Air Quality Permitting
Statement of Basis

January 17, 2005

Permit to Construct No. P-030141

Dynamic Fabricators, LLC, Rathdrum

Facility ID No. 055-00035

Prepared by:

Harbi Elshafei, Air Quality Permitting Analyst 3
AIR QUALITY DIVISION

FINAL PERMIT

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Acronyms, Units, and Chemical Nomenclatures

AAC	acceptable ambient concentration
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
Dynamic	Dynamic Fabricators, LLC
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
lb/hr	pounds per hour
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
O&M	Operation and Maintenance
OSHA	Occupational Safety and Health Administration
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
TAP	toxic air pollutant
T/yr	tons per year
$\mu g/m^3$	micrograms per cubic meter
UEF	Unified Emission Factor
UTM	Universal Transverse Mercator
VOC	Volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

Dynamic Fabricators, LLC (Dynamic) manufactures fiberglass reinforced plastic (FRP) panel segments, which function as fan shrouds, FRP pipe for water distribution systems for cooling towers, and custom FRP products. Dynamic also has a woodworking process where lumber is cut, drilled, and shipped for on site construction of cooling tower frameworks.

Dynamic produces large diameter FRP cooling tower pipe and corrosive-resistant pipe liners in addition to the FRP panel segments. Lumber is also brought to the facility, where it is cut to size, drilled, and shipped for on site construction of the cooling tower framework. The woodworking process is totally enclosed within the wood fabrication shop, and the process does not produce any quantifiable air emissions.

Raw materials used in the production of the FRP products include gel coat, catalyst (methyl ethyl ketone peroxide), fiberglass roving, and polyester resins containing styrene. A soap-based product and acetone are the solvents used to clean guns, tools, and purge lines.

Three production methods are used by Dynamic in the FRP manufacturing process. Spray-up and hand lay-up methods are used in the production of panels and molds, whereas filament winding is used to manufacture pipes and pipe liners. Low monomer content resins are warmed to about 80 degrees Fahrenheit to achieve workable resin viscosities. These lower viscosities are needed to facilitate spray-up and filament winding methods.

The first step in panel construction is to make a reusable mold. Once cured, the mold is sprayed with gel coat. Resin, chopped fiberglass roving, and catalyst are then applied with a chop gun. Airless spray gun equipment is used for all spray-up operations. Several layers of the resin/fiberglass/catalyst mixture are required to produce the final product. Hand lay-up methods are used where spray-up is not practical.

In the filament winding process, continuous strand rovings are pulled by a rotating mandrel through a strand tensioning device, and sprayed with a resin/catalyst mixture or run through a resin bath. The coated fiberglass rovings are wound onto a specifically-sized mandrel to form the desired pipe dimensions. After the pipes have cured, the edges are ground and the pipe sections are bonded together to form the desired length.

The fiberglass building is sectioned off into a spray area and an assembly area. Resins, gel coat, catalyst, and solvent are stored in a secondary concrete containment area, under a canopy attached to the fiberglass building. During spraying operations, the building is flooded with fresh air in order to meet the Occupational Safety and Health Administration (OSHA) workplace standards for styrene. The air flow is accomplished via exhaust fans mounted in two wall vents, located just above floor level in the spray booth and pipe winding areas. A separate stack is used for each of the two vents, and a gas heater warms the make-up air. Emissions from the spray up areas (stacks Nos. 1 & 2) area is primarily vapors, the fiber glass "chop" guns provide for a very small amount of particulate emissions.

3. FACILITY / AREA CLASSIFICATION

This facility is located at 22515 W. Highway 53, Rathdrum, Idaho. Rathdrum is located in Kootenai County and is within Air Quality Control Region (AQCR) 62 and Universal Transverse Mercator (UTM) Zone 11. Kootenai County is designated as unclassifiable for all criteria air pollutants (PM_{10}, carbon monoxide [CO], oxides of nitrogen [NO_x], sulfur dioxide [SO_2], lead, and ozone).

The primary Standard Industrial Classification (SIC) code for the facility is 3089, Plastics Products, Not Elsewhere Classified. The Aerometric Information Retrieval System (AIRS) facility classification for this facility is "A" because the potential to emit of the hazardous air pollutant (HAP), styrene, is 54.4 tons per year (T/yr), which is above the applicable major source threshold, for one HAP, 10 T/yr. The AIRS information provided in Appendix B of this statement of basis defines the classification for each regulated air pollutant at Dynamic.

The facility is not subject to Prevention of Significant Deterioration (PSD) requirements because its potential to emit is less than all applicable PSD major source thresholds. This facility is not a designated facility, as defined in IDAPA 58.01.01.006.27. The facility is not a major facility as defined in IDAPA 58.01.01.205.

4. APPLICATION SCOPE

On November 24, 2003, the Department of Environmental Quality (DEQ) received an application from Dynamic, requesting to modify the facility's permit to construct (PTC) No. 055-00035, issued on August 25, 1994. The requested modification is to increase the permitted production limits and to increase the permitted hourly styrene emissions limits while maintaining the current annual emission limits of styrene to 54.4 tons. The facility is also requesting to increase the permitted hourly and annual emissions limits for the PM_{10}.

4.1 Application Chronology

11/24/2003	DEQ received application from Dynamic for PTC modification. The permit number assigned for this project was PTC No. P-030141.
12/23/2003	DEQ determined the P-030141 application incomplete.
2/9/2004	DEQ received a response to the 12/23/2003 incompleteness letter.
3/8/2004	DEQ sent a second incompleteness letter to Dynamic.
4/22/2004	DEQ received additional information from Dynamic.
5/14/2004	DEQ determined the P-030141 application incomplete for the third time.
6/21/2004	DEQ received additional information from Dynamic.
7/16/2004	DEQ determined the P-030141 application incomplete for the fourth time.
8/23/2004	DEQ received additional information from Dynamic.
9/22/2004	DEQ determined the P-030141 application complete.
9/30/2004	DEQ provided an opportunity for public comment period on the PTC application, in accordance with IDAPA 58.01.01.209.01.c., from September 30, 2004 to October 30, 2004. There were two comments on the application, and there were no requests for a full public comment period on DEQ's proposed action.

10/1/2004	DEQ and Dynamic entered in to a Consent Order regarding recent violations at the facility.
11/9/2004	DEQ sent Coeur d'Alene Regional Office an electronic copy of draft PTC No. P-030141 for review.
11/18/ 2004	DEQ sent Dynamic a copy of draft PTC No. P-030141 for review.
12/3/04	Dynamic sent DEQ an email with comments regarding the draft PTC No. P-030141.

5. PERMIT ANALYSIS

This section of the statement of basis describes the regulatory requirements for this PTC action.

5.1 Equipment Listing

The following are a list of equipment exists at Dynamic:

FRP Products Operation

Spray booth located in FRP main building

Manufacturer: ..... Not available

Fiberglass Filter Media system

Manufacturer: ..... FIBAIR

Model No.:..... 1172 BWL 24x24x2

Type of Filter Media:..... Fiberglass

Pressure Drop: ..... Will be determined during the PM_{10} performance test

Stack Parameters	Stack No. 1	Stack No. 2
Height:	28 feet (ft)	28 ft
Diameter:	2 ft	2 ft
Exit Velocity:	4,545 foot per minute (fpm)	4,545 fpm
Exhaust Temperature:	68°F	68°F

5.2 Emissions Inventory

Emissions estimates were provided by Dynamic's consultants (Spring Environmental, Inc.) and are included in the permit application materials that were submitted to DEQ on 11/24/03, 2/9/04, 4/22/04, 6/21/04, and 8/23/04. Appendix A of this statement of basis contains the emissions estimates of particulate matter (PM), particulate matter with an aerodynamic diameter less than or equal to nominal 10 micrometers (PM_{10}), styrene, toxic air pollutants (TAPs), and hazardous air pollutants (HAPs). Emissions of styrene, which is a HAP and a TAP, were obtained from a Unified Emission Factors (UEFs) that are published by the American Composites Manufacturing Associations. Dynamic requested in their PTC application to double the facility's production limits, which will result in increasing the permitted hourly styrene emissions limits (i.e., 18.1 lb/hr) that are existing in PTC No. 055-00035, issued on August 25, 1994. The facility requested to maintain the current annual emissions limits for styrene of 54.4 T/yr. Additionally, Dynamic requested to increase the permitted hourly and annual emissions limits for the PM_{10}.

