanner is proposing to increase that annual rate to 5,000 gallons. No other changes are requested.

Tanner also utilizes Vibrathane B809. Previous permit analysis assumed that maximum usage of either urethane cannot exceed 5 hours per day. The urethane resin is poured into the one tank and then fed through the one mixer. The limitation allows for only one urethane to be utilized at any one time. Both urethanes include Toluene-2,4-diisocyanate (TDI) of which is a daily Idaho regulated toxic air pollutant (TAP).

3.1.1.1 Rubber Room Modeling Analysis

The 2009 modeling analysis examined the maximum TDI daily average lb/hr emission rate between the 601 and 809. B809 suggested a rate of 0.06 lb/hr which demonstrated compliance. The desired increase of B601 produced a daily lb/hr average rate of TDI of 0.12 lb/hr.

TAPs emission rates are incremental screening levels and the full increment is allowed for each permit modification. Therefore, the desired increase is 0.06 lb/hr of which was modeled. Similar to the 2009 analysis, the increased rate associated with the rubber room demonstrated compliance. Please refer to the accompanying modeling report of details (Appendix D).

3.1.1.2 Paint Room Model Results

No emissions from toxic pollutants associated the paint room are changing, only the location and exhaust parameters. Only one TAP, trimethylbenzene, within the paints utilized by Tanner exceeded the applicable screening emission level. In review of the 2009 modeling analysis, an emission rate of 12.35 lb/hr was modeled for 16 hr/day. Because IDAPA 58.01.01.585 (Rules for the Control of Air Pollution in Idaho) identifies screening levels as lb/hr 24-hr average, the modeled lb/hr rate could have been 8.23 lb/hr allocated across the total 24-hr period. However, to ensure conservatism 12.35 lb/hr was modeled again.

Particulate emissions have decreased due to improved filtration. To ensure compliance for both PM2.5 and PM10 standards particulate modeling was conducted. It should be noted that the rubber room emission rates were updated to correlated with the 2009 DEQ Verification rates of 1.15E-04 lb/hr for the 24-hr averaging period and 5.04E-04 tpy annually. Only the Thioxin and M800 contain particulates used in the rubber room.

The paint room originally modeled 0.26 lb/hr of particulate allocated over 16 hours. DEQ Verification included welding PM emissions to increase the total rate by 2.28E-02 lb/hr. The

modeled rate is 0.285 lb/hr for 16 hours. The annual modeled rate was DEQ Verified to be 0.26 tpy or 0.0894 lb/hr. However, the control efficiency has increased from 95% to 97.3% decreasing the emission rates. Welding particulate is assumed to be unchanged, but the painting operations lowered to 0.14 lb/hr. The actual emission rate is 0.14 + 0.0228 = 0.1628 lb/hr for 16 hours. Annual emissions are reduced to 0.15 tpy * 2/3 for the 16 hours per day = 0.10 tpy + welding of 0.067 tpy (from 2009 DEQ verification memo) = 0.167 tpy.

The new paint room has two exhaust points. Therefore, the emissions were allocated evenly between the two points.

Lastly it should be noted, that nickel associated from welding operations was previously modeled during the DEQ Verification. However, it has been discovered that incorrect emissions factors were applied. AP-42 Table 12.19-2 identifies HAP emission factors in 10^{-1} lb/1000 lb of electrode. The factors originally assumed lb/1000 lb electrode and the total nickel welding emissions did not calculate a lb/hr annual average rate for comparison against the screening level. When those adjustments are made, nickel does not exceed the EL and therefore does not require dispersion modeling.

4.0 REGULATORY APPLICABILITY

A review of applicable State and Federal Rules for each emissions unit is provided in Sections 4.1 and 4.2 below.

4.1 STATE REGULATORY APPLICABILITY

A review of applicable requirements of the Rules for the Control of Air Pollution in Idaho is provided in Table 4-1. Each regulation is described in the sections following the table.

Table 4-1 State Regulatory Applicability Summary

Section	Description	Regulatory Citation	Applicable?
4.1.1	Certification of Documents	IDAPA 58.01.01.123	Yes
4.1.2	Excess Emissions	IDAPA 58.01.01.130-136	Yes
4.1.3	Ambient Air Quality Standards for Specific Air Pollutants	IDAPA 58.01.01.577	Yes
4.1.4	Toxic Air Pollutants	IDAPA 58.01.01.585 and 586	Yes
4.1.5	New Source Performance Standards	IDAPA 58.01.01.590	No
4.1.6	National Emissions Standards for Hazardous Air Pollutants	IDAPA 58.01.01.591	Yes
4.1.7	Open Burning	IDAPA 58.01.01.600-616	Yes
4.1.8	Visible Emissions	IDAPA 58.01.01.625	Yes
4.1.9	Rules for Control of Fugitive Dust	IDAPA 58.01.01.650	Yes
4.1.10	Fuel Burning Equipment – Particulate Matter	IDAPA 58.01.01.675-681	No
4.1.11	Particulate Matter – Process Weight Limitations	IDAPA 58.01.01.701	No
4.1.12	Odors	IDAPA 58.01.01.775-776	Yes

4.1.1 Certification of Documents

IDAPA 58.01.01.123 requires that all documents, including application forms for permits to construct, records, and monitoring reports submitted to DEQ, contain a certification by a responsible official. Tanner will comply with this requirement, and the appropriate certifications by a responsible official are being submitted with this application.

4.1.2 Excess Emissions

IDAPA 58.01.01.130-136 requires that any episode of excess emissions be reported to DEQ, where appropriate. Tanner will abide by all excess emission requirements.

4.1.3 Ambient Air Quality Standards for Specific Air Pollutants

IDAPA 58.01.01.577 establishes ambient air quality standards for specific air pollutants including $PM_{2.5/10}$, sulfur dioxide, ozone, nitrogen oxide, carbon monoxide, and lead. Facility-wide modeling was not conducted for criteria pollutants, as described in Section 2.2.2. Additionally, one screening level of TAPs was exceeded. Specific details regarding the analysis and documentation of compliance is included in Appendix D of this application.

4.1.4 Toxic Air Pollutants

IDAPA 58.01.01.585 and 586 establishes requirements for compliance with TAPs. Tanner evaluated all toxic air pollutants associated with the increase and have demonstrated compliance with the EL, or appropriate modeling was conducted. Please refer to Appendix D of this document for details.

4.1.5 New Source Performance Standards

New Source Performance Standards (NSPS) in 40 CFR Part 60 are applicable to new, modified, or reconstructed stationary sources that meet or exceed specified applicability thresholds. There are no NSPS requirements relevant to Tanner.

4.1.6 National Emission Standards for Hazardous Air Pollutants

Two sets of National Emissions Standards for Hazardous Air Pollutants (NESHAPs) may potentially apply to the Tanner facility. The first NESHAP regulations were developed under the auspices of the original Clean Air Act. These standards are codified in 40 CFR Part 61, and address a limited number of pollutants and industries. The Tanner facility does not fall under any of the industries or have the potential to emit any of the pollutants listed in 40 CFR Part 61, and therefore, 40 CFR Part 61 regulations do not apply to this facility.

Newer regulations are codified in 40 CFR Part 63 under the authority of the 1990 Clean Air Act Amendments (CAAA). These standards regulate HAP emissions from specific source categories. Part 63 regulations are frequently called Maximum Achievable Control Technology (MACT) standards.

Tanner is subject to subpart MACT HHHHHHH, Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources. However, Tanner received an exception from the EPA on July 28, 2010. Please see Appendix G for details. It also is currently on file with DEQ.

4.1.7 Open Burning

IDAPA 58.01.01.600 and 616 establishes requirements for open burning. Tanner does not expect to conduct open burning at the facility; however, Tanner will comply with the requirements under Section 600-616 if any allowable burning is to be conducted at the facility.

4.1.8 Visible Emissions

IDAPA 58.01.01.625 restricts discharge of air pollutants into the atmosphere which is greater than 20% opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. Tanner will comply with this rule by conducting monthly facility-wide inspections of potential sources of visible emissions, during daylight hours and under normal operating conditions. The inspection will consist of a see/no see evaluation for each potential source. If any visible emissions are observed Tanner will take corrective action or perform a Method 9 or Method 22 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. Tanner will keep records onsite documenting the monthly visible emission inspection or Method 9/22 test conducted.

4.1.9 Rules for Control of Fugitive Dust

IDAPA 58.01.01.625 restricts discharge of air pollutants into the atmosphere which is greater than 20% opacity for a period or periods aggregating more than three (3) minutes in any sixty (60) minute period. Tanner will comply with this rule by conducting monthly facility-wide inspections of potential sources of visible emissions, during daylight hours and under normal operating conditions. The inspection will consist of a see/no see evaluation for each potential source. If any visible emissions are observed, Tanner will take corrective action or perform a Method 9/22 opacity test in accordance with the procedures outlined in IDAPA 58.01.01.625. Tanner will keep records onsite documenting the monthly visible emission inspection and Method 9 test conducted.

IDAPA 58.01.01.650 requires that all reasonable precautions be taken to prevent the generation of fugitive dust. Tanner will comply with fugitive particulate matter regulations.

4.1.10 Fuel Burning Equipment - Particulate Matter

IDAPA 58.01.01.676 restricts any fuel burning source of greater than 10 MMBtu to limit the PM released from combustion to 0.015 gr/dscf for gas fuel. However, none of Tanner's equipment is considered fuel burning. Therefore, the rule does not apply. In addition, 58.01.01.677 does not apply as there is not fuel burning equipment onsite.

4.1.11 Particulate Matter - Process Weight Limitations

IDAPA 58.01.01.701 promulgates restrictions on PM for the entire facility based on process weight. Fuel burning equipment at the facility is not subject to this requirement. There are no applicable sources that require process weight calculations.

4.1.12 Odors

IDAPA 58.01.01.775-776 requires no emissions of odorous gases, liquids, or solids to the atmosphere in such quantities as to cause air pollution. Tanner will comply with this requirement by keeping records of any odor complaints received and will take appropriate action for each complaint which has merit.

4.2 FEDERAL REGULATORY APPLICABILITY

A review of applicable Federal Rules is provided in Table 4.2. Included in Appendix B is the completed federal regulatory applicability FRA form.

Table 4-2 Federal Regulatory Applicability Summary

Section	Description	Regulatory Citation	Applicable?
3.2.1	National Ambient Air Quality Standards (NAAQS)- (dispersion modeling)	40 CFR Part 50	No
3.2.2	Title V Operating Permit	40 CFR Part 70	No
3.2.3	Air Pollutants (NESHAPs)	40 CFR Parts 61, 63	No
3.2.4	New Source Review (NSR)	40 CFR Part 52	No
3.2.5	New Source Performance Standards (NSPS)	40 CFR Part 60	No
3.2.6	Acid Rain Requirements	40 CFR Parts 72–78	No
3.2.7	Risk Management Programs For Chemical Accidental Release Prevention	40 CFR Part 68	No

4.2.1 National Ambient Air Quality Standards (NAAQS)

Primary National Ambient Air Quality Standards (NAAQS) are identified in 40 CFR Part 50 and define levels of air quality, which the United States Environmental Protection Agency (USEPA) deems necessary to protect the public health. Secondary NAAQS define levels of air quality, which the USEPA judges necessary to protect public welfare from any known, or anticipated

adverse effects of a pollutant. Examples of public welfare include protecting wildlife, buildings, national monuments, vegetation, visibility, and property values from degradation due to excessive emissions of criteria pollutants.

Specific standards for the following pollutants have been promulgated by USEPA: $PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, ozone, and lead. The Tanner facility will emit $PM_{2.5}$, PM_{10}, SO_2, NO_x, CO, and VOCs, a precursor to ozone. There are no criteria pollutant emission increases from the previous permitting action. However, a new paint room was constructed and a modeling demonstration was performed to demonstrate NAAQS compliance. Note that modeling was also conducted on the state-regulated TAPs (see Appendix D).

4.2.2 Title V (Part 70) Operating Permit

Title V of the Clean Air Act (CAA) created the federal operating permit program. These permitting requirements are codified in 40 CFR Part 70. These permits are required for major sources with a PTE (considering federally enforceable limitations) greater than 100 tpy for any criteria pollutant, 25 tpy for all hazardous air pollutants (HAPs) in aggregate, or 10 tpy of any single HAP. Tanner is a minor source because the potential to emit of any criteria pollutant is less than 100 tons per year, the potential to emit of all HAPs in aggregate is less than 25 tpy, and the potential to emit of any single HAP is less than 10 tpy.

4.2.3 National Emission Standards for Hazardous Air Pollutants (NESHAPs)

NESHAPs are discussed in Section 3.1.7 above.

4.2.4 New Source Review Requirements

The prevention of significant deterioration (PSD) regulations codified in 40 CFR Part 52 could potentially apply to the proposed facility. The PSD rule applies to: (1) a new major source that has the potential to emit 100 tons per year or more for any criteria pollutant for a facility that is one of the 28 industrial source categories listed in 40 CFR § 52.21(b)(1)(i)(a); or (2) a new major source that has the potential to emit 250 tons per year or more of a regulated pollutant if the facility is not on the list of industrial source categories; or (3) a modification to an existing major source that results in a net emission increase greater than a PSD significant emission rate as specified in 40 CFR § 52.21 (b)(23)(i); or (4) a modification to an existing minor source that is major in itself. The Tanner facility does not fall under one of the 28 industrial source categories, nor will the PTE exceed 250 tpy for any regulated pollutant. Therefore, Tanner is not subject to PSD regulations.

4.2.5 New Source Performance Standards (NSPS)

NSPS is discussed in Section 3.1.6 above.

4.2.6 Acid Rain Requirements

The acid rain requirements codified in 40 CFR Parts 72-78 apply only to utilities and other facilities that combust fossil fuel and generate electricity for wholesale or retail sale. The proposed facility will not produce electrical power for sale. Therefore, the facility is not subject to the acid rain provisions and will not require an acid rain permit.

4.2.7 Risk Management Programs for Chemical Accidental Release Prevention

The facility is not subject to the Chemical Accidental Release Prevention Program and will not be required to develop a Risk Management Plan (RMP). Facilities that produce, process, store, or use any regulated toxic or flammable substance in excess of the thresholds listed in 40 CFR Part 68 must develop a RMP. The facility does not store any regulated toxic or flammable substances in excess of the applicable thresholds. An RMP is not necessary for this facility.

