Public Notice

DEQ Requests Comments on Forest River Inc. Plant 66 Proposed Air Quality Permit

The Oregon Department of Environmental Quality invites the public to submit written comments on the conditions of Forest River Inc. Plant 66's proposed renewal air quality permit, known officially as a Simple Air Contaminant Discharge Permit.

Summary

The proposed permit is a renewal of the existing Simple Air Contaminant Discharge Permit that was scheduled to expire on Jan. 1, 2020. The company submitted a timely renewal application on Nov. 12, 2019. Therefore, the current permit remains in effect until the renewal is issued. Upon issuance, this permit will be effective for five years.

How do I participate?

To submit your comments for the public record, send them by mail, fax or email:

Suzy Luttrell
DEQ Permit Coordinator
4026 Fairview Industrial Drive SE
Salem, OR 97302
Fax: 503-378-4196
Email: luttrell.suzy@deq.state.or.us

Written comments are due by 5 p.m. Mon., Nov. 2, 2020.

About the facility

The facility in Silverton manufactures cargo trailers. The manufacturing process includes woodworking, welding, undercoating, priming, painting, and final trailer assembly. The plant uses a paint booth and portable dust collectors to control emissions.

What air pollutants would the permit regulate?

This permit regulates emissions of the pollutants listed in the table at the end of this document.

How does DEQ determine permit requirements?

DEQ evaluates types and amounts of pollutants and the facility's location, and determines permit requirements according to state and federal regulations.

How does DEQ monitor compliance with the permit requirements?

This permit would require the facility to monitor pollutants using federally approved monitoring practices and standards.

The facility is required to keep records of plant production and material usage including volatile organic compounds and hazardous air pollutants containing compounds.

Formulas to calculate emissions are contained in the permit. The permittee is required to calculate facility wide emissions monthly and submit an emissions report annually. Onsite inspections will be conducted to assure compliance with emission limitations.

What happens after the public comment period ends?

DEQ will consider and provide response to all comments received that are pertinent to the proposed permit after the close of the comment period. DEQ may modify the proposed permit based on the comments received, but DEQ can only modify conditions of the permit in accordance with the rules and statutes under the authority given to the DEQ. If the facility meets all legal requirements, DEQ will issue the facility's air quality permit.

Where can I get more information?

Find out more and view the application at https://www.oregon.gov/deq/Get-Involved/Pages/Public-Notices.aspx or contact Peter Susi, DEQ Permit Writer, at:
Phone: 503-378-5408
Fax: 503-378-4196
Email: susi.peter@deq.state.or.us
View the application and related documents in person at the DEQ office in Salem or at the Silverton Library at 410 S Water St. in Silverton. For a review appointment, call Suzy Luttrell at 503-378-5305.

Alternative Formats

DEQ can provide documents in an alternate format or in a language other than English upon request. Call DEQ at 800-452-4011 or email deqinfo@deq.state.or.us.

State of Oregon
Department of Environmental Quality

Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302
Phone: 503-378-5408
800-349-7677
Fax: 503-378-4196
Contact: Peter Susi

www.oregon.gov/DEQ

DEQ is a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.

Notice Issued: 10/01/2020
By: Suzy Luttrell
Permit number: 24-0151

Emissions limits

Regulated Pollutants:
Forest River Inc. Plant 66 in Silverton has the potential to be a major source of volatile organic compounds, a criteria air pollutant. The facility has accepted a generic plant site emission limit, or PSEL. By accepting, the generic PSEL the facility is designated a Synthetic Minor and the enforceable limit is below major source levels.

Table 1 below presents maximum **allowable emissions** of regulated criteria pollutants for the facility. The current emission limit reflects maximum emissions the facility can emit under the existing permit. The proposed emission limit reflects maximum emissions the facility would be able to emit under the proposed permit. Typically, a facility's actual emissions are less than maximum limits established in a permit; however, actual emissions can increase up to the permitted limit.