The estimated emissions of styrene are based on the requested increase in production rates of resins to 720 T/yr and the gel coat to 103 T/yr. Based on these production rates increases, the styrene emissions rates were estimated to be 43.4 lb/hr – refer to the 11/24/03 submittal in Appendix A of this document. The facility did not request to revise the yearly styrene emissions rates, which is 54.4 T/yr. The hourly emissions rates for the styrene provided the basis for the emissions limits from stacks Nos. 1 and 2. They also provided the basis for the TAPs increment analysis in accordance with IDAPA 58.01.01.210– see Appendix C of this document for modeling analysis.

The styrene short-term emissions limits will be confirmed through a performance test, which is included in Permit Condition 2.15.2 of the revised PTC.

The PM_{10} emissions were also estimated by the facility and are included in the PTC application of 4/22/04. Because Dynamic could not confirm the filter control efficiency, a performance test to measure PM_{10} is included as a Permit Condition 2.15.1 in this modified PTC. The PM_{10} emissions limits in the revised PTC provided the basis for compliance with the National Ambient Air Quality Standards (NAAQS).

The TAPs and HAPs emissions are estimated and included in the PTC submittal of 8/23/04. All TAPs (except styrene) emissions were below the emissions levels found in IDAPA 58.01.01.585. Styrene is a HAP, and its emissions is 54.4 T/yr and above the major source threshold of 10 T/yr. These yearly emissions already exist in PTC No. 055-00035 and are carried over to this modified PTC.

Most of the TAP emissions estimates are considered to consist of volatile organic compounds (VOC) (non-styrene VOC). The increase in VOC emissions were estimated for PTC processing fee assessment and are estimated to be 24.86 T/yr.

Dynamic requested to remove the VOC emissions from PTC No. 055-00035 because it was based on acetone emissions. Acetone is not defined as a VOC – refer to 40 CFR 51.100(s). The definition of VOC is enclosed in Appendix A of this document. Based on that definition, DEQ removed the VOC emissions limits from PTC No. 055-00035, that was issued on August 25, 1994.

Table 5.2 provides a summary of the emissions of PM_{10}, styrene, and non-styrene VOC from the facility stacks.

Table 5.1 PM_{10}, STYRENE, AND NON-STYRENE VOC EMISSIONS[a] FROM STACKS NOS. 1 AND 2

Source Description	PM_{10}[b]		Styrene		VOC (non-Styrene)[c]	
	lb/hr	T/yr	Lb/hr	T/yr	lb/hr	T/yr
Manufacturing FRP Stacks Nos. 1 and 2	2.27	9.92	43.4	54.4	5.66	24.86

[a] The pounds per hour emissions as determined by a pollutant-specific EPA reference method, a DEQ-approved alternative, or by DEQ's emissions estimation methods used in the permit application analysis. The annual emissions as determined by multiplying the actual or allowable (if actual is not available) pounds per hour emissions rate by the allowable hours per year that the process(es) may operate(s), or by actual annual production rates.

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

[c] Volatile organic compounds(i.e., alpha methyl styrene, methyl methacrylate, vinyl acetate, hexylene glycol, and methyl ethyl ketone) – refer to Dynamic submittal dated 8/23/2004.

5.3 Modeling

Appendix C of this statement of basis contains the modeling review memorandum, which includes a discussion of the modeling analysis conducted for this project. DEQ determined that Dynamic has successfully demonstrated that the operations at the facility will not cause or significantly contribute to a violation of any NAAQS. Also, the modeled toxic air pollutants showed the facility will not exceed any TAP increments.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 ..... Permit to Construct Required

A permit to construct is required for the modification to this stationary source because it does not meet the exemption criteria contained in IDAPA 58.01.01.200-223.

IDAPA 58.01.01.203 ..... Permit Requirements for New and Modified Stationary Sources

All PTC applications are required to demonstrate compliance with the terms of IDAPA 58.01.01.203. This section of the Rules requires Dynamic to demonstrate that the modification at the facility will comply with all applicable emissions standards and will not cause or significantly contribute to a violation of any ambient air quality standard.

IDAPA 58.01.01.205 ..... Permit Requirements for New Major Facilities or Major Modifications in Attainment or Unclassifiable Areas

This facility is not a PSD major facility; therefore, PSD permitting requirements do not apply.

IDAPA.58.01.01.209.01.c..... Opportunity for Public Comment

This PTC is subject to the provisions of IDAPA 58.01.01.209.01.c. An opportunity for public comment period, in accordance with IDAPA 58.01.01.209.01.c, started on September 30, 2004 and ended on October 30, 2004. During this time, there were two comments on the application and no requests for a full public comment period on DEQ's proposed action.

IDAPA 58.01.01.210 ..... Demonstration of Preconstruction Compliance with Toxic Standards

The TAPs emissions resulting from the FRP operations at Dynamic were estimated by Spring Environmental, Inc. Appendix A of this document contains all TAPs emissions estimates from the facility. All TAPs emissions from Dynamic were demonstrated to meet the requirements specified in IDAPA 58.01.01.210. Refer to the modeling review memorandum in Appendix C of this document.

IDAPA 58.01.01.212 ..... Obligation to Comply

Receipt of this PTC does not relieve Dynamic from the responsibility to comply with all federal, state, and local rules and regulations.

IDAPA 58.01.01.225 ..... Permit to Construct Processing Fees

This project is subject to the fee provisions of IDAPA 58.01.01.225, and Dynamic paid a processing fee of $5,000.00 for the increase in PM_{10} and VOC emissions of 27.40 T/yr.

IDAPA 58.01.01.577 ..... Ambient Air Quality Standards for Specific Air Pollutants

Dynamic submitted a modeling analysis demonstrating that emissions rates resulted from the modification at the facility will not cause or significantly contribute to a NAAQS violation; therefore, the requirements of IDAPA 58.01.01.203.02 and .577 are satisfied. The facility's modeling analyses were reviewed by DEQ's Stationary Source Program staff and the modeling review memorandum indicates that the requirements of IDAPA 58.01.01.203.02 and .577 are met. The modeling review memorandum is in Appendix C of this statement of basis.

IDAPA 58.01.01.625 ..... Visible Emissions Limitation

Emissions from all stationary point sources in the state of Idaho are required to comply with the opacity standards of IDAPA 58.01.01.625-626, unless exempted under Section 625.01. Stack No. 1 and stack No. 2 at the facility are subject to this standard.

IDAPA 58.01.01.650 ..... Rules for the Control of Fugitive Dust

All stationary sources are required to comply with the fugitive dust prevention requirements of IDAPA 58.01.01.650-651.

40 CFR 60 ..... New Source Performance Standards

Dynamic Fabricators, LLC is not currently subject to any terms and provisions of NSPS, 40 CFR 60, New Source Performance Standards.

40 CFR 61 and 63 ..... National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology

Dynamic is subject to the National Emission Standard for Hazardous Air Pollutants (NESHAP):Reinforced Plastic Composites Production, Subpart WWWW. The effective date for this subpart was April 21, 2003. According to Subpart WWWW, all existing sources shall comply with the NESHAP standard by April 21, 2006. Dynamic is an existing source and shall comply with 40 CFR 63, Subpart WWWW by that date.

5.5 Fee Review

Dynamic Fabricators, LLC paid the $1,000 application fee as required in IDAPA 58.01.01.224 on November 20, 2003.

A permit to construct processing fee of $5,000.00 is required in accordance with IDAPA 58.01.01.225 because the increase in emissions from this project is 27.40 ton per year. Dynamic paid the processing fees on November 18, 2004.

Dynamic is a major facility as defined in IDAPA 58.01.01.008.10. Therefore, registration fees are applicable in accordance with IDAPA 58.01.01.387.