APPENDICES

Appendix A FACILITY LAYOUT

Facility Layout

EM Tanner & Sons

Appendix B DEQ FORMS

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

Cover Sheet for Air Permit Application – Permit to Construct **Form CSPTC**
Revision 5
08/28/08

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

COMPANY NAME, FACILITY NAME, AND FACILITY ID NUMBER

1. Company Name	EM Tanner & Sons		
2. Facility Name	EM Tanner & Sons	3. Facility ID No.	P-2009.0102
4. Brief Project Description - One sentence or less	Urethane B601 increase and update with new paint booth - modification		

PERMIT APPLICATION TYPE

5. ☐ New Source ☐ New Source at Existing Facility ☐ PTC for a Tier I Source Processed Pursuant to IDAPA 58.01.01.209.05.c
☐ Unpermitted Existing Source ☐ Facility Emissions Cap ☒ Modify Existing Source: Permit No.: P-2009.0102 Date Issued: 9/30/09
☐ Required by Enforcement Action: Case No.:____

6. ☒ Minor PTC ☐ Major PTC

FORMS INCLUDED

Included	N/A	Forms		DEQ Verify
☒	☐	Form CSPTC – Cover Sheet		☐
☒	☐	Form GI – Facility Information		☐
☒	☐	Form EU0 – Emissions Units General		☐
☐	☒	Form EU1– Industrial Engine Information	Please specify number of EU1s attached: ____	☐
☐	☒	Form EU2– Nonmetallic Mineral Processing Plants	Please specify number of EU2s attached: ____	☐
☒	☐	Form EU3– Spray Paint Booth Information	Please specify number of EU3s attached: 1	☐
☐	☒	Form EU4– Cooling Tower Information	Please specify number of EU3s attached: ____	☐
☐	☒	Form EU5 – Boiler Information	Please specify number of EU4s attached: ____	☐
☐	☒	Form CBP– Concrete Batch Plant	Please specify number of CBPs attached: ____	☐
☐	☒	Form HMAP – Hot Mix Asphalt Plant	Please specify number of HMAPs attached: ____	☐
☐	☒	PERF – Portable Equipment Relocation Form		☐
☐	☒	Form AO – Afterburner/Oxidizer		☐
☐	☒	Form CA – Carbon Adsorber		☐
☐	☒	Form CYS – Cyclone Separator		☐
☐	☒	Form ESP – Electrostatic Precipitator		☐
☐	☒	Form BCE– Baghouses Control Equipment		☐
☐	☒	Form SCE– Scrubbers Control Equipment		☐
☐	☒	Form VSCE – Venturi Scrubber Control Equipment		☐
☐	☒	Form CAM – Compliance Assurance Monitoring		☐
☒	☐	Forms EI-CP1 - EI-CP4– Emissions Inventory– criteria pollutants	(Excel workbook, all 4 worksheets)	☐
☒	☐	PP – Plot Plan		☐
☒	☐	Forms MI1 – MI4 – Modeling	(Excel workbook, all 4 worksheets)	☐
☒	☐	Form FRA – Federal Regulation Applicability		☐

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
EM Tanner & Sons	EM Tanner & Sons	P-2009.0102

4. Brief Project Description:	Modification to new paint both.

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	PAINT ROOM EXHAUST FANS
6.	EU ID Number:	PAINT1 AND PAINT2
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #:P-2009.0102 Date Issued: 09/30/2009
8.	Manufacturer:	
9.	Model:	
10..	Maximum Capacity:	24,000 ACFM
11.	Date of Construction:	2015
12.	Date of Modification (if any):	
13.	Is this a Controlled Emission Unit?	☐ No ☒ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	AFC Systems, PAINT1 & PAINT2
15. Date of Installation:	2015 16. Date of Modification (if any):
17. Manufacturer and Model Number:	Air Filtration Company; 5032
18. ID(s) of Emission Unit Controlled:	PAINT1 and PAINT2
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☒ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☒ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency	97.3%	97.3%				

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	1,825 HRS/YR
23.	Maximum Operation:	5,840 HRS/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☒ Yes ☐ No (If Yes, indicate all that apply below)
	☒ Operation Hour Limit(s):	5 AM TO 9PM
	☐ Production Limit(s):	
	☐ Material Usage Limit(s):	
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	See attached documentation

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

Emissions Unit - General **Form EU0**
Revision 4
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
EM Tanner & Sons	EM Tanner & Sons	P-2009.0102

4. Brief Project Description:	Modification - new usage of urethane B601

EMISSIONS UNIT (PROCESS) IDENTIFICATION & DESCRIPTION

5.	Emissions Unit (EU) Name:	RUBBER ROOM EXHAUST FAN
6.	EU ID Number:	EU002
7.	EU Type:	☐ New Source ☐ Unpermitted Existing Source ☒ Modification to a Permitted Source -- Previous Permit #: Date Issued:
8.	Manufacturer:	DAYTON
9.	Model:	3CC75
10..	Maximum Capacity:	16,000 ACFM
11.	Date of Construction:	1970
12.	Date of Modification (if any):	
13.	Is this a Controlled Emission Unit?	☒ No ☐ Yes If Yes, complete the following section. If No, go to line 22.

EMISSIONS CONTROL EQUIPMENT

14. Control Equipment Name and ID:	
15. Date of Installation:	16. Date of Modification (if any):
17. Manufacturer and Model Number:	
18. ID(s) of Emission Unit Controlled:	
19. Is operating schedule different than emission units(s) involved?	☐ Yes ☐ No
20. Does the manufacturer guarantee the control efficiency of the control equipment?	☐ Yes ☐ No (If Yes, attach and label manufacturer guarantee)

	Pollutant Controlled					
	PM	PM10	SO_2	NOx	VOC	CO
Control Efficiency						

21. If manufacturer's data is not available, attach a separate sheet of paper to provide the control equipment design specifications and performance data to support the above mentioned control efficiency.

EMISSION UNIT OPERATING SCHEDULE (hours/day, hours/year, or other)

22.	Actual Operation:	1,825 HRS/YR
23.	Maximum Operation:	8,760 HRS/YR

REQUESTED LIMITS

24.	Are you requesting any permit limits?	☐ Yes ☐ No (If Yes, indicate all that apply below)
	☐ Operation Hour Limit(s):	
	☐ Production Limit(s):	
	☒ Material Usage Limit(s):	CONSISTENT WITH CURRENT PERMIT
	☐ Limits Based on Stack Testing:	Please attach all relevant stack testing summary reports
	☐ Other:	
25.	Rationale for Requesting the Limit(s):	CONSISTENT WITH CURRENT PERMIT

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

Emissions Units - Spray Paint Booth Information **Form EU3**
Revision 5
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
EM Tanner & Sons	EM Tanner & Sons	P-2009-0102

4. Brief Project Description: Urethane B601 increase; update to paint booth

BOOTH INFORMATION

5. Booth Type:
☐ New Booth ☐ Unpermitted Existing Booth
☒ Modification to a Permitted Booth, Permit #: P-2009.0102, Date Issued: 09/30/2009

6. Construction Date:

SPRAY GUN DESCRIPTION AND SPECIFICATIONS

Gun No.	7. Manufacturer	8. Model	9. Type	10. Transfer Eff. %	11. Rated Capacity (gal/hr)
1	Graco			65%	3.34
2	N/A				
3	N/A				
4	N/A				

Number of guns to be used simultaneously: 1

SPRAY MATERIAL DESCRIPTION AND SPECIFICATIONS

12. Type of Spray Material Used	13. Type of Material Coated	14. Max. Usage (gal/day)	15. Solid TAP/HAP Content (lb/gal)	16. VOC TAP/HAP Content (lb/gal)	17. MSDS (Y/N)
Black enamel	Metal	53.44	0.57	0.67	Y
White enamel	Metal	53.44	0.50	0.82	Y
Orange enamel	Metal	53.44	0.41	0.67	Y

REQUEST FOR PERMIT LIMITATIONS

18. Are you requesting any permit limits? ☐ No ☒ Yes. If Yes, check all that apply below and fill in requested limit(s)

☒ Operation Hour Limits: 5AM to 9PM, 365 days per year
☐ Production Limits:
☐ Material Usage Limits:
☐ Other:

19. Rationale for Requesting the Limit(s): See attached documentation

EMISSION CONTROL DEVICE (FILTER [b]) DESCRIPTION AND SPECIFICATIONS

Stack Served	20. Filter Manufacturer	21. Model	22. PM Control Efficiency(%)[a]	23. Dimension (Total Area, Thickness and Number of Filters)
Stack 1	AMC Systems	5032	97.3%	24" x 24" 1"
Stack 2				
Stack 3				
Stack 4				

Notes: a. Provide either stack test data or vendor's documentation to support the control efficiency specified above.
b. Fill out and submit appropriate control equipment form(s) if this booth has a control device(s) other than a filter system.

BOOTH OPERATING SCHEDULE (indicate hours/day, hours/year, or other)

24. Actual Operation:	25. Maximum Operation:
1, 825 hrs/yr	16 hrs/day, 5,840 hrs/yr

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

Emissions Units - Spray Paint Booth Information **Form EU3**
Revision 5
08/28/08

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

IDENTIFICATION

1. Company Name:	2. Facility Name:	3. Facility ID No:
EM Tanner & Sons	EM Tanner & Sons	

4. Brief Project Description: Initial permit application for existing equipment fabricating and painting facility located in Blackfoot, ID

BOOTH INFORMATION

5. Booth Type: ☐ New Booth ☒ Unpermitted Existing Booth
☐ Modification to a Permitted Booth, Permit #: , Date Issued:

6. Construction Date: 1970

SPRAY GUN DESCRIPTION AND SPECIFICATIONS

Gun No.	7. Manufacturer	8. Model	9. Type	10. Transfer Eff. %	11. Rated Capacity (gal/hr)
1	Graco	President/Alpha Plus	Air assisted airless	65%	3.34
2	N/A				
3	N/A				
4	N/A				

Number of guns to be used simultaneously: 1

SPRAY MATERIAL DESCRIPTION AND SPECIFICATIONS

12. Type of Spray Material Used	13. Type of Material Coated	14. Max. Usage (gal/day)	15. Solid TAP/HAP Content (lb/gal)	16. VOC TAP/HAP Content (lb/gal)	17. MSDS (Y/N)
Xylene Solvent	Metal	53.44	0.0	7.17	Y
Aromatic Solvent	Metal	53.44	0.0	7.26	Y

REQUEST FOR PERMIT LIMITATIONS

18. Are you requesting any permit limits? ☐ No ☒ Yes. If Yes, check all that apply below and fill in requested limit(s)

☒ Operation Hour Limits: 5AM to 9PM, 365 days per year
☐ Production Limits:
☐ Material Usage Limits:
☐ Other:

19. Rationale for Requesting the Limit(s): See attached documentation

EMISSION CONTROL DEVICE (FILTER [b]) DESCRIPTION AND SPECIFICATIONS

Stack Served	20. Filter Manufacturer	21. Model	22. PM Control Efficiency(%)[a]	23. Dimension (Total Area, Thickness and Number of Filters)
Stack 1	AMC Systems	5032	97.3%	24"x24" x 1"
Stack 2				
Stack 3				
Stack 4				

Notes: a. Provide either stack test data or vendor's documentation to support the control efficiency specified above.
b. Fill out and submit appropriate control equipment form(s) if this booth has a control device(s) other than a filter system.

BOOTH OPERATING SCHEDULE (indicate hours/day, hours/year, or other)

24. Actual Operation: 1, 825 hrs/yr	25. Maximum Operation: 16 hrs/day, 5,840 hrs/yr

IDAHO DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION
1410 N. Hilton, Boise, ID 83706
For assistance, call the
Air Permit Hotline – 1-877-5PERMIT

Preapplication Meeting Information Form FRA (Federal Requirements Applicability) - Regulatory Review

In each box in the table below, CTRL+click on the blue underlined text for instructions and information.

IDENTIFICATION	
1. Company Name: EM Tanner & Sons	2. Facility Name: Blackfoot Facility
3. Brief Project Description:	Increase of urethane usage rate for B601; update to new paint booth.

APPLICABILITY DETERMINATION	
4. List all applicable subparts of the New Source Performance Standards (NSPS) (40 CFR part 60). List all non-applicable subparts of the NSPS which may appear to apply to the facility but do not. Examples of NSPS-affected emissions units include internal combustion engines, boilers, turbines, etc. Applicant must thoroughly review the list of affected emissions units.	List of all applicable subpart(s): List of all non-applicable subpart(s) which may appear to apply but do not: ☑ Not Applicable
5. List applicable subpart(s) of the National Emission Standards for Hazardous Air Pollutants (NESHAPs) (40 CFR part 61 and 40 CFR part 63). List all non-applicable subparts of the NESHAP which may appear to apply to the facility but do not. Examples of affected emission units include solvent cleaning operations, industrial cooling towers, paint stripping and miscellaneous surface coating. Reference EPA's webpage on NESHAPs for more information.	List of all applicable subpart(s): List of all non-applicable subpart(s) which may appear to apply but do not: HHHHHHH ☐ Not Applicable
6. For each subpart identified above, conduct a complete regulatory analysis using the instructions and referencing the example on the following pages. **Note** - Regulatory reviews must be submitted with sufficient detail so that DEQ can verify applicability and document in legal terms why the regulation does or does not apply. Regulatory reviews submitted with insufficient detail will be determined incomplete.	☐ A detailed regulatory review is provided (Follow instructions and example). ☑ DEQ has already been provided a detailed regulatory review. Give a reference to the document including the date. Letter from JBR 9/09 and EPA exemption letter

Appendix C EMISSIONS INVENTORTY

Pollutant	Actual Emissions		PTE Emissions		Δ PTE Emissions		Idaho TAP?	TAP EL (lb/hr)	
	lb/hr	tpy	lb/hr	tpy	lb/hr	tpy			
Xylene	20.36	0.07	20.36	0.34	0.00	0.00	Yes	29	
Ethyl Benzene	3.59	0.02	3.59	0.11	0.00	0.00	Yes	29	
Light Aromatic Solvent Naphtha	0.00	0.00	0.00	0.00	0.00	0.00	No		
Light Aromatic Hydrocarbons	1.00	0.19	1.00	0.92	0.00	0.00	No		
Cumene	1.45	0.02	1.45	0.09	0.00	0.00	Yes	16.3	
1,3,5-Trimethylbenzene	1.00	0.19	1.00	0.92	0.00	0.00	No		
1,2,4-Trimethylbenzene	5.33	0.39	5.33	1.86	0.00	0.00	No		
Trimethylbenzene (includes 1,3,5- and1,2,4-isomers)	6.33	0.58	6.33	2.77	0.00	0.00	Yes	8.2	
Carbon Black	0.01	0.00	0.01	0.00	0.00	0.00	Yes	0.23	
Zinc	0.03	0.01	0.03	0.03	0.00	0.00	Yes	0.667	
Titanium Dioxide	0.15	0.00	0.15	0.01	0.00	0.00	No		
Mineral Spirits	9.21	2.02	9.21	9.68	0.00	0.00	No		
Cr	4.38E-06	4.00E-06	4.38E-06	1.92E-05	0.00	0.00	Yes	0.033	
Co	4.38E-06	4.00E-06	4.38E-06	1.92E-05	0.00	0.00	Yes	0.0033	
Mn	0.001	0.001	0.001	0.006	0.00	0.00	Yes	0.067 (fume)	
Ni	4.380E-06	3.997E-06	4.380E-06	1.919E-05	0.00	0.00	Yes	2.70E-05	
Dichloromethane (methylene chloride)	0.01	0.01	0.01	0.01	0.00	0.00	Yes	1.60E-03	
Toluene-2,4-diisocyanate	0.06	0.27	0.12	0.51	0.06	0.25	Yes	0.003	Modeling required
Di(methylthio)toluenediamine (DMTDA)	436.50	3.20	436.50	15.34	0.00	0.00	No		
Bisphenol-A, Epichlorohydrin Polymer	0.03	0.03	0.03	0.13	0.00	0.00	Yes	0.1	
Propylene glycol methyl ether acetate	0.03	0.03	0.03	0.14	0.00	0.00	Yes	24	
Methyl ethyl ketone	0.05	0.05	0.05	0.22	0.00	0.00	Yes	39.3	
Toluene	0.01	0.01	0.01	0.04	0.00	0.00	Yes	25	
Dipropylene glycol monomethyl ether acetate	0.01	0.01	0.01	0.03	0.00	0.00	Yes	40	
Glycidoxypropyltrimethoxysilane	0.00	0.00	0.00	0.01	0.00	0.00	No		
Aliphatic Hydrocarbon	0.15	0.14	0.15	0.66	0.00	0.00	No		
VOCs	***24.47***	***3.48***	***24.47***	**16.70**	**0.00**	**0.00**			
PM (Pre) (95% control)	**0.307**	**0.101**	**0.307**	**0.486**	**-0.12**	**-0.13**			
PM (Post) (97.3% control)	***0.187***	***0.074***	***0.187***	**0.355**					
Total TAPs	***31.97***	***1.09***	***32.03***	***4.43***	**0.06**	**0.25**			