Table 1

Pollutant	Current Limit (tons per year)	Proposed Limit (tons per year)
Particulate matter	**24**	**24**
Small particulate matter	**14**	**14**
Fine particulate matter	**9**	**9**
Nitrogen oxides	**39**	**39**
Sulfur dioxide	**39**	**39**
Carbon monoxide	**99**	**99**
Volatile organic compounds	**39**	**39**
Greenhouse gases	**74,000**	**74,000**

For more information about criteria pollutants, go to: https://www.epa.gov/criteria-air-pollutants

Hazardous air pollutants:
Forest River Inc. Plant 66 in Silverton does not have the potential to be a major source of hazardous air pollutants, or HAPs. The facility has accepted a generic PSEL, an enforceable limit, of nine tons per year of any single HAP and 24 tons per year of combined HAPs.

Table 2

Hazardous Air Pollutants	Projected Emissions (tons per year)
Xylene (all isomers)	0.61
Ethyl benzene	0.002
Naphthalene	0
Methanol	0.02
Methylene diphenyl isocyanate (MDI)	0.11
Hexane	0.33
Toluene	0.27
Methyl isobutyl ketone	0.002
Manganese (Mn)	0.56
Nickel (Ni)	0
Chromium (Cr)	0.01
Total	1.91

For more information about hazardous air pollutants, go to:
https://www.epa.gov/haps/health-effects-notebook-hazardous-air-pollutants

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

SIMPLE

AIR CONTAMINANT DISCHARGE PERMIT

Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302

This permit is being issued in accordance with the provisions of ORS 468A.040.

ISSUED TO:

Forest River, Inc.
PO Box 3030
Elkhart, IN 46515

INFORMATION RELIED UPON:

Application No.: 31017
Date Received: 11/12/2019

PLANT SITE LOCATION:

Forest River, Inc. Plant 66
1204 Mill Street
Silverton, OR 97381

LAND USE COMPATIBILITY FINDING:

Approving Authority: City of Silverton
Approval Date: 11/05/2014

ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL QUALITY

Claudia Davis, Western Region Air Quality Manager — Date

Source(s) Permitted to Discharge Air Contaminants (OAR 340-216-8010):

Table 1 Code	Source Description	SIC/NAICS
Part B, 85	Sources not listed which would have actual emissions of 10 or more tons/year of any criteria pollutant if the source were to operate uncontrolled. (cargo trailer manufacturing)	3799 / 333924

TABLE OF CONTENTS

1.0 DEVICE, PROCESS AND POLLUTION CONTROL DEVICE (PCD) IDENTIFICATION

The devices, processes, and pollution control devices regulated by this permit are the following:

Devices and Processes Description	Device ID	Pollution Control Device Description	PCD ID
Wood Working Shop	WWS-1	JET DC-100A Portable Dust Collectors	JPDC
Welding Shop	WS-1	None	N/A
Paint Booth	PB-1	Filter Media	FM-1
Cargo Trailer Assembly Line	CTA-1	None	N/A

2.0 GENERAL EMISSION STANDARDS AND LIMITS

2.1. Visible Emissions

The permittee must comply with the following visible emission limits from air contaminant sources other than fugitive emission sources, as applicable. Opacity must be measured as a six-minute block average using EPA Method 9 or an alternative monitoring method approved by DEQ that is equivalent to EPA Method 9.

a. Emissions from any air contaminant source must not equal or exceed 20% opacity. [OAR 340-208-0110 (3) (b) and (4)]

b. Any devices or processes installed, constructed, or modified on or after April 16, 2015 must not equal or exceed 20% opacity. [OAR 340-208-0110 (4) and (7)]