6. PERMIT CONDITIONS

The following are the modified PTC permit conditions for this permitting action:

PM_{10} and Styrene Emissions Limits - Permit Condition 2.4

The PM_{10} emissions were increased from 2.19 lb/hr and 5.68 T/yr to 2.27 lb/hr and 9.92 T/yr. The styrene hourly emissions were also increased from 18.1 lb/hr to 43.4 lb/hr. However, the permittee requested to maintain the current annual styrene emissions to 54.4 tons.

In this modified PTC, the PM_{10} emissions are limited to 2.27 lb/hr and 9.92 T/yr. Also, the styrene emissions are limited to 43.4 lb/hr and 54.4 T/yr.

Compliance Demonstration

Permit Conditions 2.15.1 and 2.15.2 require the permittee to conduct a performance tests on stacks Nos. 1 and 2 to demonstrate compliance with the PM_{10} and styrene emissions limits. The PM_{10} and styrene performance tests will be conducted in accordance with IDAPA 58.01.01.157 and General Provision 6 of the PTC. The tests must be conducted within 180 days after issuance of the PTC. During the PM_{10} and styrene performance tests, Dynamic will monitor and record the throughput of resins, gel coat, catalyst, and fiberglass in pounds per hour. Opacity and pressure drop across the fiberglass filter media system will also be monitored.

Throughput Limits - Permit Condition 2.5

Dynamic requested to double the facility's throughput limits. The following are the previous throughput limits and the requested throughput limits:

Throughput	Previous Limits (T/yr)	Requested Limits (T/yr)
Resins:	360	720
Gel coat:	51.5	103
Fiberglass:	200	400
Catalyst:	8.5	17.5

In this modified PTC, the resins, gel coat, fiberglass, and catalyst throughput are limited to the following in any consecutive 12-month period:

- Resins 720 T/yr
- Gel coat 103 T/yr
- Fiberglass 400 T/yr
- Catalyst 17.5 T/yr

Compliance Demonstration

Permit Condition 2.12 (2nd bullet) requires the permittee to monitor and record the resins, gel coat, fiberglass, and catalyst throughput on a monthly and annual basis. Records of monitoring throughput will remain on site for the most recent two-year period and shall be made available to DEQ representatives upon request.

Filter System Monitoring Equipment - Permit Condition 2.6

The permittee shall, in accordance with manufacturer specifications, install, calibrate, maintain, and operate equipment to continuously measure the pressure differential across the fiberglass filter media system.

Compliance Demonstration

The permittee must install monitoring equipment in order to measure the pressure drop across the filter system.

Operation and Maintenance Manual - Permit Condition 2.7

Within 60 days of permit issuance, the permittee shall have developed an operations and maintenance (O&M) manual for the fiberglass filter media system. The manual shall describe the procedures that will be followed to comply with General Provision 2 and the manufacturer specifications for the filters. The manual shall contain, at a minimum, the pressure drop operating range for the fiberglass filter media system and scheduled maintenance requirements. The manual shall remain on site at all times and shall be made available to DEQ representatives upon request. Within 30 days of O&M manual development, the permittee shall submit a copy of the manual to DEQ.

Compliance Demonstration

The permit requires that PM_{10} emissions from stack No. 1 and stack No. 2 be controlled by properly functioning fiberglass filter system. The permittee is required to prepare an operation and maintenance manual for the fiberglass filter system. The PM_{10} emission limitations and subsequent compliance with the emission standards are based on the use of the fiberglass filter system. The pressure drop across the filter system will be maintained within manufacturer and operation and maintenance manual specifications that indicate proper filter operations. The permittee must install monitoring equipment in order to measure the pressure drop across the filter system. The permittee must monitor and record the pressure drop across the filter system on a daily basis – refer to Permit Condition 2.12 (1st bullet). The daily monitoring will allow the permittee to track the changes and clean or replace the filters as recommended by the manufacturer. The facility is not required to record the pressure drop across the filters when processes associated with the filters are not in operation. The manual shall remain on site at all times and shall be made available to DEQ representatives upon request. Within 30 days of O&M manual development, the permittee shall submit a copy to DEQ.

Pressure Drop Across the Fiberglass Filter Media System - Permit Condition 2.8

The pressure drop across the fiberglass filter media system shall be maintained within manufacturer and O&M manual specifications. Documentation of both the manufacturer and O&M manual operating pressure drop specifications shall remain on site at all times and shall be made available to DEQ representatives upon request.

Compliance Demonstration

To assure the filter system is operating according to manufacturer recommended operating specifications, the permittee is required to monitor the pressure drop across the filter system once per day while the filter system is operating – refer to Permit Condition 2.12 (1st bullet). So long as the pressure drop is within the recommended pressure drop operating range, it can be reasonably assured the filter system is operating properly, which, in turn, reasonably assures compliance with the corresponding emissions rate limits.

Performance Tests - Permit Condition 2.15

The permittee is required to conduct performance tests to measure PM_{10} and styrene emissions from Stack No. 1 and Stack No. 2. For PM_{10} performance tests the methods used are the US EPA Methods 210.a and 202 methods. For styrene, the permittee will receive DEQ approval of proposed test method prior to scheduling of such testing. Permit Condition 2.15 is the requirement to demonstrate compliance with Permit Condition 2.4.

The PM_{10} performance test requirement was also mandated by Tier I Operating Permit No.055-00035, issued on December 29, 2000. As of the date of this statement of basis, DEQ has not received a PM_{10} source test result report from the facility to fulfill the Tier I operating permit requirements. Also, Dynamic could not confirm the filter control efficiency, therefore, a performance test to measure PM_{10} is included as Permit Condition 2.15.1 in this modified PTC.

Performance Test Protocol- Permit Condition 2.16

The permittee is encouraged to submit a test protocol to DEQ for approval at least 30 days prior to the performance tests required in Permit Condition 2.15. If the permittee fails to obtain prior written approval by DEQ for any testing deviations, DEQ may determine that the test does not satisfy the testing requirements.

Performance Test Report - Permit Condition 2.17

The permittee shall submit a report of the results of the performance test required in Permit Condition 2.15, including all required process data and in accordance with General Provision 8, to DEQ within 45 days after the date on which the performance tests are conducted.

During the facility review of the draft permit, Dynamic requested from DEQ to extend the due date for the source test reports to 45 days rather than 30 days. After review IDAPA 58.01.01.157, DEQ granted the facility the extension.

7. PUBLIC COMMENT

A draft permit was provided for facility review on 11/18/04.

The draft permit was also provided to the Coeur d'Alene Regional Office of the DEQ.

An opportunity for public comment on the PTC application was provided, in accordance with IDAPA 58.01.01.209.01.c, from September 30, 2004 to October 30, 2004. During this time, there were two comments on the application and no requests for a full public comment period on DEQ's proposed action. One comment was from Dr. Henry Covelli of the Pulmoary Consultants of North Idaho, in which he requested from DEQ to send him an analysis of the type of impact from the company's operation. The other comment was from Mr. Dann Douglas of the city of Spokane, Washington, who suggested DEQ take a closer look at the applicants' sewage discharge and drainfield contamination, since the facility is located over Spokane Valleys' aquifer.

With regard to Dr. Covelli's comment, DEQ sent to Dr. Covelli an email, on December 8, 2004, with an attachment that contained a draft PTC, draft statement of basis, and a modeling memorandum. In the email, DEQ requested from Dr. Covelli that if he needed a formal public comment period to request it in writing. As of the date of this statement of basis, DEQ has not received a response from Dr. Covelli.

With regard to Mr. Douglas' comment, the DEQ Air Quality Program referred the comment to the Wastewater Program. A.J. Maupin, PE, Wastewater Program Engineer, will investigate the situation to verify that Dynamic and its operation are in compliance with their wastewater discharge permit.

8. RECOMMENDATION

Based on review of application materials and all applicable state and federal rules and regulations, staff recommends that Dynamic Fabricators, LLC in Rathdrum be issued final modified PTC No. P-030141 for the facility. An opportunity for public comment on the air quality aspects of the proposed permit to construct was provided in accordance with IDAPA 58.01.01.209.01.c.