Total Actual Emissions

Product	Xylol		Solvent 100		Black Enamel		White Enamel		Burnt Orange Enamel		Total	
Pollutant	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
Xylene	20.36	0.06	0.73	0.01							20.36	0.07
Ethyl Benzene	3.59	0.01	0.00	0.00	0.05	0.00	0.07	0.00	0.05	0.01	3.59	0.02
Light Aromatic Solvent Naphtha			0.00	0.00							0.00	0.00
Light Aromatic Hydrocarbons					0.81	0.01	1.00	0.01	0.82	0.17	1.00	0.19
Cumene			1.45	0.02							1.45	0.02
1,3,5-Trimethylbenzene					0.81	0.01	1.00	0.01	0.82	0.17	1.00	0.19
1,2,4-Trimethylbenzene			5.33	0.07	1.35	0.01	1.66	0.02	1.37	0.29	5.33	0.39
Trimethylbenzene			0.00	0.00							0.00	0.00
Carbon Black					0.01	0.00					0.01	0.00
Zinc					0.01	0.00	0.03	0.00	0.02	0.01	0.03	0.01
Titanium Dioxide							0.15	0.00			0.15	0.00
Mineral Spirits					9.21	0.10	7.98	0.08	8.76	1.84	9.21	2.02
VOCs	23.95	0.07	24.25	0.31	12.76	0.13	12.30	0.13	12.60	2.64	***24.25***	***3.28***
PM	0.00	0.00	0.00	0.00	0.14	0.00	0.14	0.00	0.14	0.03	***0.14***	***0.03***
TAPS	23.95	0.07	7.52	0.10	2.23	0.02	2.73	0.03	2.25	0.47	***23.95***	***0.69***

Total PTE Emissions

Product	Xylol		Solvent 100		Black Enamel		White Enamel		Burnt Orange Enamel		Total	
Pollutant	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**	**lb/hr**	**tpy**
Xylene	20.36	0.29	0.73	0.04							***20.36***	***0.34***
Ethyl Benzene	3.59	0.05	0.00	0.00	0.05	0.00	0.07	0.00	0.05	0.06	***3.59***	***0.11***
Light Aromatic Solvent Naphtha			0.00	0.00							***0.00***	***0.00***
Light Aromatic Hydrocarbons					0.81	0.04	1.00	0.05	0.82	0.83	***1.00***	***0.92***
Cumene			1.45	0.09							***1.45***	***0.09***
1,3,5-Trimethylbenzene					0.81	0.04	1.00	0.05	0.82	0.83	***1.00***	***0.92***
1,2,4-Trimethylbenzene			5.33	0.33	1.35	0.07	1.66	0.08	1.37	1.38	***5.33***	***1.86***
Trimethylbenzene			0.00	0.00							***0.00***	***0.00***
Carbon Black					0.01	0.00					***0.01***	***0.00***
Zinc					0.01	0.00	0.03	0.00	0.02	0.02	***0.03***	***0.03***
Titanium Dioxide							0.15	0.01			***0.15***	***0.01***
Mineral Spirits					9.21	0.46	7.98	0.40	8.76	8.82	***9.21***	***9.68***
VOCs	23.95	0.34	24.25	1.48	12.76	0.64	12.30	0.62	12.60	12.67	***24.25***	***15.76***
PM	0.00	0.00	0.00	0.00	0.14	0.01	0.14	0.01	0.14	0.14	***0.14***	***0.15***
TAPS	23.95	0.34	7.52	0.46	2.23	0.11	2.73	0.14	2.25	2.26	***23.95***	***3.31***

Product Name:	Xylol (Xylene Solvent)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	8760	**Product Density:**	7.17	lbs/gal
Annual Potential Applied (lb/yr):	143	688	**Specific Gravity:**	0.86	
Annual Potential Applied (gal/yr):	20	96	% Volatiles:	100	
Max Hourly[1] lbs (lb/hr):	23.95	23.95	% Non-volatile	0	
Max Hourly[1] lbs (gal/hr):	3.34	3.34			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Xylene	1330-20-7	0.85	20.36	0.06	20.36	0.29
Ethyl Benzene	100-41-4	0.15	3.59	0.01	3.59	0.05
VOCs		1.00	23.95	0.07	23.95	0.34
PM		0.00	0.00	0.00	0.00	0.00

1. Maximum hourly product usage is limited by capacity of paint spray gun, which is 3.34 gallons/hr.

Product Name:	Solvent 100 (Aromatic Solvent)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	8760	**Product Density:**	7.26	lbs/gal
Annual Potential Applied (lb/yr):	617	2962	**Specific Gravity:**		
Annual Potential Applied (gal/yr):	85	408	% Volatiles:	100	
Max Hourly[1] lbs (lb/hr):	24.25	24.25	% Non-volatile:	0	
Max Hourly[1] lbs (gal/hr):	3.34	3.34			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Xylene	1330-20-7	0.03	0.73	0.01	0.73	0.04
Ethyl Benzene	100-41-4	0.00	0.00	0.00	0.00	0.00
Light Aromatic Slovent Naphtha	64-742-95-6	0.00	0.00	0.00	0.00	0.00
Cumene	98-82-8	0.06	1.45	0.02	1.45	0.09
1,2,4-Trimethylbenzene	95-63-6	0.22	5.33	0.07	5.33	0.33
Trimethylbenzene	25551-13-7	0.00	0.00	0.00	0.00	0.00
VOCs		1.00	24.25	0.31	24.25	1.48
PM		0.00	0.00	0.00	0.00	0.00

1. Maximum hourly product usage is limited by capacity of paint spray gun, which is 3.34 gallons/hr.

Product Name:	Industrial Coatings Silicone Alkyd DTM Enamel, Black				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	8760	**Product Density:**	8.11	lbs/gal
Annual Potential Applied (lb/yr):	568	2725	**VOC Content:**	3.82	lb/gal
Annual Potential Applied (gal/yr):	70	336	**Specific Gravity:**	0.98	
Max Hourly[1] lbs (lb/hr):	27.09	27.09	%Volatiles	47.1	by wt.
Max Hourly[1] lbs (gal/hr):	3.34	3.34	%Organic Volatiles	47.1	by wt.
			% Water	0	by wt.
			%Non-volatile	52.9	by wt.

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Mineral Spirits	64742-88-7	0.34	9.21	0.10	9.21	0.46
Ethyl Benzene	100-41-4	0.002	0.05	5.68E-04	0.05	2.72E-03
Light Aromatic Hydrocarbons	64742-95-6	0.03	0.81	0.01	0.81	0.04
1,3,5-Trimethylbenzene	108-67-8	0.03	0.81	0.01	0.81	0.04
1,2,4-Trimethylbenzene	95-63-6	0.05	1.35	0.01	1.35	0.07
Carbon Black[2]	1333-80-4	0.02	0.01	9.93E-05	0.01	4.77E-04
Zinc[2]		0.02	0.01	9.93E-05	0.01	4.77E-04
VOCs		0.47	12.76	0.13	12.76	0.64
PM[2]		0.53	0.14	1.42E-03	0.14	0.01

1. Maximum hourly product usage is limited by capacity of paint spray gun, which is 3.34 gallons/hr.
2. Assumes spray gun transfer efficiency of 65% and filter particulate capture efficiency of 97.3%.

Product Name: Industrial Coatings Silicone Alkyd DTM Enamel, White

	Actual	PTE			
Facility Operating Hours (hr/yr):	1,825	8760	**Product Density:**	9.95	lbs/gal
Annual Potential Applied (lb/yr):	697	3343	**VOC Content:**	3.71	lb/gal
Annual Potential Applied (gal/yr):	70	336	**Specific Gravity:**	1.2	
Max Hourly[1] lbs (lb/hr):	33.23	33.23	%Volatiles	55	by wt.
Max Hourly[1] lbs (gal/hr):	3.34	3.34	%Organic Volatiles		by wt.
			% Water		by wt.
			%Non-volatile	45	by wt.

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Mineral Spirits	64742-88-7	0.24	7.98	0.08	7.98	0.40
Ethyl Benzene	100-41-4	0.002	0.07	0.00	0.07	0.00
Light Aromatic Hydrocarbons	64742-95-6	0.03	1.00	0.01	1.00	0.05
1,3,5-Trimethylbenzene	108-67-8	0.03	1.00	0.01	1.00	0.05
1,2,4-Trimethylbenzene	95-63-6	0.05	1.66	0.02	1.66	0.08
Titanium Dioxide[2]	13463-67-7	0.25	0.15	0.00	0.15	0.01
Zinc[2]		0.05	0.03	0.00	0.03	0.00
VOCs		0.37	12.30	0.13	12.30	0.62
PM[2]		0.45	0.14	0.00	0.14	0.01

1. Maximum hourly product usage is limited by capacity of paint spray gun, which is 3.34 gallons/hr.
2. Assumes spray gun transfer efficiency of 65% and filter particulate capture efficiency of 97.3%.

Product Name: Industrial Coatings Silicone Alkyd DTM Enamel, Burnt Orange

	Actual	PTE			
Facility Operating Hours (hr/yr):	1,825	8760	**Product Density:**	8.2	lbs/gal
Annual Potential Applied (lb/yr):	11,480	55104	**VOC Content:**	3.77	lb/gal
Annual Potential Applied (gal/yr):	1,400	6720	**Specific Gravity:**	0.99	
Max Hourly[1] lbs (lb/hr):	27.39	27.39	%Volatiles	46	by wt.
Max Hourly[1] lbs (gal/hr):	3.34	3.34	%Organic Volatiles	46	by wt.
			% Water	0	by wt.
			%Non-volatile	54	by wt.

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Mineral Spirits	64742-88-7	0.32	8.76	1.84	8.76	8.82
Ethyl Benzene	100-41-4	0.002	0.05	0.01	0.05	0.06
Light Aromatic Hydrocarbons	64742-95-6	0.03	0.82	0.17	0.82	0.83
1,3,5-Trimethylbenzene	108-67-8	0.03	0.82	0.17	0.82	0.83
1,2,4-Trimethylbenzene	95-63-6	0.05	1.37	0.29	1.37	1.38
Zinc[2]		0.05	0.02	0.01	0.02	0.02
VOCs		0.46	12.60	2.64	12.60	12.67
PM[2]		0.54	0.14	0.03	0.14	0.14

1. Maximum hourly product usage is limited by capacity of paint spray gun, which is 3.34 gallons/hr.
2. Assumes spray gun transfer efficiency of 65% and filter particulate capture efficiency of 97.3%.

Welding Emissions

Pollutant	Emission Factor[1] ($lb/10^3$ lb of electrode consumed)	Actual Emissions		PTE Emissions	
		lb/hr	tpy	lb/hr	tpy
PM10	5.2	2.28E-02	2.08E-02	2.28E-02	9.98E-02
Cr	0.001	4.38E-06	4.00E-06	4.38E-06	1.92E-05
Cr(VI)	ND	n/a	n/a	n/a	n/a
Co	0.001	4.38E-06	4.00E-06	4.38E-06	1.92E-05
Mn	0.318	1.39E-03	1.27E-03	1.39E-03	6.10E-03
Ni	0.001	4.38E-06	4.00E-06	4.38E-06	1.92E-05
Pb	ND	n/a	n/a	n/a	n/a

1. From AP-42 Table 12.19-1 and 12.19-2
GMAW Welding with Electrode E70S
2. Metal emission factors were updated to reflected the correct value

Actual Amt of Electrode Used per year =	7994	lbs	1825 operating hours
PTE Amt of Electrode Used per year =	38371.2	lbs	8760 operating hours

Product Name:	Methylene Chloride (mold casting operation cleaner)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	2,464	**Product Density:**	10.96	lbs/gal
Annual Potential Applied (lb/yr):	1,206	1,628	**Specific Gravity:**	1.32	
Annual Potential Applied (gal/yr):	110	149	% Volatiles:	100	
Max Hourly[1] lbs (lb/hr):	0.66	0.66	% Non-volatile	0	
Max Hourly[1] lbs (gal/hr):	0.06	0.06			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Dichloromethane (methylene chloride)	75-09-2	0.99	0.01	0.01	0.01	0.0081
VOCs		1.00	0.01	0.01	0.01	0.0081

1. Mark X Hydrospencer capacity is 450 lb/hr.
2. Emissions are associated only with volume of volitalized Methylene Chloride, approximately 99% of the Methylene Chloride is recaptured in output tank.
3. PTE assumes 35% above current production due to workforce and facility space limitations.

Product Name:	Vibrathane B601 (Prepolymer, Resin)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	1,825	**Product Density:**	9.24	lbs/gal
Annual Potential Applied (lb/yr):	7,113	9,602	**Specific Gravity:**	1.11	
Annual Potential Applied (gal/yr):	770	1040	% Volatiles:	n/a	
Max Hourly[1] lbs (lb/hr):	3.90	5.26	% Non-volatile	n/a	
Max Hourly[1] lbs (gal/hr):	0.42	0.57			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Toluene-2,4-diisocyanate	584-84-9	0.02	0.02	0.08	0.02	0.11

PTE assumes 35% above current production due to workforce and facility space limitations.

Max short term emissions for TDI would occur when either B601 or B809 is being utilized all day since B601 and B809 are not being utilized at the same time. Since B809 is used in greater quantities it will be utilized for the Max short term PTE for TDI

Emissions of TDI only occur at initial resin mixing per hopper load after that period Resin become non-volitile. Max emissions would occur from 5 or less emissions hours per day so lb/hr rates were scaled by 5/24th

Product Name:	Vibrathane B809 (Reaction product, resin)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	1,825	**Product Density:**	8.90	lbs/gal
Annual Potential Applied (lb/yr):	64,157	86,611	**Specific Gravity:**	1.07	
Annual Potential Applied (gal/yr):	7,205	9,727	% Volatiles:	n/a	
Max Hourly[1] lbs (lb/hr):	35.15	47.46	% Non-volatile	n/a	
Max Hourly[1] lbs (gal/hr):	3.95	5.33			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Toluene-2,4-diisocyanate(1) toluene-2,6 -diisocyanate (2) mixture	26471-62-5	0.01	0.04	0.19	0.06	0.26

PTE assumes 35% above current production due to workforce and facility space limitations.
Max short term emissions for TDI would occur when either B601 or B809 is being utilized all day since B601 and B809 are not being utilized at the same time.
Emissions of TDI only occur at initial resin mixing per hopper load after that period Resin become non-volitile. Max emissions would occur from 5 or less emissions

Product Name:	Ethacure 300 (hardener)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	8,760	**Product Density:**	9.99	lbs/gal
Annual Potential Applied (lb/yr):	6,591	31,637	**Specific Gravity:**	1.2	
Annual Potential Applied (gal/yr):	660	3,168	% Volatiles:	n/a	
Max Hourly[1] lbs (lb/hr):	450.00	450.00	% Non-volatile	n/a	
Max Hourly[1] lbs (gal/hr):	45.06	45.06			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Di(methylthio)toluenediamine (DMTDA)	106264-79-3	0.97	436.50	3.20	436.50	15.34

1. Mark X Hydrospencer capacity is 450 lb/hr.

Product Name:	Thioxin™ 423 Clear (adhesive)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	8,760	**Product Density:**	7.72	lbs/gal
Annual Potential Applied (lb/yr):	232	1,112	**Specific Gravity:**	0.93	
Annual Potential Applied (gal/yr):	30	144	% Volatiles:	77	
Max Hourly lbs (lb/hr):	0.13	0.13	% Non-volatile	23	
Max Hourly lbs (gal/hr):	0.02	0.02			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Bisphenol-A, Epichlorohydrin Polymer	25068-38-6	0.24	0.03	0.03	0.03	0.13
Propylene glycol methyl ether acetate	108-65-6	0.25	0.03	0.03	0.03	0.14
Methyl ethyl ketone	78-93-3	0.40	0.05	0.05	0.05	0.22
Toluene	108-88-3	0.08	0.01	0.01	0.01	0.04
Dipropylene glycol monomethyl ether acetate	88917-22-0	0.05	0.01	0.01	0.01	0.03
Glycidoxypropyltrimethoxysilane	2530-83-8	0.02	0.00	0.00	0.00	0.01
VOCs		0.77	0.10	0.09	0.10	0.43
PM[2]		0.23	0.00	0.00	0.00	0.00

2. Assumes paint brush/rag transfer efficiency of 95% and filter particulate capture efficiency of 95%.

Product Name:	M800 Urethane Release					1.15E-04
	Actual	**PTE**				5.04E-04
Facility Operating Hours (hr/yr):	1,825	8,760	**Product Density:**	6.14	lbs/gal	
Annual Potential Applied (lb/yr):	307	1,475	**Specific Gravity:**	0.74		
Annual Potential Applied (gal/yr):	50	240	% Volatiles:	90		
Max Hourly lbs (lb/hr):	0.17	0.17	% Non-volatile	10		
Max Hourly lbs (gal/hr):	0.03	0.03				

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Aliphatic Hydrocarbon	64741-66-8	0.90	0.15	0.14	0.15	0.66
NJ Trade Secret Registry[3]	80100382-5083P	0.10	0.02	0.02	0.02	0.07
VOCs		0.90	0.11	0.10	0.11	0.50
PM[2]		0.10	0.00	0.00	0.00	0.00

2. Assumes paint brush/rag transfer efficiency of 95% and filter particulate capture efficiency of 95%.
3. Per Jonathan Crothers, Stoner Inc. (manufacturer of M800 Urethane Release), M800 does not contain any Idaho TAPs. Trade Sectret component is solids, does not contain VOCs.