2.2. Fugitive Emissions

a. The permittee must take reasonable precautions to prevent fugitive dust emissions from leaving the property of a source. Reasonable precautions include, but are not limited to: [OAR 340-208-0210]

i. Using, where possible, water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;
ii. Applying water or other suitable chemicals on unpaved roads, materials stockpiles, and other surfaces which can create airborne dusts;
iii. Enclosing (full or partial) materials stockpiles in cases where application of water or other suitable chemicals are not sufficient to prevent particulate matter, including dust, from becoming airborne;
iv. Installing and using hoods, fans, and fabric filters to enclose and vent the handling of dusty materials;
v. Installing adequate containment during sandblasting or other similar operations;
vi. Covering, at all times when in motion, open bodied trucks transporting materials likely to become airborne; and
vii. Promptly removing earth or other material that does or may become airborne from paved streets.

b. If requested by DEQ, the permittee must:
i. Prepare and submit a fugitive emission control plan within 60 days of the request;
ii. Implement the DEQ approved plan whenever fugitive emissions leave the property for more than 18 seconds in a six-minute period; and
iii. Keep the plan on site and make the plan available upon request. [OAR 340-208-0210]

c. In no case may fugitive dust emissions leave the property of a source for a period or periods totaling more than 18 seconds in a six-minute period. Fugitive emissions must be measured by EPA Method 22 with the minimum observation time of six minutes.

2.3. Particulate Matter Emissions

The permittee must comply with the following particulate matter emission limits. For fuel burning equipment that burns wood fuel by itself or in combination with any other fuel, emission results are corrected to 12% CO_2. For fuel burning equipment that burns fuels other than wood, emission results are corrected to 50% excess air.

a. Particulate matter emissions from Wood Working Shop, Welding Shop, Paint Booth and Cargo Assembly Line must not exceed 0.14 grains per dry standard cubic foot. [OAR 340-226-0210 (2) (b) (B)]

b. Particulate matter emissions from any fuel burning equipment (except solid fuel burning devices that have been certified under OAR 340-262-0500) that is installed, constructed or modified on or after April 16, 2015 must not exceed 0.10 grains per dry standard cubic foot, corrected to 12% CO_2 or 50% excess air. [OAR 340-228-0210 (2) (c)]

c. Particulate matter emissions from any device or process (other than fugitive emissions

sources, fuel burning equipment, refuse burning equipment, or solid fuel burning devices certified under OAR 340-262-0500) that is installed, constructed or modified after April 16, 2015 must not exceed 0.10 grains per dry standard cubic foot. [OAR 340-226-0210 (2) (c)]

2.4. Particulate Matter Fallout

The permittee must not cause or permit the deposition of any particulate matter larger than 250 microns in size at sufficient duration or quantity, as to create an observable deposition upon the real property of another person. [OAR 340-208-0450]

2.5. Complaint Log

The permittee must maintain a log of all complaints received by the permittee in person, in writing, by telephone or through other means that specifically refer to air pollution or odor concerns associated with the permitted facility. Documentation must include: [OAR 340-214-0114]

a. The date the complaint was received;

b. The date and time the complaint states the condition was present;

c. A description of the pollution or odor condition;

d. The location of the complainant/receptor relative to the plant site;

e. The status of plant operation or activities during the complaint's stated time of pollution or odor condition; and

f. A record of the permittee's actions to investigate the validity of each complaint and a record of actions taken for complaint resolution.

2.6. Fuels and Fuel Sulfur Content

a. The permittee must not use any fuels other than natural gas, propane, butane or any of the ASTM grade fuel oils listed. The sulfur content cannot exceed:
   i. 0.0015% sulfur by weight for ultra-low sulfur diesel;
   ii. 0.3% sulfur by weight for ASTM Grade 1 distillate oil; [OAR 340-228-0110]
   iii. 0.5% sulfur by weight for ASTM Grade 2 distillate oil; [OAR 340-228-0110]
   iv. 1.75% sulfur by weight for residual oil. [OAR 340-228-0100]