HE/sd Permit No. P-030141

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APPENDIX A

Emissions Inventory

TABLE 1 - TOXIC AIR POLLUTANT POTENTIAL EMISSION RATE
DYNAMIC FABRICATORS LLC

TAP	CAS	TYPE OF COATING	REPRESENTATIVE COATING	WT %	MAXIMUM EMISSION RATE INCREASE [1&2]		EL (lb/hr) (IDAPA 58.01.01.585)	> EL?
Alpha methyl styrene	98-83-9	Resin	Eastman UP Resin 733 Type DCPD Lam	0.5	1.8 tpy	0.41 lb/hr	16	No
Methyl Methacrylate	80-62-6	Resin	Eastman UP Resin 170-7995	5	18 tpy	4.1 lb/hr	27.3	No[3]
Vinyl Acetate	108-05-4	Resin	Polylite 33540-00 Resin	0.5	1.8 tpy	0.41 lb/hr	2.3[4]	No
Methyl Methacrylate	80-62-6	Gelcoat	Polycor Base White, 944W005	4.968	2.6 tpy	0.59 lb/hr	27.3	No[3]
Carbon Black	1333-86-4	Gelcoat	Polycor Black Tooling, 945B201	0.14	0.07 tpy	0.02 lb/hr	0.23	No
Silica Gel	112926-00-8	Gelcoat	Polycor Sand, 944IC085	1 to 5	max 2.6 tpy	0.59 lb/hr	0.667	No
MEK Peroxide (MEKP)	1338-23-4	Catalyst	Luperox DDM-9	34	0 tpy[5]	0 lb/hr	0.01	No
Hexylene Glycol	107-41-5	Catalyst	Luperox DDM-9	6	0.53 tpy	0.12 lb/hr	0.806	No
MEK	78-93-3	Catalyst	Luperox DDM-9	1.5	0.13 tpy	0.03 lb/hr	39.3	No
Hydrogen Peroxide	7722-84-1	Catalyst	Luperox DDM-9	0.7	0.06 tpy	0.01 lb/hr	0.1	No

Notes:

(1) The increase in potential emission rate was determined by multiplying the composition [weight percent (wt %) dividing by 100] by the proposed increase in annual production limits [720,000 lbs of resin, 103,000 lbs of gelcoat, and 17,500 lbs of catalyst], then converting the results to tons by dividing by 2000 lb/ton.

(2) Hourly emission rates were calculated by multiplying the annual emission rate by 2000 lb/ton and dividing by 8760 hours/yr; emissions will be generated throughout fabrication and curing.

(3) This was determined after adding the potential emissions from both gelcoat and resin.

(4) Per telephone conversation with Mary Anderson on 07/30/2004 – The values in IDAPA 58.01.01.585 should be: OEL = 35 mg/m^3, EL=2.3 lb/hr and AAC=1.75 mg/m^3 for vinyl acetate.

(5) This emission rate is based on the fact that MEKP is consumed in the resin and gelcoat curing process (Attachment #1).

11/16/2005 8:02 AM

Dynamic Fabricators
Potential to Emit Calculations

Proposed Changes to Operating Limits

Material	Present Limit	Proposed Limit
Resins	720,000 lb/year	1,440,000 lb/year
Gelcoat	103,000 lb/year	206,000 lb/year
Fiberglass	400,000 lb/year	800,000 lb/year
Catalyst	17,500 lb/year	35,000 lb/year
Total	1,240,500	2,481,000

Emission Calculations

Product No.	Manufacturer	Unit	Styrene%	(UEF) Lbs/Ton	% of Resin	Maximum PTE: Product Mat. Usg.	Maximum PTE: Emissions Lbs/year	Maximum PTE: Emissions Lbs/hour
GP Resins								
188-0818 Mechanical Non-Atomized	McWhorter	lbs	34.1%	74	3.70%	-	-	-
188-0818 Filament Wound	McWhorter	lbs	34.1%	127	6.35%	-	-	-
188-0818 Total	McWhorter	lbs	34.1%					
Mechanical Non-Atomized						-	-	-
Filament Wound						-	-	-
Sub-Total						-	-	-
Ice Resins								
MCW188-0818 Mechanical non-Atomized	McWhorter	lbs	41.2%	87	4.84%	-	-	-
MCW188-0818 Filament Wound	McWhorter	lbs	41.2%	167	8.36%	-	-	-
MCW188-0818 Total	McWhorter	lbs	41.2%					
MCW188-0818 Mechanical non-Atomized	McWhorter	lbs	41.2%	87	4.84%	-	-	-
MCW188-0818 Filament Wound	McWhorter	lbs	41.2%	167	8.36%	-	-	-
MCW188-0818 Total	McWhorter	lbs	41.2%					
Mechanical Atomized						-	-	-
Filament Wound						-	-	-
Sub-Total						-	-	-
FR Resins								
EAS 782-4426 FR Mechanical Non-Atomize	Eastman	lbs	37.1%	63.03	4.15%	-	-	-
EAS 782-4426 FR Filament Wound	Eastman	lbs	37.1%	144.3	7.23%	-	-	-
EAS 782-4426 FR Total	Eastman	lbs	37.1%					
K130-PTA-20 FR Mechanical Non-Atomized	McWhorter	lbs	37.3%	83.8	4.20%	-	-	-
K130-PTA-20 FR Filament Wound	McWhorter	lbs	37.3%	148.8	7.38%	-	-	-
K130-PTA-20 FR Total	McWhorter	lbs	37.3%					
Mechanical Atomized						-	-	-
Filament Wound						-	-	-
Sub-Total						-	-	-
Tooling Resins *(Mechnical Non-Atomized)*								
334500-00 Tooling	Reichold	lbs	50.0%	354	17.70%		-	
Sub-Total						-	-	-
Vinyl Ester Resin								
Hetron V/E Mechanical Non-Atomized	Dow	lbs	41.0%	98	4.80%	-	-	-
Hetron V/E Filament Wound	Dow	lbs	41.0%	186	8.30%	-	-	-
Hetron V/E Total	Dow	lbs	41.0%					
411-45 Mechanical Non-Atomized	Dow	lbs	45.0%	283	14.15%	1,440,000	203,760	34.80
411-45 Filament Wound	Dow	lbs	45.0%	188	9.40%		-	-
411-45 Total	Dow	lbs	45.0%	148	7.09%			
Mechanical Non Atomized						1,440,000	203,760	34.80
Filament Wound						-	-	-
Sub-Total						1,440,000	203,760	34.80
Gelcoats								
CCP 944-GA-047 Forest Green	Cook	lbs	33.8%	316	15.78%		-	-
CCP 944-AC-005 Roberts Grey	Cook	lbs	32.9%	293	14.69%		-	-
Roberts Grey	Neste	lbs	36.1%	386	18.90%		-	-
Roberts Grey 945AH384	Cook	lbs	38.4%	396	19.90%		-	-
944-ac-049 Hint o Green	Cook	lbs	30.8%	272	13.60%		-	-
Light Sand NO-31685	Neste	lbs	36.1%	386	18.85%		-	-
Desert Sand 944 NH 199	Cook	lbs	31.8%	283	14.18%		-	-
944-W-005 White	Cook	lbs	30.8%	274	13.70%		-	-
Purple	Cook	lbs	42.0%	481	24.05%	206,000	49,543	8.49
Orange	Cook	lbs	42.0%	481	24.05%		-	-
Green	Cook	lbs	33.8%	316	15.78%		-	-
Green 944-GA-047	Cook	lbs	33.8%	316	15.78%		-	-
Black Tooling	Cook	lbs	42.0%	481	24.05%		-	-
White	Cook	lbs	30.8%	274	13.70%		-	-
Sub-Total						206,000	49,543	8.49
Thixo Putty CM 1368F	Reichs	lbs	20.0%	67.8	3.39%		-	-
Sub-Total						-	-	43.37

Notes:
lbs resin used / 2000lbs/ton * UEF lbs/ton = lb Styrene emitted
Resin and Gelcoat used represent the compounds in use with the highest styrene content and UEF
Hours used = 16 hours/day * 365 days/year = 5840 hours/year

PTE Estimates for PM, PM-10, and VOC (assumed current actual = permitted and assumes are directly related to the incoming raw materials processed.)