Proposed

Product Name:	Vibrathane B601 (Prepolymer, Resin)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	1,825	**Product Density:**	9.24	lbs/gal
Annual Potential Applied (lb/yr):	34,215	46,190	**Specific Gravity:**	1.11	
Annual Potential Applied (gal/yr):	3,704	5,000	% Volatiles:	n/a	
Max Hourly[1] lbs (lb/hr):	18.75	25.31	% Non-volatile	n/a	
Max Hourly[1] lbs (gal/hr):	2.03	2.74			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Toluene-2,4-diisocyanate	584-84-9	0.02	0.09	0.38	0.12	0.51

Proposed

Product Name:	Vibrathane B809 (Reaction Product, Resin)				
	Actual	**PTE**			
Facility Operating Hours (hr/yr):	1,825	1,825	**Product Density:**	8.90	lbs/gal
Annual Potential Applied (lb/yr):	659	890	**Specific Gravity:**	1.07	
Annual Potential Applied (gal/yr):	74	100	% Volatiles:	n/a	
Max Hourly[1] lbs (lb/hr):	0.36	0.49	% Non-volatile	n/a	
Max Hourly[1] lbs (gal/hr):	0.04	0.05			

Volatile Component	CAS No.	Max Wt. Fraction	Emissions (lb/hr)	Emissions (T/yr)	PTE Emissions (lb/hr)	PTE Emissions (T/yr)
Toluene-2,4-diisocyanate(1) toluene-2,6 - diisocyanate (2) mixture	26471-62-5	0.01	4.51E-04	1.98E-03	6.09E-04	2.67E-03

0.06

Modeling Results						
		Background Concentration ($\mu g/m^3$)	Modeling Impact ($\mu g/m^3$)	Increment Concentration ($\mu g/m^3$)	AACC (µg/m3)	% of Standard
TDI	24-hr	--	1.93	1.93	2.00	96.6%
Trimethylbenzene	24-hr	--	473.78	473.78	6150.00	7.7%
		Background Concentration ($\mu g/m^3$)	Modeling Impact ($\mu g/m^3$)	Total Concentration ($\mu g/m^3$)	NAAQS (µg/m3)	% of Standard
PM10	24-hr	81	5.53	86.53	150.00	57.7%
PM2.5	24-hr	7.3	4.45	11.75	35.00	33.6%
PM2.5	Annual	2.8	0.36	3.16	12.00	26.3%

Appendix D MODELING REPORT

Idaho DEQ Impact Modeling Analyses Report Form

1.0 Summary

This air quality modeling report documents the proposed methodology used to prepare an air quality analysis in support of an Idaho Department of Environmental Quality (IDEQ) Permit to Construct (PTC) application for the EM Tanner and Sons facility located in Blackfoot, ID. This is a modification to the initial PTC, P-2009.0102, issued September 30, 2009. Only the usage of one product is changing, urethane Vibrathane B601. The annual usage is proposed to increase to 5,000 gallons from 1,040 gallons.

2.0 Project Description and Background as it Relates to Modeling Analyses

Raw metal is received at the facility. The metal pieces then may be bent, cut and welded together to form the desired piece of equipment. On occasion, a part must be made using a urethane mold casting operation. The machine components are then brought into a booth in the paint room.

Once the machine components have been fabricated they are brought into the paint room. Tanner applies a base coat and top coat paint to each part in the same spray booth. Equal amount of base coat and top coat are applied. The paint comes in five gallons pails and is sprayed directly from the container. Generally, thinning of the paint is not done at the facility. However, on occasion and depending on the temperature and/or atmospheric pressure, a small amount of solvent is added to the paint. The paint is dispersed by a spray gun which has a maximum capacity of 3.34 gallons/ hour. Currently, painting the parts is performed at a maximum of 5 hours/day, year around, resulting in a maximum total of 1,825 hours/year.

Tanner uses three paint colors – black, white, and burnt orange enamel. Only one type of paint is used at a time and only a small amount of solvent is added to the paint. However, to be conservative, the emissions used in the original air dispersion model assume the material being sprayed contains the highest concentration of each constituent. Painting emissions remain unchanged from the previous permitting action.

The paint booth has been updated by AMC Finishing Systems. The previous filtration system and paint booth described in the current PTC has been dismantled and a new booth was constructed. The particulate filter efficiency has increased from 95% to 97.3%. New exhaust parameters were developed.

Note that no emissions associated with the paint room are increasing from the 2009 permit. All toxic pollutant emissions are unchanged and particulates have decreased.

2.1 Location of Project

A protocol was developed by USEPA to classify an area as either rural or urban for dispersion modeling purposes. AERMOD, the EPA-approved dispersion modeling tool utilized in this analysis, includes rural and urban algorithm options. These options affect the wind speed profile, dispersion rates, and mixing-height formula used in calculating ground-level pollutant concentrations. The rural or urban classification is based on average heat flux, land use, or population density within a three-km radius from the plant site. Of these techniques, the USEPA has specified that land use is the most definitive criterion (USEPA, 1987). The urban/rural classification scheme based on land use is as follows:

> *The land use within the total area, A_0, circumscribed by a 3-km circle about the source, is classified using the meteorological land use typing scheme proposed by Auer (1978). The classification scheme requires that more than 50% of the area, A0, be from the following land use types in order to be considered urban for dispersion modeling purposes: heavy industrial (I1); light-moderate industrial (I2); commercial (C1); single-family compact residential (R2); and multi-family compact residential (R3). Otherwise, the use of rural dispersion coefficients is appropriate.*

The Tanner facility is located in a rural area, in Blackfoot, ID. Although the immediate vicinity of the site is a mix of industrial and commercial usage, site and map reconnaissance showed that the area A_0 within a 3-km circle of the source is below the 50% urban land use criteria necessary for use of urban dispersion coefficients. Rural dispersion coefficients were therefore used in the air quality dispersion modeling.

Bingham County is designated as an attainment or unclassified area for all other criteria pollutants. The facility is located at 390,548 mE and 4,783,617 mN, UTM zone 12 NAD 83. A map showing the geographical location of the facility is provided within Appendix A of the application.

2.2 Existing Permits and Modeling Analyses Performed

Tanner currently operates under permit P-2009.0102, issued September 30, 2009. That was the facility's initial air quality permit. Facility-wide modeling was conducted for the paint and rubber rooms. Welding operations were also modeled by DEQ within the paint room. At the time, nickel was modeled, but it has since been determined that the emission factors applied were off by a factor of 10 and that the emission rate was not an annual average value. When those adjustments are made, the total nickel emissions do not exceed the applicable screening level. The 2009 modeling analysis also included PM_{10} and a handful of toxic pollutants. These included: Trimethylbenzene, Toluene-2,4-diisocyanate (TDI) and methylene chloride.

3.0 Modeling Analyses Applicability

Two changes are proposed that affect ambient analysis. First, the amount of Vibrathane B601 is increasing to 5,000 gallons per year from 1,040 gallons. As a result, the level of TDI being emitted will increase. Secondly, the paint room has been moved and has an improved filtration system. Because of these updates, the incremental change of TDI is evaluated as is trimethylbenzene. The emissions are unchanged, but parameters and location is new. In addition, PM_{10} is reevaluated. Lastly, to ensure compliance with $PM_{2.5}$, an analysis was also conducted. For the purposes of this analysis, $PM_{2.5}$ is assumed to be equivalent to PM_{10}.

3.1 Applicable Standards

National Ambient Air Quality Standards (NAAQS), along with significant impact levels (SILs), for Criteria Pollutants are listed in Table 1.

Table 1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] (µg/m^3)[b]	Regulatory Limit[c] (µg/m^3)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/m^3)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

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

Applicable toxic air pollutant (TAP)-specific increment standards are provided in Sections 585 and 586 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho. Estimated TAP emissions, and TAP emission increases, resulting from the proposed project are provided in Table 2.

Table 2 TAP ELs AND AACs/AACCs

TAP	Non-Carcinogen or Carcinogen	Screening Emissions Level (EL)[a] (lb/hr)	AAC or AACC[b] (µg/m^3)
TDI	Non-Carcinogenic	0.003	2
Trimethylbenzene	Non-Carcinogenic	8.2	6,150

a. ELs from Idaho Air Rules Section 585 and 586 in pounds/hour.
b. Acceptable Ambient Concentration (AAC) or Acceptable Ambient Concentration for a Carcinogen (AACC) from Idaho Air Rules Section 585 and 586, in micrograms/cubic meter or milligrams/cubic meter. Note that AACs listed in Idaho Air Rules Section 585 are expressed in units of milligrams/cubic meter rather than micrograms/cubic meter.

3.2 Criteria Pollutant Modeling Applicability

There is no emissions increase of any criteria pollutants associated with this project. However, particulate emissions are reevaluated because of a change in location and stack parameters. It should be noted that the control efficiency of the new filters are an improvement from the 2009 permit resulting in a net decrease of the model emission rates.

Table 3 MODELING APPLICABILITY		
Criteria Pollutant	**Modeled (yes/no)**	**Basis for Exclusion from Modeling**
$PM_{2.5}$ 24-hour	Yes	___BRC Exempt[a] ___Emissions Below Level l Thresholds[b] ___Emissions Below Level II Thresholds[c]
$PM_{2.5}$ annual	Yes	___BRC Exempt ___Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
PM_{10} 24-hour	Yes	___BRC Exempt ___Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
NO_2 1-hour	No	___BRC Exempt X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
NO_2 annual	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
SO_2 1-hour, 3-hour	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
SO_2 annual	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
CO 1-hour, 8-hour	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds

a. If the project would have qualified for a Category I BRC permitting exemption for the criteria pollutant in question, as per Idaho Air Rules Section 221.01, except for the emissions quantities of another criteria pollutant, then a NAAQS compliance analysis is not required under Section 203.02 or 403.02 for that criteria pollutant.

b. Level I Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ's non-site-specific modeling analyses.

c. Level II Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ's non-site-specific modeling analyses. Level II Modeling Thresholds can only be used with prior DEQ approval.

Emissions calculations, that clearly show how the modeling applicability determination was performed, are provided in Appendix C of the application and discussed in the application itself.

3.3 TAP Modeling Applicability

As stated above, one TAP, TDI, exceeded the screening emission level (EL) due the increase of usage. Also, trimethylbenzene was modeled. As such, a dispersion modeling analysis was conducted for both pollutants.

3.4 Modeling Protocol

A modeling protocol was not submitted, because the amount and level of effort to conduct the analysis was quite minimal and many conservative measures were taken.

4.0 Modeled Emissions Sources

No emissions from toxic pollutants associated the paint room are changing, only the location and exhaust parameters. Only one TAP within the paints utilized by Tanner exceeded the applicable screening emission level (trimethylbenzene). In review of the 2009 modeling analysis, an emission rate of 12.35 lb/hr was modeled for 16 hr/day. Because IDAPA 58.01.01.585 identifies screening levels as lb/hr 24-hr average, the modeled lb/hr rate could have been 8.23 lb/hr allocated across the total 24-hr period. However, to ensure maximum conservatism 12.35 lb/hr was modeled again.

Particulate emissions have decreased due to improved filtration. To ensure compliance for both PM2.5 and PM10 standards particulate modeling was conducted. It should be noted that the Rubber Room emission rates were updated to correlate with the 2009 DEQ Verification rates of 1.15E-04 lb/hr for the 24-hr averaging period and 5.04E-04 tpy annually. Only the Thioxin and M800 contain particulates used in the Rubber Room.

The paint room originally modeled 0.26 lb/hr of particulate allocated over 16 hours. DEQ Verification included welding PM emissions to increase the total rate by 2.28E-02 lb/hr. The modeled rate is 0.285 lb/hr for 16 hours. The annual modeled rate was DEQ Verified to be 0.26 tpy or 0.0894 lb/hr. However, the control efficiency has increased from 95% to 97.3% decreasing the emission rates. Welding particulate is assumed to be unchanged, but the painting operations lowered to 0.14 lb/hr. The actual emission rate is 0.14 + 0.0228 = 0.1628 lb/hr for 16 hours. Annual emissions are reduced to 0.15 tpy * 2/3 for the 16 hours per day = 0.10 tpy + welding of 0.067 tpy (from 2009 DEQ verification memo) = 0.167 tpy. The new paint room has two exhaust points. Therefore, the emissions were allocated evenly between the two points.

Lastly it should be noted, that nickel associated from welding operations was previously modeled during the DEQ Verification. However, it has been discovered that incorrect emissions factors were applied. AP-42 Table 12.19-2 identifies HAP emission factors in 10^{-1} lb/1000 lb of electrode. The factors originally assumed lb/1000 lb electrode and the total nickel welding emissions did not calculate a lb/hr annual average rate for comparison against the screening level. When those adjustments are made, nickel does not exceed the EL and therefore does not require dispersion modeling.

4.1 Criteria Pollutants

The net result of particulate emissions within the Paint room was a reduction due to changes in the filtration and the parameters improved. The original modeling assumed a stack height of only 3 ft and a velocity equivalent to 0.001m/s. The new system is on the top of the roof at a height from ground level of 20 feet and the exhaust fan has a flow rate of 24,000 acfm. Thus, the parameters are an improvement to ensure better dispersion and lower emissions result in a greatly reduced impact.

4.1.1 Modeled Emissions Rates for Cumulative Impact Analyses

Emission rates were developed in concert with updated emission calculations provided in Appendix C of the application and modifications made during the DEQ Verification run in 2009. Table 4 below outlines the updated rates. Also, a through discussion of the development is described above.

TABLE 4 MODELED EMISSIONS RATES FOR CRITERIA ANALYSES

Source ID	Source Description	PM2.5 (lb/hr)	PM2.5 (tpy)	PM10 (lb/hr)
PAINTEX1	Paint room exhaust #1	0.0814	0.0435	0.0835
PAINTEX2	Paint room exhaust #2	0.0814	0.0435	0.0835
RUBBEREX	Rubber room exhaust	1.15E-04	5.04E-04	1.15E-04

4.2 Toxic Air Pollutants

TDI emissions are increased due to a higher desired throughput of B601 urethane. Previous modeling identified the worst-case TDI emissions scenario between B601 and B809. Maximum usage does not exceed 5 hours per day and only one urethane can be utilized at a time because of gun restriction (only one gun). The previous modeling evaluated 0.06 lb/hr 24-hr average. That was set as the baseline for the current evaluation. Based on 5,000 gallons per year, the total amount of B601 averaged over 24-hr equates to 0.12 lb/hr or a net incremental increase of 0.06 lb/hr. TDI is not emitted from the paint room.

Trimethylbenzene emissions are remaining unchanged (modeled as 12.35 lb/hr in 2009). This is an aggregate rate between all paints containing the TAP. The paint room applies an hour of day factor consistent with the 2009 modeling (4:00 AM to 8:00 PM). The total emission rate is allocated even between the two exhaust points.