3.0 OPERATION AND MAINTENANCE REQUIREMENTS

3.1. Operation & Maintenance

a. All spray booths, preparation stations, or mobile enclosures must be fitted with filters demonstrated to achieve at least 98.2% capture of paint overspray. The procedure to demonstrate filter efficiency must be consistent with ASHRAE Method 52.1 and 40 CFR 63.1173 (e) (2) (i). The permittee may use published filter efficiency data provided by filter vendors to demonstrate compliance with this requirement.

b. All spray-applied coatings must be applied as follows:
   i. With a high volume, low pressure (HVLP) spray gun, electrostatic application, airless spray gun, or air-assisted airless spray gun or;
   ii. With an equivalent technology demonstrated by the spray gun manufacturer to achieve transfer efficiency comparable to the spray gun technology listed in Condition 3.1.b.i for a comparable operation.

3.2. Operation of Pollution Control Devices and Processes

The permittee must operate and ensure proper functioning of all air pollution control devices and components at all times when the associated emission source is operating. [OAR 340-226-0120]

3.3. Highest and Best Practicable Treatment and Control

The permittee must provide the highest and best practicable treatment and control of air contaminant emissions in every case to maintain overall air quality at the highest possible levels, and to maintain contaminant concentrations, visibility reduction, odors, soiling, and other deleterious factors at the lowest possible levels as provided below. [OAR 340-226-0100]

4.0 PLANT SITE EMISSION LIMITS

4.1. Plant Site Emission Limits (PSEL)

The permittee must not cause or allow plant site emissions to exceed the following: [OAR 340-222-0040 and/or OAR 340-222-0041, OAR 340-222-0060]

Pollutant	Limit	Units
PM	24	tons per year
PM_{10}	14	
$PM_{2.5}$	9	
SO_2	39	
NO_X	39	
CO	99	
VOC	39	
GHGs (CO_{2e})	74,000	
Single HAP (Xylene)	9	
Combined HAPs	24	

4.2. Annual Period

The annual plant site emissions limits apply to any 12-consecutive calendar month period. [OAR 340-222-0035]

5.0 COMPLIANCE DEMONSTRATION

5.1. PSEL Compliance Monitoring using Emission Factors

The permittee must calculate the emissions for each 12-consecutive calendar month period based on the following calculation for each pollutant except GHGs: [OAR 340-222-0080].
Compliance with the PSEL for PM is determined for each 12-consecutive calendar month period based on the following calculation:

E = Σ(EF x P) x 1 ton/2000 pounds

where:

E = pollutant emissions (tons/year);

Σ = symbol representing “summation of”;

EF = pollutant emission factor (see Condition 12.0)

P = process production (trailers produced, see Condition 13.0)

5.2. Emission Factors

The permittee must use the default emission factors provided in Condition 12.0 for calculating pollutant emissions, unless alternative emission factors are approved in writing by DEQ. The permittee may request or DEQ may require using alternative emission factors provided they are based on actual test data or other documentation (e.g., AP-42 compilation of emission factors) that has been reviewed and approved by DEQ. [OAR 340-222-0080]

5.3. Greenhouse Gas Emissions

The permittee must calculate greenhouse gas emissions in metric tons and short tons for each 12-consecutive calendar month period to determine compliance with the GHG PSEL by using the following: [OAR 340-215-0040]

a. DEQ Fuel Combustion Greenhouse Gas Calculator
https://www.oregon.gov/deq/FilterDocs/ghgCalculatorFuelCombust.xlsx

5.4. PM Emissions from Coating Operations with Controls

The permittee must use the following methodology to calculate PM emissions from coating operations:

$E_{PM} = [\sum Q * S * (1\text{-}OD) * (1\text{-}TE) * (1\text{-}FE)]$ x 1 ton/ 2000 pounds

where:

E_{PM} = Emissions of particulate matter (lbs or tons)

Q = Quantity of coating applied (gallons or pounds)