		Current Emissions		Proposed Emissions
VOC	2,481,000 lb new / 1,240,500 lb old	* 0.85 lb/hour	=	1.3 lb/hour
	2,481,000 lb new / 1,240,500 lb old	* 1.89 tons/year	=	3.38 ton/year
PM and PM-10	2,481,000 lb new / 1,240,500 lb old	* 2.18 lb/hour	=	4.36 lb/hour
	2,481,000 lb new / 1,240,500 lb old	* 5.68 tons/year	=	11.36 ton/year

Max Emissions
MDC # 188-0818 limits maximum average styrene content in emissions 3.1 & 3.2

⇒ resins UEF = 283 lbs/ton
gel coat UEF = 481 lbs/ton

hours of operations = 16 hr/day; 365 days/yr
= 5,840 hrs/yr

⇒ Styrene emissions from resins:
$= (720\ T/yr)(283\ \frac{lbs}{ton})(\frac{1\ yr}{5,840\ hrs})$
$= 34.9\ lbs/hr$

⇒ Styrene emissions from gel coat:
$= (103\ T/yr)(481\ lbs/ton)(\frac{1\ yr}{5,840\ hrs})$
$= 8.5\ lbs/hr$

Total Styrene emissions = [illegible]

(2) Federal or State emission charges or taxes or other economic incentives or disincentives.

(3) Closing or relocation of residential, commercial, or industrial facilities.

(4) Changes in schedules or methods of operation of commercial or industrial facilities or transportation systems, including, but not limited to, short-term changes made in accordance with standby plans.

(5) Periodic inspection and testing of motor vehicle emission control systems, at such time as the Administrator determines that such programs are feasible and practicable.

(6) Emission control measures applicable to in-use motor vehicles, including, but not limited to, measures such as mandatory maintenance, installation of emission control devices, and conversion to gaseous fuels.

(7) Any transportation control measure including those transportation measures listed in section 108(f) of the Clean Air Act as amended.

(8) Any variation of, or alternative to any measure delineated herein.

(9) Control or prohibition of a fuel or fuel additive used in motor vehicles, if such control or prohibition is necessary to achieve a national primary or secondary air quality standard and is approved by the Administrator under section 211(c)(4)(C) of the Act.

(o) *Reasonably available control technology (RACT)* means devices, systems, process modifications, or other apparatus or techniques that are reasonably available taking into account:

(1) The necessity of imposing such controls in order to attain and maintain a national ambient air quality standard;

(2) The social, environmental, and economic impact of such controls; and

(3) Alternative means of providing for attainment and maintenance of such standard. (This provision defines RACT for the purposes of § 51.341(b) only.)

(p) *Compliance schedule* means the date or dates by which a source or category of sources is required to comply with specific emission limitations contained in an implementation plan and with any increments of progress toward such compliance.

(q) *Increments of progress* means steps toward compliance which will be taken by a specific source, including:

(1) Date of submittal of the source's final control plan to the appropriate air pollution control agency;

(2) Date by which contracts for emission control systems or process modifications will be awarded; or date by which orders will be issued for the purchase of component parts to accomplish emission control or process modification;

(3) Date of initiation of on-site construction or installation of emission control equipment or process change;

(4) Date by which on-site construction or installation of emission control equipment or process modification is to be completed; and

(5) Date by which final compliance is to be achieved.

(r) *Transportation control measure* means any measure that is directed toward reducing emissions of air pollutants from transportation sources. Such measures include, but are not limited to, those listed in section 108(f) of the Clean Air Act.

(s) *Volatile organic compounds (VOC)* means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions.

(1) This includes any such organic compound other than the following, which have been determined to have negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane (methyl chloroform); 1,1,2-trichloro-1,2,2-trifluoroethane (CFC–113); trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (HCFC–22); trifluoromethane (HFC–23); 1,2-dichloro 1,1,2,2-tetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); 1,1,1-trifluoro 2,2-dichloroethane (HCFC–123); 1,1,1,2-tetrafluoroethane (HFC–134a); 1,1-dichloro 1-fluoroethane (HCFC–141b); 1-chloro 1,1-difluoroethane (HCFC–142b); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC–124); pentafluoroethane (HFC–125); 1,1,2,2-tetrafluoroethane (HFC–134); 1,1,1-trifluoroethane (HFC–143a); 1,1-

Acetone: $CH_3-\overset{O}{\overset{\|}{C}}-CH_3$

difluoroethane (HFC-152a);

parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; acetone; perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); difluoromethane (HFC-32); ethylfluoride (HFC-161); 1,1,1,3,3,3-hexafluoropropane (HFC-236fa); 1,1,2,2,3-pentafluoropropane (HFC-245ca); 1,1,2,3,3-pentafluoropropane (HFC-245ea); 1,1,1,2,3-pentafluoropropane (HFC-245eb); 1,1,1,3,3-pentafluoropropane (HFC-245fa); 1,1,1,2,3,3-hexafluoropropane (HFC-236ea); 1,1,1,3,3-pentafluorobutane (HFC-365mfc); chlorofluoromethane (HCFC-31); 1 chloro-1-fluoroethane (HCFC-151a); 1,2-dichloro-1,1,2-trifluoroethane (HCFC-123a); 1,1,1,2,2,3,3,4,4-nonafluoro-4-methoxy-butane ($C_4F_9OCH_3$); 2-(difluoromethoxymethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCF_2OCH_3$); 1-ethoxy-1,1,2,2,3,3,4,4,4-nonafluorobutane ($C_4F_9OC_2H_5$); 2-(ethoxydifluoromethyl)-1,1,1,2,3,3,3-heptafluoropropane ($(CF_3)_2CFCF_2OC_2H_5$); methyl acetate and perfluorocarbon compounds which fall into these classes:

(i) Cyclic, branched, or linear, completely fluorinated alkanes;

(ii) Cyclic, branched, or linear, completely fluorinated ethers with no unsaturations;

(iii) Cyclic, branched, or linear, completely fluorinated tertiary amines with no unsaturations; and

(iv) Sulfur containing perfluorocarbons with no unsaturations and with sulfur bonds only to carbon and fluorine.

(2) For purposes of determining compliance with emissions limits, VOC will be measured by the test methods in the approved State implementation plan (SIP) or 40 CFR part 60, appendix A, as applicable. Where such a method also measures compounds with negligible photochemical reactivity, these negligibility-reactive compounds may be excluded as VOC if the amount of such compounds is accurately quantified, and such exclusion is approved by the enforcement authority.

(3) As a precondition to excluding these compounds as VOC or at any time thereafter, the enforcement authority may require an owner or operator to provide monitoring or testing methods and results demonstrating, to the satisfaction of the enforcement authority, the amount of negligibly-reactive compounds in the source's emissions.

(4) For purposes of Federal enforcement for a specific source, the EPA shall use the test methods specified in the applicable EPA-approved SIP, in a permit issued pursuant to a program approved or promulgated under title V of the Act, or under 40 CFR part 51, subpart I or appendix S, or under 40 CFR parts 52 or 60. The EPA shall not be bound by any State determination as to appropriate methods for testing or monitoring negligibly-reactive compounds if such determination is not reflected in any of the above provisions.

(t)–(w) [Reserved]

(x) *Time period* means any period of time designated by hour, month, season, calendar year, averaging time, or other suitable characteristics, for which ambient air quality is estimated.

(y) *Variance* means the temporary deferral of a final compliance date for an individual source subject to an approved regulation, or a temporary change to an approved regulation as it applies to an individual source.

(z) *Emission limitation* and *emission standard* mean a requirement established by a State, local government, or the Administrator which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis, including any requirements which limit the level of opacity, prescribe equipment, set fuel specifications, or prescribe operation or maintenance procedures for a source to assure continuous emission reduction.

(aa) *Capacity factor* means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

(bb) *Excess emissions* means emissions of an air pollutant in excess of an emission standard.