TABLE 5 MODELED EMISSIONS RATES FOR TAP ANALYSES

Source ID	Source Description	TAP	Averaging Period	Emissions[a] (lb/hr)
PAINTEX1	Paint room exhaust #1	TDI	24-hr	0
PAINTEX2	Paint room exhaust #2	TDI	24-hr	0
RUBBEREX	Rubber room exhaust	TDI	24-hr	0.06
PAINTEX1	Paint room exhaust #1	Trimeth	24-hr	6.175
PAINTEX2	Paint room exhaust #2	Trimeth	24-hr	6.175
RUBBEREX	Rubber room exhaust	Trimeth	24-hr	0

a. Pounds/hour emissions rate modeled is the project-specific increase in potential/allowable emissions increase for the averaging period specified for the TAP.

Emissions rates in Table 5 are identical to those in the model input file for TAP analyses.

4.3 Emissions Release Parameters

All emission release parameters are based on 2009 exhaust temperatures, manufacturer supplied data, or direct measurement data supplied by the facility. Table 6 lists stack parameters for all point sources.

Table 6 POINT SOURCE STACK PARAMETERS

Release Point	Description	UTM[a] Coordinates		Stack Height (ft)	Stack Gas Flow Temp. (F)[c]	Stack Exit Velocity (m/s)[d]	Modeled Stack Diameter (in)	Orient. Of Release[e]
		Easting-X (m)[b]	Northing-Y (m)					
PAINTEX1	Paint Room Exhaust #1	390528	4783638	20	72	12.67	42	Vertical
PAINTEX2	Paint Room Exhaust #2	390529	4783631	20	72	12.67	42	Vertical
RUBBEREX	Rubber Room Exhaust	390562	4783569	25	72	35.57	24	Vertical

a. Universal Transverse Mercator.
b. Meters.
c. Fahrenheit; all are either derived from the 2009 modeling or assumed to be equivalent to 2009 modeling
d. meters per second
e. Vertical uninterrupted, rain-capped, or horizontal release.

__X___The specific methods used to determine/calculate given release parameters is described in this section.

__X__The release orientation of all point source stacks (horizontal, rain-capped, or uninterrupted vertical release) has been verified and is documented in this section.

All building heights and subsequent stack heights were directly measured by Tanner staff or derived from the previous 2009 analysis. Exhaust air flow from the Paint room was derived from email correspondence with the manufacturer and the rubber room remained unchanged from 2009. Temperatures were unchanged and allocated to the new point sources.

5.0 Modeling Methodology

Table 7 summarizes the key modeling parameters used in the impact analyses.

Table 7 MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Meridian, Idaho	The area is an attainment, maintenance or unclassified area for all criteria pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181
Meteorological Data	Boise surface data Boise upper air data	The meteorological model input files for this project were developed by IDEQ. See Section 5.2 of this memorandum for additional details of the meteorological data.
Terrain	Considered	3-dimensional receptor coordinates were obtained from USGS National Elevation Dataset (NED) files and were used to establish elevation of ground level receptors. AERMAP was used to determine each receptor elevation and hill height scale.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NOx Chemistry	NA	NOx modeling was not required for this project.
Receptor Grid	**Significant Impact Analyses**	
	Grid 1	10-meter spacing along the ambient air boundary

	Grid 2	10-meter spacing in a 270 meter (easting) by 250 meter (northing) grid centered on the facility
	Grid 3	25-meter spacing in a 400 meter (easting) by 400 meter (northing) grid centered on Grid 2
	Grid 4	50-meter spacing in a 700 meter (easting) by 600 meter (northing) grid centered on Grid 3
	Grid 5	100-meter spacing in a 1.3 kilometer (easting) by 1.2 kilometer (northing) grid centered on Grid 4
	Grid 6	250-meter spacing in a 2.5 kilometer (easting) by 2.25 kilometer (northing) grid centered on Grid 5
	Grid 7	500-meter spacing in a 5.0 kilometer (easting) by 4.5 kilometer (northing) grid centered on Grid 6
	NAAQS Analyses	
	List if different from grid used for Significant Impact Analyses	
	TAPs Analyses	
	List if different from grid used for Significant Impact Analyses	

5.1 Model Selection

AERMOD version 15181 was used for the modeling analyses to evaluate impacts of the Tanner facility. This is the current version of the regulatory guideline model.

__X__The current versions of all models and associated programs were used in analyses, or alternate versions were specifically approved by DEQ.

____Any non-default model options used were approved by DEQ in advance.

5.2 Meteorological Data

Preprocessed AERMOD ready meteorological files were provided by Darrin Mehr of IDEQ. The data files cover the years 2008 through 2012 from the Pocatello Regional Airport. The data is hourly from the National Weather Service Automated Surface Observing System (ASOS). The data presented by IDEQ is model-ready, and was used without alteration or processing. These data originated from IDEQ, but has been included as part of this submittal.

__X__Meteorological data files are provided with the application.

5.3 Effects of Terrain

All source base and receptor elevations were calculated from USGS NED data obtained via the National Map Viewer website using the Bee-Line BEEST preprocessing system. A 1/3 arc second NED file was used in the analysis Input and output files from AERMAP will be included on the associated DVD.

__X__The datum of terrain data, building corner locations, emissions sources, and the ambient air boundary are specified and are consistent such that the modeled plot plan accurately represents the facility and surroundings.

5.4 Facility Layout

The image shown below identifies the general location of the Tanner facility.

__X__The facility layout plot plan is provided in this section that clearly and accurately depicts buildings, emissions points, and the ambient air boundary.

5.5 Effects of Building Downwash

Building downwash effects were determined using the BPIP – Prime algorithm. There are two commercial buildings to the east of the property that were incorporated into the analysis. The Tanner buildings include: the main building and the shop.

5.6 Ambient Air Boundary

The ambient air boundary is defined by Airport Road to the east and residential areas in all other three cardinal directions. There is signage surrounding the facility identifying private property and fencing to the north.

__X__This section thoroughly describes how the facility can legally preclude public access (and practically preclude access) to areas excluded from ambient air in the modeling analyses.

5.7 Receptor Network

__X__This section of the Modeling Report provides justification that receptor spacing used in the air impact analyses was adequate to reasonably resolve the maximum modeled concentrations to the point that NAAQS or TAP compliance is assured.

The facility is located in Blackfoot, ID. The property covers approximately 4.3 acres. Consistent with IDEQ guidance, the ambient air boundary used in this analysis is the property boundary, which also serves as the public access boundary.

Receptor density will be set to a spacing of 10 meters along the ambient air boundary, 10 meters for the first 50 meters past the boundary, then receptors were set at a density of one per 25 meters out to 100 meters away from the ambient air boundary, 50 meters out to 200 meters from the ambient air boundary, 100 meters out to another 500 meters, 250 meter spacing for another kilometer and 500 meters out to 5.0 kilometers past the ambient air boundary.

The receptor network ensures that the analysis meets or exceeds EPA receptor network requirements and captures the maximum impact from the facility. Therefore, no supplemental receptor network or expansion of the model domain is included.

5.8 Background Concentrations

Background concentrations for both $PM_{2.5}$ and PM_{10} were obtained via the Northwest Quest Consortium developed by Washington State University. $PM_{2.5}$ values applied were 7.3 $\mu g/m^3$ and 2.8 $\mu g/m^3$. These concentrations were used in the compliance demonstration. PM_{10} is 81 $\mu g/m^3$.

Only TAPs were necessary to model. Therefore, no background values were applied.

__X__ Background concentrations have been thoroughly documented and justified for all criteria pollutants where a cumulative NAAQS impact analysis was performed.

5.9 NOx Chemistry

NO_x chemistry was not evaluated because NO_2 compliance was not required for this project.

6.0 Results and Discussion

The air quality impact limits applicable to this analysis are both the NAAQS and the Idaho ambient impact limits for TAPs. Model predicted maximum impacts were the 8th high averaged over the 5 years modeled for 24-hr $PM_{2.5}$ and the highest 1st high for annual $PM_{2.5}$. IDEQ modeling staff has also confirmed that secondary aerosol analysis is not required when the impacts occur within a short distance of the ambient air boundary. PM_{10} uses the design value that is one greater than the number of

metrological years. That equates to an exceedance no more than once in any calendar year. There are five years of met data meaning the design value is the 6th high over that five year period. All TAPs that exceed the emission screening level are considered 24-hr non-carcinogenic pollutants.

6.1 Criteria Pollutant and TAP Impact Results

The tables shown below in section 6.1.2 demonstrate that there is no exceedance of any criteria pollutant or incremental exceedance of any toxic air pollutants due to the increase TDI and modification to the paint room.

6.1.1 Significant Impact Level Analyses

A significance analysis is not necessary for this project because facility-wide modeling has been completed for all applicable criteria pollutants.

6.1.2 Cumulative NAAQS Impact Analyses

Table 8 provides results of Cumulative NAAQS Impact analyses with the airport remaining operational.

6.2 TAP Impact Analyses

Table 8 provides results for TAP impact analyses.

Table 8. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES WITH AIRPORT

Pollutant	Averaging Period	Modeled Design Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$[b]	24-hour	4.45[d]	7.3	11.75[d]	35
	Annual	0.36[e]	2.8	3.16[e]	12
PM_{10}[c]	24-hour	5.53[f]	81	86.53[f]	150

a. Micrograms/cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
d. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of 8th highest modeled concentrations for each year modeled.
e. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of maximum modeled concentrations for each year modeled.
f. Maximum of 6th highest modeled concentrations for a 5-year period (or the maximum of the 2nd highest modeled concentrations if only 1 year of meteorological data are modeled).

Table 9. RESULTS FOR TAP IMPACT ANALYSES			
TAP	**Averaging Period**	**Maximum Modeled Impact (µg/m^3)[a]**	**AAC or AACC (µg/m^3)**
TDI	24-hr	1.90	2.0
Trimethylbenzene	24-hr	473.78	6,150

[a.] Micrograms/cubic meter.

7.0 Quality Assurance/Control

All modeling has been reviewed and expected to be accurate and complete. The results of all ambient modeling suggest that all emissions are compliant with applicable NAAQS, AAC or AACC.

Appendix E MANUFACTUER INFORMATION

AIR FILTER TESTING LABORATORIES, INC.

4632 OLD LA GRANGE ROAD | CRESTWOOD, KENTUCKY 40014
PHONE | FAX (502)222-5720

REPORT NO. 8264 TEST NO. 3 SHEET NO. 4

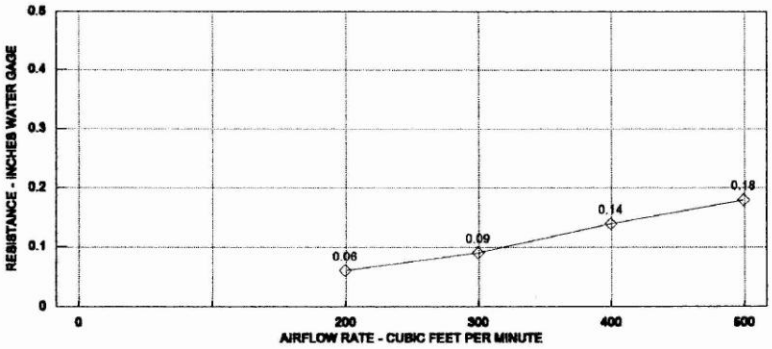
ASHRAE METHOD 52.1-1992 AIRFLOW -VS- RESISTANCE AND INITIAL SILICA DIOXIDE DUST FRACTION REMOVAL EFFICIENCY; CLEAN DEVICE

TEST REQUESTED BY	AIR FILTRATION CO., INC.
MANUFACTURER	AIR FILTRATION CO., INC.
HOW AFTL PROCURED TEST SAMPLE	FURNISHED BY MANUFACTURER
PRODUCT NAME	5000 SERIES
MODEL NO.	5032
DIMENSIONS	24 IN. H 24 IN. W 1 IN. D
PRODUCT DESCRIPTION	MEDIA TYPE - NON-WOVEN POLYESTER
	MEDIA AREA - 4.0 FT^2
	ADHESIVE - WATER BASED TACKIFIER

TEST AIR FLOW RATE (CFM) (100 FPM)	400
SILICA DIOXIDE DUST FRACTION (5 - 10 uM) INCREMENT (g)	30
INITIAL SILICA DIOXIDE DUST FRACTION (5 - 10 uM) REMOVAL EFFICIENCY (%)	97.3

CLEAN DEVICE

AIRFLOW -VS- RESISTANCE



DATE	11-14-1994
TEST SUPERVISOR	J.P.S.
ENGINEERING APPROVAL	David J. Murphy Jr.

STATE OF KENTUCKY
DAVID J. MURPHY, JR.
6035
REGISTERED
PROFESSIONAL ENGINEER

From:	Joshua Freeman
To:	Clark, Eric
Subject:	RE: EM Tanner Serial numbers
Date:	Thursday, August 11, 2016 8:34:24 AM
Attachments:	5000.pdf GA.PA 15 GRAM.pdf Laminar III.pdf

This equipment was bought in 2005 originally by a company called Kieferbuilt.

There was two truck booths, both with the same model number, but different heaters, one heater with Cure capability and one without.

Booth Serial #05-1385
TSD5030
Exhaust Fan 5HP - 42" Fan moving 24,000 CFM @ 1/2" Static Pressure
Exhaust Filters 42 - 20" x 20" Woven Fiberglass Arrestor Pads "GA.PA 15 Gram"
Intake Filters 42 - 20" x 20" Non-Woven Polyester "5000 series"

DFM2000S
2 Million Btu Power Flame burner
Make Up Fan 5HP - 42" Fan moving 24,000 CFM @ 1/2" Static Pressure
Pre Filters 12 - 20" x 50" Non-Woven Polyester "Laminar 3"
80F over 0F in paint mode, and 140F over 0F in cure Mode

Booth Serial #05-1384
TSD5030
Exhaust Fan 5HP - 42" Fan moving 24,000 CFM @ 1/2" Static Pressure
Exhaust Filters 42 - 20" x 20" Woven Fiberglass Arrestor Pads "GA.PA 15 Gram"
Intake Filters 42 - 20" x 20" Non-Woven Polyester "5000 series"

AMS2000
2 Million Btu Power Flame burner
Make Up Fan 5HP - 42" Fan moving 24,000 CFM @ 1/2" Static Pressure
Pre Filters 12 - 20" x 50" Non-Woven Polyester "Laminar 3"
80F over 0F in paint mode

Let me know if you need anything else.

Josh Freeman
Sales Engineer
AFC Finishing Systems
250 Airport Parkway
Oroville, CA. 95965
1-800-331-7744

-----Original Message-----
From: Clark, Eric [mailto:eric.clark@stantec.com]
Sent: Wednesday, August 10, 2016 11:36 AM
To: Joshua Freeman
Subject: EM Tanner Serial numbers

Appendix F 2009 DEQ MODELING MEMORANDUM

Appendix C – Ambient Air Quality Impact Analysis

M E M O R A N D U M

DATE: September 11, 2009

TO: Eric Clark, Permit Engineer, Air Quality Division

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

PROJECT NUMBER: P-2009.0102

SUBJECT: **Modeling Review for EM Tanner & Sons, Inc., Facility ID 011-00036**
Project: Initial PTC for Existing Potato Processing Equipment Manufacturer

1.0 Summary

JBR Environmental Consultants (JBR) submitted an application on behalf of EM Tanner & Sons, Inc. (Tanner), for an initial Permit to Construct (PTC) for this existing potato processing equipment manufacturer located in Blackfoot, 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]) or Toxic Air Pollutant (TAP) increment (Idaho Air Rules Section 203.03). JBR performed the site-specific ambient air quality impact analyses.

A technical review of the submitted analyses was conducted by DEQ. The submitted analyses, combined with DEQ's verification 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 facility's property boundary.