S = Solid content in coatings (lb/gal, lb/lb, decimal)

OD = Overspray Deposition (decimal)

TE = Transfer Efficiency (decimal)

FE = Filter Control Efficiency (decimal)

5.5. Mass Balance without Controls

The permittee must demonstrate compliance with the annual VOC/HAP PSEL for each 12 consecutive calendar month period based on the following formula: [OAR 340-222-0080]

$E_{VOC\text{-}A}$ or $E_{HAP\text{-}A} = [\sum(C_x \times D_x \times K_x)]$ x 1 ton/2,000 pounds

where:

$E_{VOC\text{-}A}$ = Annual VOC emissions in tons

$E_{HAP\text{-}A}$ = Annual HAP emissions in tons

Σ = symbol representing “summation of”;

C = Material usage for the period in gallons or pounds

D = Material density in pounds per gallon or pounds

K = VOC or HAP concentration expressed as a decimal

x = Subscript x represents a specific material

5.6. PSEL Compliance Monitoring

The permittee must demonstrate compliance with the PSEL by totaling the emissions from all point sources calculated under Conditions 5.1, 5.4 and 5.5. [OAR 340-222-0080]

6.0 SPECIAL CONDITIONS

6.1. Special Conditions

a. The permittee may not perform spray application of coatings that contain MHAPs including compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd) to motor vehicles, mobile equipment, or metal and or plastic parts or product.

b. The permittee may not perform paint-stripping operations using methylene chloride (MeCl) to remove dried paint from any surface.

7.0 RECORDKEEPING REQUIREMENTS

7.1 Operation and Maintenance

The permittee must maintain the following records related to the operation and maintenance of the facility and associated air contaminant pollution control devices: [OAR 340-214-0114]

a. The permittee must maintain monthly and annual plant production records (units/ month and units/ year);

b. Woodworking Shop (WWS-1), the permittee must maintain records demonstrating the throughput weight (tons) of wood processed on a monthly and annual basis;

c. Welding Shop (WS-1), the permittee must maintain records demonstrating the type and amount of welding rod/ wire usage in pounds on a monthly and annual basis;

d. Welding Shop (WS-1), the permittee must maintain records demonstrating the amount of metal processed by the plasma cutter(s) in inches or feet on a monthly and annual basis;

e. The permittee must maintain records of all types of VOC & HAP containing materials used and the corresponding VOC & HAP content of each on a monthly & annual basis.

f. The permittee must maintain a record of the filter efficiency demonstration and spray paint booth filter maintenance activities (dates used filters were replaced), performed in accordance with Permit Condition 3.1a.

g. The permittee must maintain documentation from the spray gun manufacturer that each spray gun is a HVLP spray gun or electrostatic application, airless spray gun, or air assisted airless spray gun that has been determined by EPA to achieve a transfer efficiency equivalent to that of an HVLP spray gun in accordance with Permit Condition 3.1b i & ii.

h. If complying with this permit by operating any equipment according to manufacturer's instruction, the permittee must keep these instructions readily available for inspector review.

7.2. Excess Emissions

a. The permittee must maintain the records of excess emissions listed below and as defined in OAR 340-214-0300 through 340-214-0340, recorded on occurrence. Typically, excess emissions are caused by process upsets, startups, shutdowns, or scheduled maintenance. In many cases, excess emissions are evident when visible emissions are greater than 20% opacity as a six-minute block average.

b. If there is an ongoing excess emission caused by an upset or breakdown, the permittee must immediately take action to minimize emissions by reducing or ceasing operation of the equipment or facility, unless doing so could result in physical damage to the equipment or facility, or cause injury to employees. In no case may the permittee operate more than 48 hours after the beginning of the excess emissions, unless continued operation is approved by DEQ in accordance with OAR 340-214-0330(4).