SPRING
Environmental, Inc.

ATTACHMENT #1
PARTICULATE MATTER EMISSIONS RATE
DYNAMIC FABRICATORS LLC

1. **Description of PM Sources:** There is only one area of the facility which is a point source of particulate emissions - the Fiberglass Area vents emissions through two identical stacks which are protected by 2-inch fiberglass filters with the physical characteristics as defined in PTC #P-940035, Section 1.3. The facility is currently permitted for 2.19 pph PM (100% PM10) and 5.68 tpy PM (100% PM10) under PTC #P-940035.

2. **History of PM Calculations:** After reviewing the DEQ files for preparation and issuance of the 1993 modification of Dynamic Fabricator's PTC, we realized that PM from fiberglass was determined at that time by assuming 10% of the glass processed is airborne, 80% of the airborne material is captured on the 2-inch filters, and PM from the chemical handling (i.e. gelcoat, resin and catalyst) was evaluated using DEQ's maximum PM emissions definition (previously IDAPA 16.01.01329). Both of these PM calculations appear to have been done by DEQ since Dynamic Fabricators did not provide any PM emission calculations in the application for modification. Dynamic Fabricator's letter of January 30, 2004 questioned the values used in the calculations but continued to use the original formulas. We propose that the formulas should be changed to reflect current process knowledge.

3. **PM Emissions from Fiberglass Fabrication:** We conducted an extensive records review of the fiberglass reinforced plastics & composites (FRP/C) industry to determine how other facilities and agencies have quantified PM emissions from fiberglass lamination and gelcoat.

    - There is no information available at the American Composites Manufacturing Association's (ACMA) technical or regulatory website (www.acma.org) related to PM emissions. ACMA is the leading fiberglass association, taking a leading public role in the development of the Fiberglass Reinforced Plastics/Composites (FRP/C) MACT Standard (40 CFR 63, Subpart WWWW).

    - The resin is impregnated into the glass in the spray gun and applied through a spray coater. Using an airless spray gun minimizes the potential for the resin impregnated glass to become airborne since the solution is liquid and ejected based on pressure from the material rather than air.

    - According to Ronnie Free of FREES, a vendor which specializes in providing air handling systems for fiberglass industries, filters which are applied to the intake air handling system (from the gelcoat and laminating areas) are used to maintain the quality of their equipment and are not specified in order to provide a PM removal efficiency. The air handling systems are designed to provide a room air exchanges such that employee exposure to styrene is less than the NIOSH (National Institute of Occupational Safety & Health) recommended standard of 50 ppm and OSHA (Occupational Safety & Health Administration) regulatory standard of 100 ppm. The filters themselves are HVAC (heating ventilation and air conditions filters) filter which are tested to ASHRAE standards for removal of particulate matter less than 0.05 um.

Mr. Free has no information on the amount of PM generated from the various methods of fiberglass manufacturing.

- Title V permits for other Fiberglass manufacturing facilities in the region (i.e. Fiber-Tech in Spokane, Western RV in Yakima, and Trail Wagons in Yakima) do not include PM emissions from the fiberglass fabrication area.

- None of the fiberglass manufacturers that we contacted in the U.S. have conducted PM source testing from the fiberglass fabricating area.

4. **PM Emissions from Dynamic Fabricator's Fiberglass Fabrication Process:** Since we cannot state absolutely that there are no particulate matter emissions from the fiberglass fabrication process, we reviewed the process to identify where particulate matter may be generated and how we could define the least conservative emission rate while providing data that was supportable.

   The fabrication process is such that gelcoat is applied to a fiberglass mold, using an airless spray gun, then allowed to cure. Resin and glass are applied on top of the cured gelcoat in the mold using an airlesss or FIT spray coater where the resin and glass are mixed at the tip of the gun and applied to the part without air assistance. The only exception to the airless application is when tooling or laminating very small parts requiring one gallon or less of resin or gelcoat. According to the Material Safety Data Sheets, resin, gelcoat and catalyst are liquid solutions with no solids content and densities similar to that of water (Appendix A).

   Dynamic Fabricators assumes a 10% scrap rate when purchasing raw materials (i.e. glass, resin, gelcoat, catalyst). A specific amount of raw materials are required to fabricate a part. Scrap rate is the amount of raw materials, beyond that used to make the part, which is trimmed off the mold or oversprayed. Therefore, the scrap rate is the amount of raw materials that Dynamic Fabricators assumes will not be included in the final product and will be lost. Based on the limited information that was available, and the production information for this fiberglass operation, it is our engineering judgment that a ***conservative*** estimate of the amount of raw materials which are vented to atmosphere (i.e. gelcoats and resins) or are airborne (glass) would be 5% of the raw materials (e.g. half of the scrap rate).

   Therefore, the maximum amount of particulate matter which may be airborne (Q) based on the production rates proposed in the November 19, 2003 application is:

   $Q_{total} = Quantity_{raw\ materials} * 0.05$

   Where Q_{resin} = 1,440,000 lb/yr = 720 tons per year (tpy)
   $Q_{gelcoat}$ = 206,000 lb/yr = 103 tpy
   $Q_{catalyst}$ = 35,000 lb/yr = 17.5 tpy
   Q_{glass} = 800,000 lb/yr = 400 tpy

   $Q_{total} = (720\ tpy_{resin} + 103\ tpy_{gelcoat} + 17.5\ tpy_{catalyst} + 400\ tpy_{glass}) * 0.05$

   $Q_{total} = 62.0$ tpy

5. **PM Control:** The fabrication area is closed at all times and maintained under negative pressure; therefore, all air exhausts through the exhaust stacks. The inlet to the exhaust dusting is protected with 2-inch Purolator fiberglass filters distributed by Air Filter Sales Northwest of Spokane. According to Air Filter Sales Northwest, removal efficiency of 2-inch fiberglass filters is 84% [based on a PM_1 (particulate matter less than 1.0 um is size) ASHRAE (American Society of Heating, Refrigeration, and Air Conditioning Engineers) standard] and 97% based on a paint filter test [particle size between 10 and 100 um] (Appendix B).

   Since (1) more accurate information is not readily available for removal efficiency of particles at 10 um (PM10) and 100 um (PM), (2) 84% removal efficiency is based on the size of respirable particles, normally 2.5 um or less, it is our engineering judgment that 84% removal efficiency is a conservative value.

   According to these assumptions, the maximum PM and PM10 emissions are:

   $PM = PM10 = Q_{total} * (100-84)/(100)$

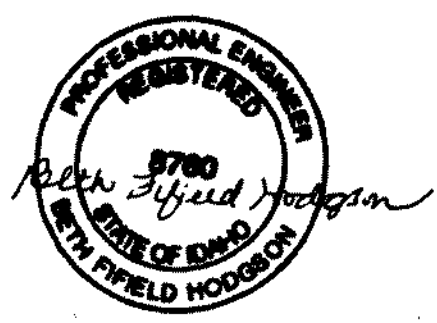
   $PM = PM10 = 62.0 \text{ tpy} * (0.16) = 9.92 \text{ tpy}$

6. **Change in Particulate Matter Emissions:** Assuming the facility can operate 365 days per year, 24 hours per day, the hourly PM emission rate will be 2.27 pph.

   Based on these calculations and assuming that all emissions are less than 10 microns, there will be an increase in PM10 emissions from the current permit limits to 2.27 pph (an increase of 0.08 pph) and 9.92 tpy (an increase of 4.24 tpy).

This Particulate Emissions Monitoring Rate report was prepared by Beth Fifield Hodgson, P.E. of Spring Environmental, Inc.

Spring Environmental Inc.
1011 N. Cedar Street
Spokane, WA 99201-1914
Tel: (509) 328-7500
Fax: (509) 328-7501



APPENDIX B

AIRS Form

AIRS/AFS[a] FACILITY-WIDE CLASSIFICATION[b] DATA ENTRY FORM

Facility Name: Dynamic Fabricators, LLC
Facility Location: Rathdrum
AIRS Number: 055-00035

[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
SO_2	B						U
NO_x	B						U
CO	B						U
PM_{10}	B						U
PT (Particulate)	B						U
VOC	SM						U
THAP (Total HAPs)	A					A	NA
			[redacted]				

[a] Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

[b] AIRS/AFS Classification Codes:

A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.

SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.

B = Actual and potential emissions below all applicable major source thresholds.

C = Class is unknown.

ND = Major source thresholds are not defined (e.g., radionuclides).

APPENDIX C

Modeling Analysis

MODELING MEMORANDUM

DATE: November 8, 2004

TO: Harbi Elshafei, Air Quality Division

THROUGH: Kevin Schilling, Stationary Source Modeling Coordinator, Air Quality Division

FROM: Dustin Holloway, Permitting Analyst, Air Quality Division

PROJECT NUMBER: P-030041

SUBJECT: Modeling Review for the Dynamic Fabricators facility near Rathdrum
Facility ID No. 055-00035

1.0 SUMMARY

Spring Environmental Inc, conducted air quality dispersion modeling in support of a permit to construct (PTC) application for the Dynamic Fabricators, LLC facility near Rathdrum, Idaho. Modeling was conducted to show that the PM_{10} emissions would not cause or contribute to a violation of the 24-hour and annual national ambient air quality standards (NAAQS), and to show that the styrene emissions meet the allowable ambient concentrations in IDAPA 58.01.01.585.

Based on the results of the modeling analyses, DEQ has determined that the submitted modeling analysis: 1) utilized appropriate methods and models; 2) was conducted using reasonably accurate or conservative model parameters and input data; 3) appropriately adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed that predicted pollutant concentrations at all receptor locations, when appropriately combined with background concentrations, were below stated air quality standards.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits

This facility is located in Kootenai county. Kootenai county is unclassifiable for all criteria air pollutants. The following table summarizes the applicable NAAQS for this region.

Table 2.1 Applicable regulatory limits				
Pollutant	**Averaging Period**	**Significant Contribution Levels ($\mu g/m^3$)[a, b]**	**Regulatory Limit ($\mu g/m^3$)[c]**	**Modeled Value Used[d]**
PM_{10}[e]	Annual	1	50[f]	Maximum 1st highest[g]
	24-hour	5	150[h]	Maximum 6th highest[i] Highest 2nd highest[j]

a. IDAPA 58.01.01.006.93
b. Micrograms per cubic meter
c. IDAPA 58.01.01.577 for criteria pollutants, IDAPA 58.01.01.585 for non-carcinogenic toxic air pollutants IDAPA 58.01.01.586 for carcinogenic toxic air pollutants.
d. The maximum 1st highest modeled value is always used for significant impact analysis and for all toxic air pollutants.
e. Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
f. Never expected to be exceeded in any calendar year.
g. Concentration at any modeled receptor.
h. Never expected to be exceeded more than once in any calendar year.
i. Concentration at any modeled receptor when using five years of meteorological data.
j. The highest 2nd high is considered to be conservative for five years of meteorological data.

2.2 *Background Concentrations*

The applicant used the background concentration for the Meyer Ranch monitor site data in DEQ's background concentration data[1]. This is the closest monitoring site to the facility. The following table contains the background concentrations.

Table 2.2 Background concentrations.		
Pollutant	**Averaging Period**	**Background concentrations ($\mu g/m^3$)[a]**
PM_{10}	24-hour	73
	Annual	21.2

a. Micrograms per cubic meter.

3.0 Assessment of Submitted, Certified Modeling Analysis

3.1 *Modeling Methodology*

Screening modeling was conducted using Screen3. The applicant modeled the only PM_{10} source at this facility. According to the application materials PM_{10} is the only criteria pollutant with an ambient air quality standard emitted by Dynamic Fabricators. The only other pollutant modeled is styrene, which is listed as a toxic pollutant in Idaho's rules.

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

Table 3.1 Modeling parameters.		
Parameter	**What Facility Submitted**	**DEQ's Review/Determination**
Modeling protocol	No formal protocol was submitted	Although no protocol was submitted, the modeling analysis followed established guidelines.
Model Selection	Screen3	This model is appropriate for this situation.
Meteorological Data	Screening meteorological date	This is a conservative approach and is appropriate for this situation.
Model Options	Regulatory defaults	Appropriate for this situation.
Land Use	Rural	This facility is located in a rural area.
Complex Terrain	Complex terrain was not analyzed	This is appropriate for this location because the highest ambient concentrations occur close to the facility where the terrain is flat.
Building Downwash	Downwash was included	Calculation the effects of downwash is appropriate for this site.
Receptor Network	Default Screen3 grid.	This is appropriate for screening modeling
Facility Layout	N/A	The applicant included the building that the exhaust stack is located on.

3.2 Emission Rates

The only pollutants modeled in this analysis were PM_{10} and styrene. The PM_{10} emissions rate is 2.27 lb/hr. The modeled styrene emission rate is 43.37 lb/hr. The applicant estimated the maximum styrene emission rate in lieu of modeling just the increase from this permit modification. This is a conservative method.

3.3 Emission Release Parameters

The applicant mistakenly calculated the area of the stack and inserted it into the model. The model input is supposed to be the diameter of the stack. DEQ corrected this error and inserted the diameter of the stack into the model. The following table is a summary of the Screen3 input parameters used for this analysis.

Table 3.2 Point source parameters	
Height	28 feet
Exit Diameter	2 feet
Exit Gas Velocity	4,545 feet per minute
Exit Gas Temperature	68°F

3.4 Results

Screen3 was rerun with the corrected stack diameter at an emissions rate of one pound per hour. The resulting output was multiplied by the pound per hour emission rate for each pollutant and the applicable persistence factor to estimate the facility's ambient impact. The results are presented in the following tables. The modeled results are all within their applicable ambient limits. A copy of the Screen3 model output is included in the appendix.

3.4.1 Full Impact Analysis Results

Table 3.3 Full impact analysis results						
Pollutant	**Averaging Period**	**Facility Ambient Impact ($\mu g/m^3$)**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient concentration ($\mu g/m^3$)**	**NAAQS ($\mu g/m^3$)**	**Percent of NAAQS**
PM_{10}	24-hour	18.5	73	91.5	150	61%
	Annual	3.7	21.2	24.9	50	49.8%

3.4.2 Toxic Air Pollutants Results

Table 3.4 Toxic air pollutants analysis results				
Pollutant	**Averaging Period**	**Maximum Concentration (mg/m^3)**	**AAC (mg/m^3)**	**Percent of AAC**
Non-Carcinogens				
Styrene	24-hour	0.353	1.0	35.3

APPENDIX

MODEL OUTPUT

*** SCREEN3 MODEL RUN ***
*** VERSION DATED 96043 ***

No Title

SIMPLE TERRAIN INPUTS:

SOURCE TYPE	=	POINT
EMISSION RATE (G/S)	=	0.126000
STACK HEIGHT (M)	=	8.5344
STK INSIDE DIAM (M)	=	0.6096
STK EXIT VELOCITY (M/S)	=	23.0902
STK GAS EXIT TEMP (K)	=	293.0000
AMBIENT AIR TEMP (K)	=	293.1500
RECEPTOR HEIGHT (M)	=	0.0000
URBAN/RURAL OPTION	=	RURAL
BUILDING HEIGHT (M)	=	5.7912
MIN HORIZ BLDG DIM (M)	=	22.8600
MAX HORIZ BLDG DIM (M)	=	51.8160

THE REGULATORY (DEFAULT) MIXING HEIGHT OPTION WAS SELECTED.
THE REGULATORY (DEFAULT) ANEMOMETER HEIGHT OF 10.0 METERS WAS ENTERED.

TA > TS!!! BUOY. FLUX SET = 0.0

BUOY. FLUX = 0.000 M**4/S**3; MOM. FLUX = 49.532 M**4/S**2.