Key assumptions and results that should be considered in the development of the permit are shown in Table 1.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Production or Throughput Assumptions	24-hr PM_{10} impacts were 85% of the NAAQS and annual PM_{10} impacts were 69% of the NAAQS, modeled during nighttime hours (4 p.m. – 8 a.m.), when ambient impacts tend to be higher than during the day.
Welding Rod Use: 105.1 lbs/day and 25,581 lbs/yr	Submitted modeling omitted welding emissions. DEQ verification modeling for 24-hour and annual PM_{10} was based on continuous welding at average of 4.38 lbs of rods/hour for 5840 hours per year.
Maximum 53.44 gal/day of any paint. Black enamel: 224 gal/yr White enamel: 224 gal/yr Burnt orange: 4,480 gal/yr	Worst-case PM_{10} emissions were based on using the highest-solids paint at 3.34 gal/hr for 16 hours per day. Annual PM_{10} emissions were based on the sum of emissions from this paint usage.
Maximum 26.7 gal/day of Vibrathane B809	24-hr TDI impacts were 98% of the AAC. Worst case emissions were based on using 0.6 lb/hr of Vibrathane B809 for 5 hours per 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 this facility located on at 221 Airport Road in Blackfoot, Idaho. Approximate UTM coordinates for this parcel are 390.6 km Easting and 4,783.6 km Northing, in UTM Zone 12 (Datum WGS84).

2.1.1 Area Classification

The Tanner facility is located within Bingham 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 a nominal 10 micrometers (PM_{10}), particulate matter with an aerodynamic diameter less than or equal to 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 006.102 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
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	0.15[i]	Maximum 1st highest[h]

[a] Idaho Air Rules Section 006.102
[b] Micrograms per cubic meter
[c] Idaho Air Rules Section 577 for criteria pollutants
[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

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]**
[i] Never expected to be exceeded more than once in any calendar year [j] Concentration at any modeled receptor when using five years of meteorological data [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 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

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

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

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

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

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

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[1]. 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. In a May 27, 2009 response to a May 15, 2009 email request from JBR, DEQ recommended using the default small town/suburban values

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

from the March 2003 memo if the Tanner facility is in town, or the default rural/agricultural background values if the facility is located in the more rural area outside of Blackfoot. The Tanner facility is located in town, so JBR used the small town/suburban default values. 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	28
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

a. Micrograms per cubic meter.

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

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.

3.1.1 Overview of Analyses

JBR performed the air quality analyses in support of the submitted permit application. A brief description of parameters used in the modeling analyses is provided in Table 4.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description[a]**
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 07026
Meteorological data	Years: 1995-1999 Surface: Blackfoot/Pocatello Upper Air: Boise Airport	National Weather Service (NWS) surface data from the Pocatello Airport and from site monitoring at Basic American Foods in Blackfoot, and NWS upper air data from the Boise airport. Data processed through AERMET (version 06341) was provided to JBR by DEQ. All pollutants were modeled for each of the five years, reporting the high 1st and 2nd highs. DEQ Verification: 24-hr PM_{10} was modeled using a concatenated 5-year met file, reporting the high 6th high value. Ran 16 hr days 5 a.m. to 9 p.m. and 4 p.m. to 8 a.m.
Terrain	Considered	Terrain elevations were assigned to buildings, emission sources, and receptors using U.S. Geological Survey 7.5-minute series digital elevation model (DEM) data in NAD83 using AERMAP (version 09040). Default rural dispersion was used in the modeling.
Building downwash	Considered	Building downwash parameters were calculated using the BPIP PRIME algorithm (version 04274).
Receptor Grid	Receptors	Receptor locations were defined in UTM coordinates (NAD83).
	Fenceline Grid	21-meter spacing along the property boundary.
	Grid 1	25-meter spacing in a square grid out to ~25meters (m).
	Grid 2	50-meter spacing in a square grid between ~25 m and ~100 m.
	Grid 3	100-meter spacing in a square grid between ~100 m and ~600 m.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description[a]**
	Grid 4	250-meter spacing in a square grid between ~600 m and ~2250 m (2.25 kilometers [km]).
	Grid 5	500-meter spacing in a square grid between ~2.25 km and ~5.40 km.

3.1.2 Modeling Protocol and Methodology

A modeling protocol was not submitted to DEQ for this project. DEQ responded on May 27, 2009 with recommended background values and AERMOD-ready surface and upper air meteorological data files to a May 15, 2009 email request from JBR. 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

The Tanner facility is located about 1.6 miles east-southeast of the Basic American Foods facility in Blackfoot, and about 23.4 miles (38 km) northwest of the Pocatello Regional Airport. DEQ provided AERMOD-ready meteorological data to JBR for this project. The primary source for the surface data was National Weather Service (NWS) data collected at the Pocatello airport for the years 1995 through 1999, supplemented by surface data collected during the same period from an onsite meteorological data collection tower at Basic American Foods (415 W. Collins Siding Road, Blackfoot). Upper air data for this data set were from the NWS station at the Boise airport. These meteorological data were previously processed through AERMET—the meteorological data preprocessor for AERMOD—using AERMET version 06341. Surface characteristics were analyzed manually (AERSURFACE had not yet been issued when these data were processed).

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in these site-specific analyses. JBR used AERMAP (version 09040) to determine the actual elevation of each receptor and the controlling hill height elevation from United States Geological Survey (USGS) digital elevation map (DEM) files for the area surrounding the facility. Elevations of emission sources, buildings, and receptors were developed based on surrounding terrain elevations as extracted from the DEM files. DEM files were not included with the application.

3.1.6 Facility Layout

The facility layout submitted with the application is shown in Figure 3-1.

Figure 3-1. EM TANNER FACILITY LAYOUT (TAKEN FROM FIGURE 1 FROM THE JBR MODELING REPORT, WITH ANNOTATATIONS BY DEQ)

3.1.7 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the submitted modeling analyses. 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 area sources, the ambient air boundary is typically defined as the property boundary. The property boundary shown in Figure 3-1 (outlined in yellow) was used as the ambient air boundary for the dispersion modeling.

3.1.9 Receptor Network

The receptor grids used for the submitted modeling analyses and DEQ verification analyses are summarized in Table 4 and shown graphically in Figure 3-2. The grid spacing is less than or equal to the maximum grid receptor spacing recommended in the *State of Idaho Air Quality Modeling Guideline*.

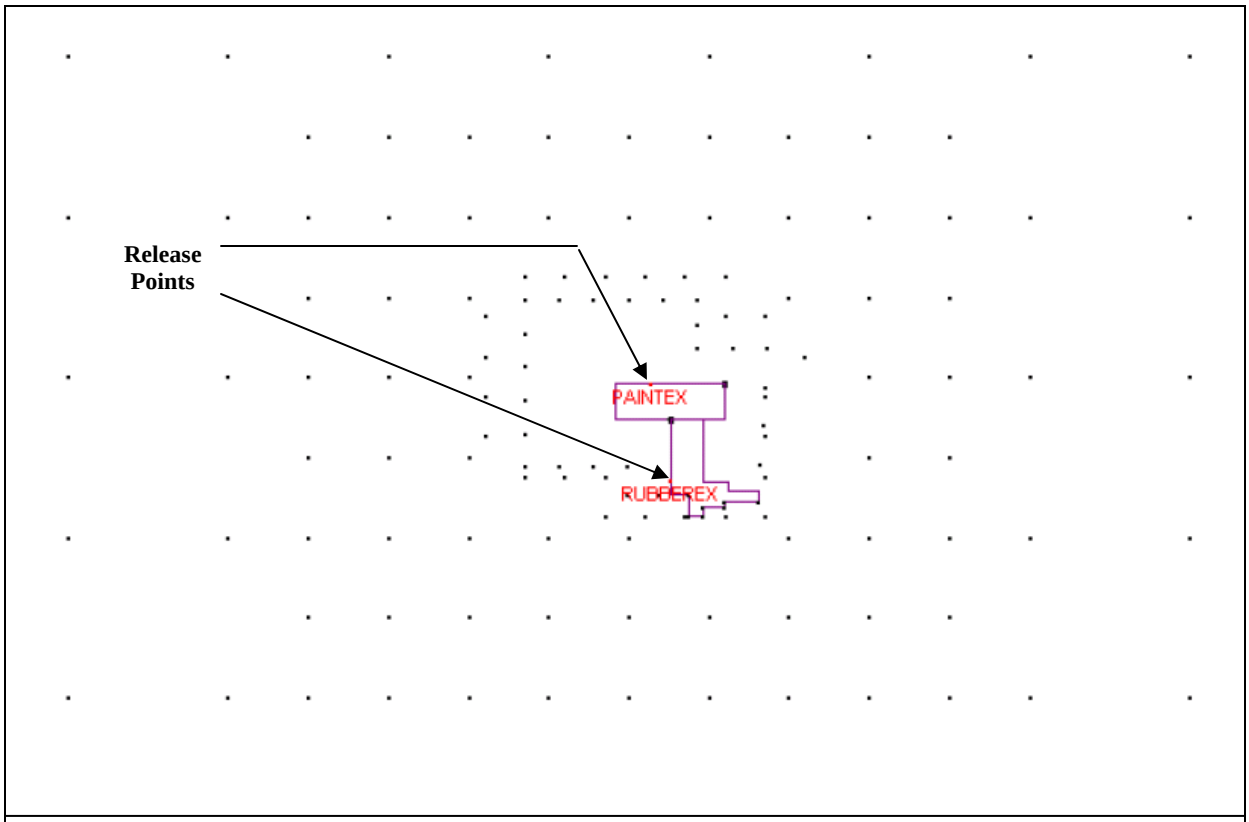


Figure 3-2. EM TANNER & SONS FACILITY NEAR-FIELD RECEPTOR GRID

3.2 Emission Release Parameters and Emission Rates

Emission release parameters used in the JBR analyses are shown in Table 5. Modeling was conducted for the following two cases emissions:

- Using the existing 16,000 acfm fan serving the rubber room, and installing a new 35-foot tall stack.
- Replacing the existing rubber room fan with a 22,000 acfm fan, and installing a 25-foot tall stack.

As described in the application, the paint booth exhaust fan is rated at 25,000 acfm. Exhaust from the paint room and other areas of the shop (excluding the rubber room) is routed through a series of expanded metal screens, through the fan to an outside plenum, and then flows downward through a series of furnace filters. In a phone call with DEQ's Cheryl Robinson, JBR's Dave Strom described the paint room exhaust as exiting the building at ground level through a roughly 4-ft by 4-ft enclosure located about 4 to 6 feet above ground level. Based on this description and the modeled effective stack diameter of 7.60 ft, this square exhaust point would be approximately 6.7 feet x 6.7 feet. This is not expected to have a significant effect on the modeling results for this horizontal release.

Other stack parameters appear to be appropriate and within expected ranges.

Table 5. EMISSION RELEASE PARAMETERS									
Source ID	**Description**	**UTM Zone 12 (NAD83)**		**Elevation (m) [a]**	**Stack Height (ft) [b]**	**Stack Temp. (°F) [c]**	**Stack Velocity (m/sec) [d]**	**Stack Diameter (ft) [b]**	**Modeled Exit Type [e]**
		Easting (m)[a]	**Northing (m) [a]**						
Point Sources									
PAINTEX	PaintRoom Exhaust	390563.9	4783596	1366.82	3.0	72.0	0.001	7.60	Default
RUBBEREX	MoldingRoom Exhaust	390575.5	4783536	1366.95	**25.0**	72.0	**35.57**	2.00	Default
RUBBEREX	MoldingRoom Exhaust	390575.5	4783536	1366.95	**35.0**	72.0	**25.87**	2.00	Default

[a] m = meters
[b] ft = feet
[c] °F = degrees Fahrenheit
[d] m/sec = meters per second.
[e] = Default is vertical, uncapped.

3.2.1 Criteria Pollutant Emissions Rates

Criteria pollutant modeling was limited to PM_{10}, with modeled emission rates based on the following assumptions:

PM_{10}, 24-hr

JBR Analyses:

Maximum worst-case 1-hr average, Silicone Alkyd DTM enamels at 3.34 gal/hr, Spray gun transfer efficiency of 65%, Control efficiency of 95%

Paint booth = 0.26 lb/hr PM_{10} modeled daily from 4 a.m. to 8 p.m.**,** Omitted welding rod emissions

Rubber Rm = Thioxin (7.3E-05) + M800 (4.21E-05) = 1.15E-04 lb/hr (modeled 1.20E-03 lb/hr)
0.39 gal/day 0.66 gal/day

DEQ Verification: Maximum worst-case 1-hr average, same transfer and capture efficiencies as JBR:

Paint booth: 0.26 lb/hr (worst-case paint or solvent, 53.44 gallons/day)
Welding: 0.0228 lb/hr (7,994 lb rods /1825 hr = 4.38 lb/hr x 24 hr/day =105.1 lb/day welding rod)
Total: **0.285 lb/hr** PM_{10} modeled for 16 hr/day from 4 a.m. to 8 p.m.
0.285 lb/hr PM_{10} modeled for 16 hr/day during nightime hours (4 p.m. to 8 a.m.)
Rubber Rm: **1.15E-04 lb/hr** PM_{10} modeled for 24 hr/day

PM_{10}, Annual

JBR Analyses:

Paint booth: Black (1.26E-02 tpy) + White (1.32E-02 tpy) + Burnt Orange (2.60E-01 tpy) = 0.286 tpy*
336 gal/yr x 16/24 =224 gal/yr 336 gal/yrx 2/3 = 224 gal/yr 6,720 gal/yr x 2/3 = 4,480 gal/yr

*BEEST divides input value of 0.29 tpy by 8760 hr/yr = 0.0662 lb/hr = 8.34E-02 g/sec.
Using the 16-hour day factor file reduced the annual modeled emissions from 0.286 tpy to 0.193 tpy.

Rubber Rm = Thioxin (3.2E-04 tpy) + M800 (1.84E-04 tpy) = 5.04E-04 tpy (modeled 0.087 tpy = 1.99E-02 lb/hr)
144 gal/yr 240 gal/yr

DEQ Verification:

Paint booth: 0.0662 lb/hr (0.286 tpy/8760 hrs =0.662 lb/hr, modeled for 5480 hrs = 0.193 tpy)
Welding: (7,994 lb rods /1825 hr = 4.38 lb/hr x 5840 hr/yr = 25,581 lbs/yr welding rod)
0.0228 lb/hr (0.0228 lb/hr x 5840 hr = 6.66E-02 tpy)
Total: **0.0894 lb/hr** PM_{10} modeled for 16 hr/day from 4 a.m. to 8 p.m.
0.0894 lb/hr PM_{10} modeled for 16 hr/day during nightime hours (4 p.m. to 8 a.m.)
Rubber Rm: **1.15E-04 lb/hr** PM_{10} modeled for 8760 hr/yr (5.04E-04 tpy)

Modeled PM_{10} emissions are shown in Table 6. Emission rates used in DEQ's verification analyses are shown in bold.

Table 6. CRITERIA POLLUTANT EMISSIONS RATES				
Source ID	**Description**	**PM_{10}**		
		(24-hr) (lb/hr)	**(Annual) (lb/hr)**	**Corrected T/yr**
PAINTEX	Paint Booth and other shop areas	0.26 **0.285**	6.62E-02 (input 0.29 tpy) **0.0894**	0.193+ 0.067 = 0.26
RUBBEREX	Rubber Room	1.20E-03 **1.15E-04**	1.99E-02 (input 0.087 tpy) **1.15E-04**	5.04E-04

3.2.2 TAP Emissions Rates

Modeled TAP emissions associated with operation of this facility are shown in Table 7. The table includes only those TAPs where total emissions exceeded emissions screening levels (ELs) listed in Sections 585 and 586 of the Rules. Please refer to the application and Statement of Basis for this permit for a full list of emitted TAPs. Emission rates used in DEQ's verification analyses, if different than the submitted analyses, are shown in bold.

Toluene- 2,4-diisocyanate (TDI) (24-hr avg.)
JBR Analyses:
Rubber Rm = Worst-case emissions for 5 hours per day Vibrathane B809 (0.6 lb/hr, 24-hr avg)
26.7 gal/day

Trimethyl Benzene (lb/hr, 24-hr avg.)
JBR Analyses:
Paint Booth =
Solvent 100 (5.33 lb/hr) + Black (0.81+1.35 lb/hr) + White (1.0+1.6 lb/hr) + Orange (0.82+1.37 lb/hr) = 12.35 lb/hr
Used at 3.34 gal/hr x 16 hr/day = 53.44 gallons of each material per day.