c. The permittee must maintain a log of all excess emissions in accordance with OAR 340-214-0340 (3).
   i. The date and time of the beginning of the excess emissions event and the duration or best estimate of the time until return to normal operation;
   ii. The date and time the permittee notified DEQ of the event;
   iii. The equipment involved;
   iv. Whether the event occurred during planned startup, planned shutdown, scheduled maintenance, or as a result of a breakdown, malfunction, or emergency;
   v. Steps taken to mitigate emissions and corrective action taken, including whether the approved procedures for a planned startup, shutdown, or maintenance activity were followed;
   vi. The magnitude and duration of each occurrence of excess emissions during the course of an event and the increase over normal rates or concentrations as

determined by continuous monitoring or best estimate (supported by operating data and calculations); and

vii. The final resolution of the cause of the excess emissions.

7.3. Complaint Log

The permittee must maintain a log of all complaints received by the permittee in person, in writing, by telephone or through other means that specifically refer to air pollution concerns associated to the permitted facility. Documentation must include date of contact, date and time of observed nuisance condition, description of nuisance condition, location of receptor, status of plant operation during the observed period, and date and time of response to complainant. The log must include a record of the permittee's actions to investigate the validity of each complaint and a record of actions taken for complaint resolution. [OAR 340-214-0114]

7.4. Retention of Records

Unless otherwise specified, the permittee must retain all records for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application and make them available to DEQ upon request. The permittee must maintain the two (2) most recent years of records onsite. [OAR 340-214-0114]

8.0 REPORTING REQUIREMENTS

8.1. Excess Emissions

a. The permittee must notify DEQ of excess emissions events if the excess emission is of a nature that could endanger public health.

b. The permittee must also submit follow-up reports summarizing records of excess emissions as required in Condition 7.2 when required by DEQ. Such notice must be provided as soon as possible, but never more than one hour after becoming aware of the problem. Notice must be made to the regional office identified in Condition 10.0 by email, telephone, facsimile, or in person.

8.2. Annual Report

For each year this permit is in effect, the permittee must submit to DEQ by **February 15** two (2) paper copies and one (1) electronic copy of the following information for the previous calendar year. If February 15 falls on a weekend or Monday holiday, the permittee must submit their annual report on the next business day.

a. Operating parameters:
   i. Annual plant production of cargo trailers (units/ year);
   ii. Annual wood throughput weight (tons) of wood processed in the woodshop;
   iii. Annual welding rod/wire type and usage in pounds;
   iv. Annual amount of metal cut in the plasma cutter(s) in inches or feet;
   v. Annual types and amounts of VOC & HAP containing material and the corresponding VOC & HAP content of each;
   vi. Documentation of paint booth filter efficiency; and
   vii. Documentation that HVLP or equivalent spray guns were used in the paint booth.

b. Calculations of annual pollutant emissions determined each month in accordance with Permit Condition 5.0.

c. A brief summary listing the date, time, and the affected device/process for each excess emission that occurred during the reporting period.

d. Summary of complaints relating to air quality received by permittee during the year in accordance with Condition 7.3.

e. List permanent changes made in facility process, hours of operation, production levels, and pollution control equipment which affected air contaminant emissions.

f. List major maintenance performed on pollution control equipment.

8.3. Greenhouse Gas Registration and Reporting

a. If the calendar year greenhouse gas emissions (CO_2e) are ever greater than or equal to 2,756 tons (2,500 metric tons), the permittee must annually register and report its greenhouse gas emissions with DEQ in accordance with OAR 340 division 215.

b. If the calendar year greenhouse gas emissions (CO_2e) are less than 2,756 tons (2,500 metric tons) for three consecutive years, the permittee may stop reporting greenhouse gas emissions but must retain all records used to calculate greenhouse gas emissions for the five years following the last year that they were required to report. The permittee must resume reporting its greenhouse gas emissions if the calendar year greenhouse gas emissions (CO_2e) are greater than or equal to 2,756 tons (2,500 metric tons) in any subsequent calendar year.