*** FULL METEOROLOGY ***

****
*** SCREEN AUTOMATED DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
1.	0.8086E-13	6	1.0	1.0	10000.0	25.50	2.90	2.90	NO
100.	20.22	3	8.0	8.0	2560.0	10.44	12.46	7.44	SS
200.	17.91	4	8.0	8.0	2560.0	10.44	15.56	8.57	SS
300.	14.22	4	4.5	4.5	1440.0	15.58	22.61	12.09	SS
400.	13.25	5	5.0	5.0	10000.0	14.78	22.01	10.81	SS
500.	15.42	5	1.0	1.0	10000.0	27.16	27.54	13.86	NO
600.	17.51	5	1.0	1.0	10000.0	27.16	32.37	15.63	NO
700.	18.27	5	1.0	1.0	10000.0	27.16	37.15	17.35	NO
800.	18.17	5	1.0	1.0	10000.0	27.16	41.89	19.03	NO
900.	17.57	5	1.0	1.0	10000.0	27.16	46.57	20.67	NO
1000.	17.87	6	1.0	1.0	10000.0	25.50	34.23	14.77	NO
1100.	18.11	6	1.0	1.0	10000.0	25.50	37.28	15.59	NO
1200.	18.10	6	1.0	1.0	10000.0	25.50	40.31	16.39	NO
1300.	17.90	6	1.0	1.0	10000.0	25.50	43.31	17.17	NO
1400.	17.57	6	1.0	1.0	10000.0	25.50	46.30	17.93	NO
1500.	17.15	6	1.0	1.0	10000.0	25.50	49.27	18.67	NO
1600.	16.68	6	1.0	1.0	10000.0	25.50	52.22	19.40	NO
1700.	16.18	6	1.0	1.0	10000.0	25.50	55.15	20.11	NO
1800.	15.66	6	1.0	1.0	10000.0	25.50	58.07	20.81	NO
1900.	15.14	6	1.0	1.0	10000.0	25.50	60.97	21.49	NO
2000.	14.62	6	1.0	1.0	10000.0	25.50	63.86	22.16	NO
2100.	14.09	6	1.0	1.0	10000.0	25.50	66.73	22.73	NO
2200.	13.59	6	1.0	1.0	10000.0	25.50	69.59	23.29	NO
2300.	13.10	6	1.0	1.0	10000.0	25.50	72.44	23.84	NO

2400.	12.64	6	1.0	1.0	10000.0	25.50	75.28	24.37	NO
2500.	12.21	6	1.0	1.0	10000.0	25.50	78.10	24.90	NO
2600.	11.79	6	1.0	1.0	10000.0	25.50	80.91	25.42	NO
2700.	11.39	6	1.0	1.0	10000.0	25.50	83.71	25.93	NO
2800.	11.01	6	1.0	1.0	10000.0	25.50	86.50	26.43	NO
2900.	10.65	6	1.0	1.0	10000.0	25.50	89.28	26.92	NO
3000.	10.31	6	1.0	1.0	10000.0	25.50	92.05	27.41	NO
3500.	8.855	6	1.0	1.0	10000.0	25.50	105.76	29.38	NO
4000.	7.716	6	1.0	1.0	10000.0	25.50	119.27	31.22	NO
4500.	6.806	6	1.0	1.0	10000.0	25.50	132.59	32.93	NO
5000.	6.065	6	1.0	1.0	10000.0	25.50	145.75	34.55	NO
5500.	5.454	6	1.0	1.0	10000.0	25.50	158.77	36.08	NO
6000.	4.941	6	1.0	1.0	10000.0	25.50	171.65	37.55	NO
6500.	4.507	6	1.0	1.0	10000.0	25.50	184.41	38.95	NO
7000.	4.134	6	1.0	1.0	10000.0	25.50	197.05	40.29	NO
7500.	3.821	6	1.0	1.0	10000.0	25.50	209.59	41.45	NO
8000.	3.547	6	1.0	1.0	10000.0	25.50	222.04	42.56	NO
8500.	3.306	6	1.0	1.0	10000.0	25.50	234.39	43.63	NO
9000.	3.093	6	1.0	1.0	10000.0	25.50	246.66	44.66	NO
9500.	2.903	6	1.0	1.0	10000.0	25.50	258.84	45.66	NO
10000.	2.733	6	1.0	1.0	10000.0	25.50	270.95	46.64	NO
15000.	1.684	6	1.0	1.0	10000.0	25.50	388.46	55.10	NO
20000.	1.211	6	1.0	1.0	10000.0	25.50	500.97	60.49	NO
25000.	0.9365	6	1.0	1.0	10000.0	25.50	609.77	65.04	NO
30000.	0.7586	6	1.0	1.0	10000.0	25.50	715.60	69.01	NO
40000.	0.5508	6	1.0	1.0	10000.0	25.50	920.24	74.65	NO
50000.	0.4296	6	1.0	1.0	10000.0	25.50	1117.43	79.34	NO

MAXIMUM 1-HR CONCENTRATION AT OR BEYOND 1. M:

83.	20.37	2	5.0	5.0	1600.0	12.60	16.44	9.01	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** SCREEN DISCRETE DISTANCES ***
****

*** TERRAIN HEIGHT OF 0. M ABOVE STACK BASE USED FOR FOLLOWING DISTANCES ***

DIST (M)	CONC (UG/M**3)	STAB	U10M (M/S)	USTK (M/S)	MIX HT (M)	PLUME HT (M)	SIGMA Y (M)	SIGMA Z (M)	DWASH
39.	8.259	4	20.0	20.0	6400.0	8.62	3.42	3.52	SS

DWASH= MEANS NO CALC MADE (CONC = 0.0)
DWASH=NO MEANS NO BUILDING DOWNWASH USED
DWASH=HS MEANS HUBER-SNYDER DOWNWASH USED
DWASH=SS MEANS SCHULMAN-SCIRE DOWNWASH USED
DWASH=NA MEANS DOWNWASH NOT APPLICABLE, X<3*LB

****
*** REGULATORY (Default) ***
PERFORMING CAVITY CALCULATIONS
WITH ORIGINAL SCREEN CAVITY MODEL
(BRODE, 1988)
****

*** CAVITY CALCULATION - 1 *** *** CAVITY CALCULATION - 2 ***

CONC (UG/M**3)	=	0.000	CONC (UG/M**3)	=	0.000
CRIT WS @10M (M/S)	=	99.99	CRIT WS @10M (M/S)	=	99.99
CRIT WS @ HS (M/S)	=	99.99	CRIT WS @ HS (M/S)	=	99.99
DILUTION WS (M/S)	=	99.99	DILUTION WS (M/S)	=	99.99
CAVITY HT (M)	=	5.85	CAVITY HT (M)	=	5.79
CAVITY LENGTH (M)	=	28.01	CAVITY LENGTH (M)	=	20.13
ALONGWIND DIM (M)	=	22.86	ALONGWIND DIM (M)	=	51.82

CAVITY CONC NOT CALCULATED FOR CRIT WS > 20.0 M/S. CONC SET = 0.0

****
END OF CAVITY CALCULATIONS
****

****
*** SUMMARY OF SCREEN MODEL RESULTS ***
****

CALCULATION PROCEDURE	MAX CONC (UG/M**3)	DIST TO MAX (M)	TERRAIN HT (M)
SIMPLE TERRAIN	20.37	83.	0.

APPENDIX D

PTC Processing Fee Calculations

PTC Fee Calculation

Instructions:
Fill in the following information and answer the following questions with a Y or N. Enter the emissions increases and decreases for each pollutant in the table.

Company: **Dynamic Fabricators, Rathdrum**
Address: **22515 W. Highway 53**
City: **Rathdrum**
State: **ID**
Zip Code: **83858**
Facility Contact: **Wade Wolcott**
Title: **President**
AIRS No.: **055-00036**

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

Y Did this permit require engineering analysis? Y/N

N Is this a PSD permit Y/N (IDAPA 58.01.01.205)

NO_x	--	--	--
SO_2	--	--	--
CO	--	--	--
PM10	4.24	--	4.24
VOC (TAPS/HAPS)	24.86	1.69	23.17
Total:	29.10	1.69	**27.4**
Fee Due	**$ 5,000.00**		

Comments: Permit to construct processing fee, in accordance with IDAPA 58.01.01.225.