Methylene Chloride (lb/hr, annual avg.)
JBR Analyses:
Rubber Rm = Methylene Cloride (mold casting operation cleaner) 8.06E-03 lb/yr based on using 149 gal/yr.

The permit engineer noted a concern regarding nickel emissions, which were not modeled. Based on the emissions inventory, nickel is emitted only during welding operations. DEQ's verification analyses included evaluating nickel impacts.

Nickel (lb/hr, annual avg.)
DEQ Verification, Paint Booth:
Welding: 4.4E-05 lb/hr (0.01 lb Ni/10^3 lb electrode x 4.38 lb rod /hr)
7,994 lb rods /1825 hr = 4.38 lb/hr x 5840 hr/yr = 25,581 lbs/yr welding rod
Total: 4.4E-05 lb/hr x (1-0.95) = **2.19E-06 lb/hr** Ni modeled for 16 hr/day during nightime hours

Table 7. EMISSIONS RATES USED FOR TAPS IMPACT MODELING					
Source ID	**Description**	**Emissions Rates**			
		Toluene-2,4-diisocyanate (TDI) (lb/hr, 24-hr avg.)	**Trimethyl Benzene (lb/hr, 24-hr avg.)**	**Methylene Chloride (lb/hr, annual avg.)**	**Nickel (lb/hr, Annual, 16-hr/day file**
PAINTEX	Paint Booth and other shop areas	0.0	12.35	0.0	**2.19E-06**
RUBBEREX	Rubber Room	5.99E-02	0.0	(input 8.06E-03 tpy) 1.85E-03	0.0

3.3 Results for Significant and Full NAAQS Impact Analyses

A significance analysis was not conducted by JBR for criteria pollutants. Emissions from PAINTEX in the submitted analyses were set to zero for hours 1, 2, 3, and 4, and for hours 21, 22, 23, and 24, and set to "1" for hours 5 through 20. This reflects a 16-hour operating day from 4 a.m. to 8 p.m. The results of the submitted full impact analyses are shown in Table 8, with DEQ verification analyses results shown in bold. DEQ analyses presumed operation during nighttime hours, from 4 p.m. to 8 a.m. As shown in the table, if the maximum material usage per day meets the assumptions stated in the emission inventory, DEQ's verification analysis demonstrates compliance with the 24-hour PM_{10} and annual NAAQS even if the operations occur during nighttime hours.

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 4 a.m. – 8 p.m, 35-ft stack 4 a.m. – 8 p.m., 25-ft stack **4 p.m. – 8 a.m., 35-ft stack**	 61.31[b] 61.31[b] **46.70** [b]	81	 142.31 **127.7**	150	 94.9% [b] **85.1%** [b]
	Annual 4 a.m. – 8 p.m, 35-ft stack 4 a.m. – 8 p.m., 25-ft stack **4 p.m. – 8 a.m., 35-ft stack**	 3.27 3.27 **6.52**	28	 31.27 31.27 **34.5**	50	 62.5% 62.5% **69.0%**

[a] Defined in Idaho Air Rules Section 577

[b] JBR excluded welding emissions, but used the high 1st high value for the 5-year data set, although demonstration of compliance for the 24-hour PM_{10} NAAQS typically is based on the high 6th high for either a concatenated 5-year file or using the multyear option in AERMOD. DEQ 24-hr PM_{10} results report the high 6th high value using a concatenated 5-year met file, and include welding emissions.

3.4 Results for TAPs Analyses

JBR 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 10. DEQ verification analyses results for nickel are shown in bold.

Table 10. RESULTS FOR TAP IMPACT ANALYSES

Pollutant	Averaging Period	Modeled Ambient Impact ($\mu g/m^3$)	AAC/AACC ($\mu g/m^3$)	Percent of AAC/AACC
Toluene-2,4-diisocyanate (TDI)	24 hour 24 hr/day, 35-ft stack 24 hr/day, 25-ft stack	 1.68 1.96	2.0	 84% 98%
Trimethyl benzene	24 hour 4 a.m. – 8 p.m, 35-ft stack 4 a.m. – 8 p.m., 25-ft stack	 2,887 2,887	6,150	 46.9% 46.9%
Methylene Chloride	Annual 24 hr/day, 35-ft stack 24 hr/day, 25-ft stack	 6.65E-03 8.24E-03	0.24	 2.8% 3.4%
Nickel	Annual **4 p.m. – 8 a.m, 35-ft stack**	 **1.6E-04**[a]	4.2E-03	 **3.8%**

[a] Modeled nickel emissions = 4.4E-02 lb/hr. Divide modeled results by 1000 and reduce by the paint room exhaust capture efficiency: 3.21 $\mu g/m^3$ *(1-0.95)/1000 = 1.65E-04

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 G HHHHHH EXEMPTION FROM EPA

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue, Suite 900
Seattle, WA 98101-3140

OFFICE OF
AIR, WASTE AND TOXICS

July 28, 2010

Lynn Turner
EM Tanner & Sons
221 Airport Road
Blackfoot, Idaho 83221

Re: Exemption from 40 CFR Part 63, Subpart HHHHHH

Dear Lynn Turner,

This letter is in response to your petition for exemption from the motor vehicle and mobile equipment surface coating requirements of the National Emission Standard for Hazardous Air Pollutants (HAP), Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources, 40 Code of Federal Regulation (CFR) Part 63, Subpart HHHHHH for EM Tanner & Sons, in Blackfoot, Idaho.

To obtain an exemption, 40 CFR Section 63.11170(a)(2) requires that as the owner or operator of a motor vehicle surface coating operation, you demonstrated to the satisfaction of the Environmental Protection Agency (EPA) that you spray apply no coatings that contain the target HAP, as defined in Section 63.11180. The petition must include a description of the coatings that you spray apply and your certification that you do not spray apply any coatings containing the target HAP.

You have identified the coatings used at EM Tanner & Sons, and have certified that none of the coatings sprayed at various customers locations contains the target HAP. Therefore, EM Tanner & Sons, is exempt from the Subpart HHHHHH requirements for its spray applied coating activities. Note, other provisions of Subpart HHHHHH may continue to apply to your operation, e.g., provisions involving the use of methylene chloride.

Keep a record of this exemption on site while operating at various customers locations for as long as you perform motor vehicle and mobile equipment surface coating operations. If circumstances change such that your facility intends to spray apply coatings containing any target HAP, the owner or operator must submit the initial notification required by Section 63.11175 and comply with the requirements of Subpart HHHHHH.

Nothing in this exemption shall be construed as limiting the ability of EPA or delegated agencies to pursue enforcement action, if it is determined that your facility was or is not eligible for this exemption or for any other violations under the Clean Air Act. Federal law establishes penalties for providing false information to EPA. This determination does not relieve EM Tanner

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& Sons of responsibility for complying fully with any and all other applicable federal, state and local laws, regulations and permits.

If you have any further questions or concerns, please contact Heather Valdez of the Region 10 Office of Air, Waste and Toxics at (206) 553-6220.

Sincerely,

Nancy Helm, Manager
Federal and Delegated Air Programs Unit

Cc: Carl Brown, Idaho Department of Environmental Quality

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Idaho DEQ Impact Modeling Analyses Report Form

1.0 Summary

This air quality modeling report documents the proposed methodology used to prepare an air quality analysis in support of an Idaho Department of Environmental Quality (IDEQ) Permit to Construct (PTC) application for the EM Tanner and Sons facility located in Blackfoot, ID. This is a modification to the initial PTC, P-2009.0102, issued September 30, 2009. Only the usage of one product is changing, urethane Vibrathane B601. The annual usage is proposed to increase to 5,000 gallons from 1,040 gallons.

2.0 Project Description and Background as it Relates to Modeling Analyses

Raw metal is received at the facility. The metal pieces then may be bent, cut and welded together to form the desired piece of equipment. On occasion, a part must be made using a urethane mold casting operation. The machine components are then brought into a booth in the paint room.

Once the machine components have been fabricated they are brought into the paint room. Tanner applies a base coat and top coat paint to each part in the same spray booth. Equal amount of base coat and top coat are applied. The paint comes in five gallons pails and is sprayed directly from the container. Generally, thinning of the paint is not done at the facility. However, on occasion and depending on the temperature and/or atmospheric pressure, a small amount of solvent is added to the paint. The paint is dispersed by a spray gun which has a maximum capacity of 3.34 gallons/ hour. Currently, painting the parts is performed at a maximum of 5 hours/day, year around, resulting in a maximum total of 1,825 hours/year.

Tanner uses three paint colors – black, white, and burnt orange enamel. Only one type of paint is used at a time and only a small amount of solvent is added to the paint. However, to be conservative, the emissions used in the original air dispersion model assume the material being sprayed contains the highest concentration of each constituent. Painting emissions remain unchanged from the previous permitting action.

The paint booth has been updated by AMC Finishing Systems. The previous filtration system and paint booth described in the current PTC has been dismantled and a new booth was constructed. The particulate filter efficiency has increased from 95% to 97.3%. New exhaust parameters were developed.

Note that no emissions associated with the paint room are increasing from the 2009 permit. All toxic pollutant emissions are unchanged and particulates have decreased.

2.1 Location of Project

A protocol was developed by USEPA to classify an area as either rural or urban for dispersion modeling purposes. AERMOD, the EPA-approved dispersion modeling tool utilized in this analysis, includes rural and urban algorithm options. These options affect the wind speed profile, dispersion rates, and mixing-height formula used in calculating ground-level pollutant concentrations. The rural or urban classification is based on average heat flux, land use, or population density within a three-km radius from the plant site. Of these techniques, the USEPA has specified that land use is the most definitive criterion (USEPA, 1987). The urban/rural classification scheme based on land use is as follows:

> *The land use within the total area, A_0, circumscribed by a 3-km circle about the source, is classified using the meteorological land use typing scheme proposed by Auer (1978). The classification scheme requires that more than 50% of the area, A0, be from the following land use types in order to be considered urban for dispersion modeling purposes: heavy industrial (I1); light-moderate industrial (I2); commercial (C1); single-family compact residential (R2); and multi-family compact residential (R3). Otherwise, the use of rural dispersion coefficients is appropriate.*

The Tanner facility is located in a rural area, in Blackfoot, ID. Although the immediate vicinity of the site is a mix of industrial and commercial usage, site and map reconnaissance showed that the area A_0 within a 3-km circle of the source is below the 50% urban land use criteria necessary for use of urban dispersion coefficients. Rural dispersion coefficients were therefore used in the air quality dispersion modeling.

Bingham County is designated as an attainment or unclassified area for all other criteria pollutants. The facility is located at 390,548 mE and 4,783,617 mN, UTM zone 12 NAD 83. A map showing the geographical location of the facility is provided within Appendix A of the application.

2.2 Existing Permits and Modeling Analyses Performed

Tanner currently operates under permit P-2009.0102, issued September 30, 2009. That was the facility's initial air quality permit. Facility-wide modeling was conducted for the paint and rubber rooms. Welding operations were also modeled by DEQ within the paint room. At the time, nickel was modeled, but it has since been determined that the emission factors applied were off by a factor of 10 and that the emission rate was not an annual average value. When those adjustments are made, the total nickel emissions do not exceed the applicable screening level. The 2009 modeling analysis also included PM_{10} and a handful of toxic pollutants. These included: Trimethylbenzene, Toluene-2,4-diisocyanate (TDI) and methylene chloride.

3.0 Modeling Analyses Applicability

Two changes are proposed that affect ambient analysis. First, the amount of Vibrathane B601 is increasing to 5,000 gallons per year from 1,040 gallons. As a result, the level of TDI being emitted will increase. Secondly, the paint room has been moved and has an improved filtration system. Because of these updates, the incremental change of TDI is evaluated as is trimethylbenzene. The emissions are unchanged, but parameters and location is new. In addition, PM_{10} is reevaluated. Lastly, to ensure compliance with $PM_{2.5}$, an analysis was also conducted. For the purposes of this analysis, $PM_{2.5}$ is assumed to be equivalent to PM_{10}.

3.1 Applicable Standards

National Ambient Air Quality Standards (NAAQS), along with significant impact levels (SILs), for Criteria Pollutants are listed in Table 1.

Table 1 APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Impact Levels[a] (µg/m^3)[b]	Regulatory Limit[c] (µg/m^3)	Modeled Design Value Used[d]
PM_{10}[e]	24-hour	5.0	150[f]	Maximum 6th highest[g]
$PM_{2.5}$[h]	24-hour	1.2	35[i]	Mean of maximum 8th highest[j]
	Annual	0.3	12[k]	Mean of maximum 1st highest[l]
Carbon monoxide (CO)	1-hour	2,000	40,000[m]	Maximum 2nd highest[n]
	8-hour	500	10,000[m]	Maximum 2nd highest[n]
Sulfur Dioxide (SO_2)	1-hour	3 ppb[o] (7.8 µg/m^3)	75 ppb[p] (196 µg/m^3)	Mean of maximum 4th highest[q]
	3-hour	25	1,300[m]	Maximum 2nd highest[n]
	24-hour	5	365[m]	Maximum 2nd highest[n]
	Annual	1.0	80[r]	Maximum 1st highest[n]
Nitrogen Dioxide (NO_2)	1-hour	4 ppb (7.5 µg/m^3)	100 ppb[s] (188 µg/m^3)	Mean of maximum 8th highest[t]
	Annual	1.0	100[r]	Maximum 1st highest[n]
Lead (Pb)	3-month[u]	NA	0.15[r]	Maximum 1st highest[n]
	Quarterly	NA	1.5[r]	Maximum 1st highest[n]
Ozone (O_3)	8-hour	40 TPY VOC[v]	70 ppb[w]	Not typically modeled

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

Applicable toxic air pollutant (TAP)-specific increment standards are provided in Sections 585 and 586 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho. Estimated TAP emissions, and TAP emission increases, resulting from the proposed project are provided in Table 2.

Table 2 TAP ELs AND AACs/AACCs

TAP	Non-Carcinogen or Carcinogen	Screening Emissions Level (EL)[a] (lb/hr)	AAC or AACC[b] (µg/m^3)
TDI	Non-Carcinogenic	0.003	2
Trimethylbenzene	Non-Carcinogenic	8.2	6,150

a. ELs from Idaho Air Rules Section 585 and 586 in pounds/hour.
b. Acceptable Ambient Concentration (AAC) or Acceptable Ambient Concentration for a Carcinogen (AACC) from Idaho Air Rules Section 585 and 586, in micrograms/cubic meter or milligrams/cubic meter. Note that AACs listed in Idaho Air Rules Section 585 are expressed in units of milligrams/cubic meter rather than micrograms/cubic meter.

3.2 Criteria Pollutant Modeling Applicability

There is no emissions increase of any criteria pollutants associated with this project. However, particulate emissions are reevaluated because of a change in location and stack parameters. It should be noted that the control efficiency of the new filters are an improvement from the 2009 permit resulting in a net decrease of the model emission rates.

Table 3 MODELING APPLICABILITY		
Criteria Pollutant	**Modeled (yes/no)**	**Basis for Exclusion from Modeling**
$PM_{2.5}$ 24-hour	Yes	___BRC Exempt[a] ___Emissions Below Level l Thresholds[b] ___Emissions Below Level II Thresholds[c]
$PM_{2.5}$ annual	Yes	___BRC Exempt ___Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
PM_{10} 24-hour	Yes	___BRC Exempt ___Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
NO_2 1-hour	No	___BRC Exempt X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
NO_2 annual	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
SO_2 1-hour, 3-hour	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
SO_2 annual	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds
CO 1-hour, 8-hour	No	___BRC Exempt _X_Emissions Below Level l Thresholds ___Emissions Below Level II Thresholds

a. If the project would have qualified for a Category I BRC permitting exemption for the criteria pollutant in question, as per Idaho Air Rules Section 221.01, except for the emissions quantities of another criteria pollutant, then a NAAQS compliance analysis is not required under Section 203.02 or 403.02 for that criteria pollutant.

b. Level I Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ's non-site-specific modeling analyses.

c. Level II Modeling Thresholds from Table 2 in Section 3 of the DEQ Modeling Guideline. NAAQS compliance is assured through DEQ's non-site-specific modeling analyses. Level II Modeling Thresholds can only be used with prior DEQ approval.