8.4. Notice of Change of Ownership or Company Name

The permittee must notify DEQ in writing using a DEQ "Transfer Application Form" within 60 days after the following:

a. Legal change of the name of the company as registered with the Corporations Division of

the State of Oregon; or

b. Sale or exchange of the activity or facility.

9.0 ADMINISTRATIVE REQUIREMENTS

9.1. Permit Renewal Application

The permittee must submit the completed application package for renewal of this permit **180 days prior to the expiration date**. Two (2) paper copies and one (1) electronic copy of the application must be submitted to the DEQ Permit Coordinator listed in Condition 10.2. [OAR 340-216-0040]

9.2. Permit Modifications

Application for a modification of this permit must be submitted at least 60 days prior to the source modification. When preparing an application, the applicant should also consider submitting the application 180 days prior to allow DEQ adequate time to process the application and issue a permit before it is needed. A special activity fee must be submitted with an application for the permit modification. The fees and two (2) copies of the application must be submitted to the DEQ Business Office.

9.3. Annual Compliance Fee

The permittee must pay the annual fees specified in OAR 340-216-8020, Table 2, Part 2 and 3 for a Simple ACDP by **December 1** of each year this permit is in effect. An invoice indicating the amount, as determined by DEQ regulations will be mailed prior to the above date. **Late fees in accordance with Part 5 of the table will be assessed as appropriate.**

9.4. Change of Ownership or Company Name Fee

The permittee must pay the non-technical permit modification fee specified in OAR 340-216-8020, Table 2, Part 4 with an application for changing the ownership or the name of the company.

9.5. Special Activity Fees

The permittee must pay the special activity fees specified in OAR 340-216-8020, Table 2, Part 4 with an application to modify the permit.

10.0 DEQ CONTACTS / ADDRESSES

10.1. Business Office

The permittee must submit payments for invoices, applications to modify the permit, and any other payments to DEQ's Business Office:

Oregon Dept. of Environmental Quality
Financial Services – Revenue Section
700 NE Multnomah St., Suite 600
Portland, Oregon 97232-4100

10.2. Permit Coordinator

The permittee must submit all notices and applications that do not include payment to the Permit Coordinator.

Oregon Dept. of Environmental Quality
Western Region
Air Quality Permit Coordinator
4026 Fairview Industrial Drive SE
Salem, OR 97302-1142
wraqpermits@deq.state.or.us

10.3. Report Submittals

Unless otherwise notified, the permittee must submit all reports (annual reports, source test plans and reports, etc.) to DEQ's Region. If you know the name of the Air Quality staff member responsible for your permit, please include it:

Oregon Dept. of Environmental Quality
Western Region
4026 Fairview Industrial Drive SE
Salem, OR 97302-1142

10.4. Web Site

Information about air quality permits and DEQ's regulations may be obtained from the DEQ web page at www.oregon.gov/deq/.

11.0 GENERAL CONDITIONS AND DISCLAIMERS

11.1. Permitted Activities

a. Until this permit expires or is modified or revoked, the permittee is allowed to discharge

air contaminants from the following:

i. Processes and activities directly related to or associated with the devices/processes listed in Condition 1.0 of this permit;

ii. Any categorically insignificant activities, as defined in OAR 340-200-0020, at the source; and

iii. Construction or modification changes that are Type 1 or Type 2 changes under OAR 340-210-0225 that are approved by DEQ in accordance with OAR 340-210-0215 through 0250, if the permittee complies with all of the conditions of DEQ's approval to construct and all of the conditions of this permit.

b. This permit does not authorize discharge of air contaminants from any other equipment or activity not identified herein.

11.2. Other Regulations

In addition to the specific requirements listed in this permit, the permittee must comply with all other applicable legal requirements enforceable by DEQ.