Emissions calculations, that clearly show how the modeling applicability determination was performed, are provided in Appendix C of the application and discussed in the application itself.

3.3 TAP Modeling Applicability

As stated above, one TAP, TDI, exceeded the screening emission level (EL) due the increase of usage. Also, trimethylbenzene was modeled. As such, a dispersion modeling analysis was conducted for both pollutants.

3.4 Modeling Protocol

A modeling protocol was not submitted, because the amount and level of effort to conduct the analysis was quite minimal and many conservative measures were taken.

4.0 Modeled Emissions Sources

No emissions from toxic pollutants associated the paint room are changing, only the location and exhaust parameters. Only one TAP within the paints utilized by Tanner exceeded the applicable screening emission level (trimethylbenzene). In review of the 2009 modeling analysis, an emission rate of 12.35 lb/hr was modeled for 16 hr/day. Because IDAPA 58.01.01.585 identifies screening levels as lb/hr 24-hr average, the modeled lb/hr rate could have been 8.23 lb/hr allocated across the total 24-hr period. However, to ensure maximum conservatism 12.35 lb/hr was modeled again.

Particulate emissions have decreased due to improved filtration. To ensure compliance for both PM2.5 and PM10 standards particulate modeling was conducted. It should be noted that the Rubber Room emission rates were updated to correlate with the 2009 DEQ Verification rates of 1.15E-04 lb/hr for the 24-hr averaging period and 5.04E-04 tpy annually. Only the Thioxin and M800 contain particulates used in the Rubber Room.

The paint room originally modeled 0.26 lb/hr of particulate allocated over 16 hours. DEQ Verification included welding PM emissions to increase the total rate by 2.28E-02 lb/hr. The modeled rate is 0.285 lb/hr for 16 hours. The annual modeled rate was DEQ Verified to be 0.26 tpy or 0.0894 lb/hr. However, the control efficiency has increased from 95% to 97.3% decreasing the emission rates. Welding particulate is assumed to be unchanged, but the painting operations lowered to 0.14 lb/hr. The actual emission rate is 0.14 + 0.0228 = 0.1628 lb/hr for 16 hours. Annual emissions are reduced to 0.15 tpy * 2/3 for the 16 hours per day = 0.10 tpy + welding of 0.067 tpy (from 2009 DEQ verification memo) = 0.167 tpy. The new paint room has two exhaust points. Therefore, the emissions were allocated evenly between the two points.

Lastly it should be noted, that nickel associated from welding operations was previously modeled during the DEQ Verification. However, it has been discovered that incorrect emissions factors were applied. AP-42 Table 12.19-2 identifies HAP emission factors in 10^{-1} lb/1000 lb of electrode. The factors originally assumed lb/1000 lb electrode and the total nickel welding emissions did not calculate a lb/hr annual average rate for comparison against the screening level. When those adjustments are made, nickel does not exceed the EL and therefore does not require dispersion modeling.

4.1 Criteria Pollutants

The net result of particulate emissions within the Paint room was a reduction due to changes in the filtration and the parameters improved. The original modeling assumed a stack height of only 3 ft and a velocity equivalent to 0.001m/s. The new system is on the top of the roof at a height from ground level of 20 feet and the exhaust fan has a flow rate of 24,000 acfm. Thus, the parameters are an improvement to ensure better dispersion and lower emissions result in a greatly reduced impact.

4.1.1 Modeled Emissions Rates for Cumulative Impact Analyses

Emission rates were developed in concert with updated emission calculations provided in Appendix C of the application and modifications made during the DEQ Verification run in 2009. Table 4 below outlines the updated rates. Also, a through discussion of the development is described above.

TABLE 4 MODELED EMISSIONS RATES FOR CRITERIA ANALYSES

Source ID	Source Description	PM2.5 (lb/hr)	PM2.5 (tpy)	PM10 (lb/hr)
PAINTEX1	Paint room exhaust #1	0.0814	0.0435	0.0835
PAINTEX2	Paint room exhaust #2	0.0814	0.0435	0.0835
RUBBEREX	Rubber room exhaust	1.15E-04	5.04E-04	1.15E-04

4.2 Toxic Air Pollutants

TDI emissions are increased due to a higher desired throughput of B601 urethane. Previous modeling identified the worst-case TDI emissions scenario between B601 and B809. Maximum usage does not exceed 5 hours per day and only one urethane can be utilized at a time because of gun restriction (only one gun). The previous modeling evaluated 0.06 lb/hr 24-hr average. That was set as the baseline for the current evaluation. Based on 5,000 gallons per year, the total amount of B601 averaged over 24-hr equates to 0.12 lb/hr or a net incremental increase of 0.06 lb/hr. TDI is not emitted from the paint room.

Trimethylbenzene emissions are remaining unchanged (modeled as 12.35 lb/hr in 2009). This is an aggregate rate between all paints containing the TAP. The paint room applies an hour of day factor consistent with the 2009 modeling (4:00 AM to 8:00 PM). The total emission rate is allocated even between the two exhaust points.

TABLE 5 MODELED EMISSIONS RATES FOR TAP ANALYSES

Source ID	Source Description	TAP	Averaging Period	Emissions[a] (lb/hr)
PAINTEX1	Paint room exhaust #1	TDI	24-hr	0
PAINTEX2	Paint room exhaust #2	TDI	24-hr	0
RUBBEREX	Rubber room exhaust	TDI	24-hr	0.06
PAINTEX1	Paint room exhaust #1	Trimeth	24-hr	6.175
PAINTEX2	Paint room exhaust #2	Trimeth	24-hr	6.175
RUBBEREX	Rubber room exhaust	Trimeth	24-hr	0

a. Pounds/hour emissions rate modeled is the project-specific increase in potential/allowable emissions increase for the averaging period specified for the TAP.

Emissions rates in Table 5 are identical to those in the model input file for TAP analyses.

4.3 Emissions Release Parameters

All emission release parameters are based on 2009 exhaust temperatures, manufacturer supplied data, or direct measurement data supplied by the facility. Table 6 lists stack parameters for all point sources.

Table 6 POINT SOURCE STACK PARAMETERS

Release Point	Description	UTM[a] Coordinates		Stack Height (ft)	Stack Gas Flow Temp. (F)[c]	Stack Exit Velocity (m/s)[d]	Modeled Stack Diameter (in)	Orient. Of Release[e]
		Easting-X (m)[b]	Northing-Y (m)					
PAINTEX1	Paint Room Exhaust #1	390528	4783638	20	72	12.67	42	Vertical
PAINTEX2	Paint Room Exhaust #2	390529	4783631	20	72	12.67	42	Vertical
RUBBEREX	Rubber Room Exhaust	390562	4783569	25	72	35.57	24	Vertical

a. Universal Transverse Mercator.
b. Meters.
c. Fahrenheit; all are either derived from the 2009 modeling or assumed to be equivalent to 2009 modeling
d. meters per second
e. Vertical uninterrupted, rain-capped, or horizontal release.

__X___The specific methods used to determine/calculate given release parameters is described in this section.

__X__The release orientation of all point source stacks (horizontal, rain-capped, or uninterrupted vertical release) has been verified and is documented in this section.

All building heights and subsequent stack heights were directly measured by Tanner staff or derived from the previous 2009 analysis. Exhaust air flow from the Paint room was derived from email correspondence with the manufacturer and the rubber room remained unchanged from 2009. Temperatures were unchanged and allocated to the new point sources.

5.0 Modeling Methodology

Table 7 summarizes the key modeling parameters used in the impact analyses.

Table 7 MODELING PARAMETERS

Parameter	Description/Values	Documentation/Addition Description
General Facility Location	Meridian, Idaho	The area is an attainment, maintenance or unclassified area for all criteria pollutants
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 15181
Meteorological Data	Boise surface data Boise upper air data	The meteorological model input files for this project were developed by IDEQ. See Section 5.2 of this memorandum for additional details of the meteorological data.
Terrain	Considered	3-dimensional receptor coordinates were obtained from USGS National Elevation Dataset (NED) files and were used to establish elevation of ground level receptors. AERMAP was used to determine each receptor elevation and hill height scale.
Building Downwash	Considered	Plume downwash was considered for the structures associated with the facility. BPIP-PRIME was used to evaluate building dimensions for consideration of downwash effects in AERMOD.
NOx Chemistry	NA	NOx modeling was not required for this project.
Receptor Grid	**Significant Impact Analyses**	
	Grid 1	10-meter spacing along the ambient air boundary

	Grid 2	10-meter spacing in a 270 meter (easting) by 250 meter (northing) grid centered on the facility
	Grid 3	25-meter spacing in a 400 meter (easting) by 400 meter (northing) grid centered on Grid 2
	Grid 4	50-meter spacing in a 700 meter (easting) by 600 meter (northing) grid centered on Grid 3
	Grid 5	100-meter spacing in a 1.3 kilometer (easting) by 1.2 kilometer (northing) grid centered on Grid 4
	Grid 6	250-meter spacing in a 2.5 kilometer (easting) by 2.25 kilometer (northing) grid centered on Grid 5
	Grid 7	500-meter spacing in a 5.0 kilometer (easting) by 4.5 kilometer (northing) grid centered on Grid 6
	NAAQS Analyses	
	List if different from grid used for Significant Impact Analyses	
	TAPs Analyses	
	List if different from grid used for Significant Impact Analyses	

5.1 Model Selection

AERMOD version 15181 was used for the modeling analyses to evaluate impacts of the Tanner facility. This is the current version of the regulatory guideline model.

__X__The current versions of all models and associated programs were used in analyses, or alternate versions were specifically approved by DEQ.

____Any non-default model options used were approved by DEQ in advance.

5.2 Meteorological Data

Preprocessed AERMOD ready meteorological files were provided by Darrin Mehr of IDEQ. The data files cover the years 2008 through 2012 from the Pocatello Regional Airport. The data is hourly from the National Weather Service Automated Surface Observing System (ASOS). The data presented by IDEQ is model-ready, and was used without alteration or processing. These data originated from IDEQ, but has been included as part of this submittal.

__X__Meteorological data files are provided with the application.

5.3 Effects of Terrain

All source base and receptor elevations were calculated from USGS NED data obtained via the National Map Viewer website using the Bee-Line BEEST preprocessing system. A 1/3 arc second NED file was used in the analysis Input and output files from AERMAP will be included on the associated DVD.

__X__The datum of terrain data, building corner locations, emissions sources, and the ambient air boundary are specified and are consistent such that the modeled plot plan accurately represents the facility and surroundings.

5.4 Facility Layout

The image shown below identifies the general location of the Tanner facility.

__X__The facility layout plot plan is provided in this section that clearly and accurately depicts buildings, emissions points, and the ambient air boundary.

5.5 Effects of Building Downwash

Building downwash effects were determined using the BPIP – Prime algorithm. There are two commercial buildings to the east of the property that were incorporated into the analysis. The Tanner buildings include: the main building and the shop.

5.6 Ambient Air Boundary

The ambient air boundary is defined by Airport Road to the east and residential areas in all other three cardinal directions. There is signage surrounding the facility identifying private property and fencing to the north.

__X__This section thoroughly describes how the facility can legally preclude public access (and practically preclude access) to areas excluded from ambient air in the modeling analyses.

5.7 Receptor Network

__X__This section of the Modeling Report provides justification that receptor spacing used in the air impact analyses was adequate to reasonably resolve the maximum modeled concentrations to the point that NAAQS or TAP compliance is assured.

The facility is located in Blackfoot, ID. The property covers approximately 4.3 acres. Consistent with IDEQ guidance, the ambient air boundary used in this analysis is the property boundary, which also serves as the public access boundary.

Receptor density will be set to a spacing of 10 meters along the ambient air boundary, 10 meters for the first 50 meters past the boundary, then receptors were set at a density of one per 25 meters out to 100 meters away from the ambient air boundary, 50 meters out to 200 meters from the ambient air boundary, 100 meters out to another 500 meters, 250 meter spacing for another kilometer and 500 meters out to 5.0 kilometers past the ambient air boundary.

The receptor network ensures that the analysis meets or exceeds EPA receptor network requirements and captures the maximum impact from the facility. Therefore, no supplemental receptor network or expansion of the model domain is included.

5.8 Background Concentrations

Background concentrations for both $PM_{2.5}$ and PM_{10} were obtained via the Northwest Quest Consortium developed by Washington State University. $PM_{2.5}$ values applied were 7.3 $\mu g/m^3$ and 2.8 $\mu g/m^3$. These concentrations were used in the compliance demonstration. PM_{10} is 81 $\mu g/m^3$.

Only TAPs were necessary to model. Therefore, no background values were applied.

__X__ Background concentrations have been thoroughly documented and justified for all criteria pollutants where a cumulative NAAQS impact analysis was performed.

5.9 NOx Chemistry

NO_x chemistry was not evaluated because NO_2 compliance was not required for this project.

6.0 Results and Discussion

The air quality impact limits applicable to this analysis are both the NAAQS and the Idaho ambient impact limits for TAPs. Model predicted maximum impacts were the 8th high averaged over the 5 years modeled for 24-hr $PM_{2.5}$ and the highest 1st high for annual $PM_{2.5}$. IDEQ modeling staff has also confirmed that secondary aerosol analysis is not required when the impacts occur within a short distance of the ambient air boundary. PM_{10} uses the design value that is one greater than the number of

metrological years. That equates to an exceedance no more than once in any calendar year. There are five years of met data meaning the design value is the 6th high over that five year period. All TAPs that exceed the emission screening level are considered 24-hr non-carcinogenic pollutants.

6.1 Criteria Pollutant and TAP Impact Results

The tables shown below in section 6.1.2 demonstrate that there is no exceedance of any criteria pollutant or incremental exceedance of any toxic air pollutants due to the increase TDI and modification to the paint room.

6.1.1 Significant Impact Level Analyses

A significance analysis is not necessary for this project because facility-wide modeling has been completed for all applicable criteria pollutants.

6.1.2 Cumulative NAAQS Impact Analyses

Table 8 provides results of Cumulative NAAQS Impact analyses with the airport remaining operational.

6.2 TAP Impact Analyses

Table 8 provides results for TAP impact analyses.

Table 8. RESULTS FOR CUMULATIVE NAAQS IMPACT ANALYSES WITH AIRPORT

Pollutant	Averaging Period	Modeled Design Concentration ($\mu g/m^3$)[a]	Background Concentration ($\mu g/m^3$)	Total Impact ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)
$PM_{2.5}$[b]	24-hour	4.45[d]	7.3	11.75[d]	35
	Annual	0.36[e]	2.8	3.16[e]	12
PM_{10}[c]	24-hour	5.53[f]	81	86.53[f]	150

a. Micrograms/cubic meter
b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
c. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
d. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of 8th highest modeled concentrations for each year modeled.
e. Maximum of 5-year means (or a lesser averaging period if less than 5 years of meteorological data were used in the analyses) of maximum modeled concentrations for each year modeled.
f. Maximum of 6th highest modeled concentrations for a 5-year period (or the maximum of the 2nd highest modeled concentrations if only 1 year of meteorological data are modeled).

Table 9. RESULTS FOR TAP IMPACT ANALYSES			
TAP	**Averaging Period**	**Maximum Modeled Impact (µg/m^3)[a]**	**AAC or AACC (µg/m^3)**
TDI	24-hr	1.90	2.0
Trimethylbenzene	24-hr	473.78	6,150

[a.] Micrograms/cubic meter.

7.0 Quality Assurance/Control

All modeling has been reviewed and expected to be accurate and complete. The results of all ambient modeling suggest that all emissions are compliant with applicable NAAQS, AAC or AACC.