11.3. Conflicting Conditions

In any instance in which there is an apparent conflict relative to conditions in this permit, the most stringent conditions apply. [OAR 340-200-0010]

11.4. Masking of Emissions

The permittee must not cause or permit the installation of any device or use any means designed to mask the emissions of an air contaminant that causes or is likely to cause detriment to health, safety, or welfare of any person or otherwise violate any other regulation or requirement. [OAR 340-208-0400]

11.5. DEQ Access

The permittee must allow DEQ's representatives access to the plant site and pertinent records at all reasonable times for the purposes of performing inspections, surveys, collecting samples, obtaining data, reviewing and copying air contaminant emissions discharge records and conducting all necessary functions related to this permit in accordance with ORS 468.095.

11.6. Permit Availability

The permittee must have a copy of the permit available at the facility at all times. [OAR 340-216-0020(3)]

11.7. Open Burning

The permittee may not conduct any open burning except as allowed by OAR 340, division 264.

11.8. Asbestos

The permittee must comply with the asbestos abatement requirements in OAR 340, division 248 for all activities involving asbestos-containing materials, including, but not limited to, demolition, renovation, repair, construction, and maintenance.

11.9. Property Rights

The issuance of this permit does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state, or local laws or regulations.

11.10. Permit Expiration

a. A source may not be operated after the expiration date of the permit, unless any of the following occur prior to the expiration date of the permit: [OAR 340-216-0082]
    i. A timely and complete application for renewal of this permit or for a different ACDP has been submitted; or
b. A timely and complete application for renewal or for an Oregon Title V Operating Permit has been submitted, or
c. Another type of permit (ACDP or Oregon Title V Operating Permit) has been issued authorizing operation of the source.
d. For a source operating under an ACDP or Oregon Title V Operating Permit, a requirement established in an earlier ACDP remains in effect notwithstanding expiration of the ACDP, unless the provision expires by its terms or unless the provision is modified or terminated according to the procedures used to establish the requirement initially.

11.11. Permit Termination, Revocation, or Modification

DEQ may terminate, revoke, or modify this permit pursuant to OAR chapter 340 division 216. [OAR 340-216-0082].

12.0 EMISSION FACTORS

Emissions device or activity	Pollutant	Emission Factor (EF)	EF units	EF Reference
Woodworking Shop WWS-1 (controlled JPDC)	PM	2.0	lb/BDT	DEQ AQ-EF02
	PM_{10}	1.9		DEQ AQ-EF03
	$PM_{2.5}$	1.6		
MIG Welding WS-1	Manganese	3.18	lb/1000lb electrode	AP-42 Table 12, 19-1, 19-2
	Nickel	0.01		
	Chromium	0.01		
	PM / PM_{10} / $PM_{2.5}$	5.2		
Stick Welding WS-1	Manganese	10.3	lb/1000lb electrode	AP-42 Table 12, 19-1, 19-2
	Nickel	0.02		
	Chromium	0.06		
	PM / PM_{10} / $PM_{2.5}$	18.4		
Plasma Cutting WS-1	Manganese	0.0005	lb/1000 inches cut (1 inch thick)	American Welding Society
	Nickel	0.0001		
	Chromium	0.0003		
	PM / PM_{10} / $PM_{2.5}$	0.0039		
Paint Booth Process PB-1 (Controlled FM-1)	PM, VOC & HAPs	Mass Balance	Tons / year	Material Usage
Cargo Trailer Assembly Process CTA-1 (Uncontrolled)	PM, VOC & HAPs	Mass Balance	Tons / year	Material Usage

13.0 PROCESS/PRODUCTION RECORDS

Emissions device or activity	Process or production parameter	Frequency
Plant Production	Number or Cargo Trailers	Monthly, Annually
WWS-1-Woodworking Shop	Throughput weight of wood processed in the woodshop in tons/ year	Monthly, Annually
WS-1 Welding Shop - MIG, Stick Welding & Plasma Cutting	Types and pounds of welding rod & wire used, amount of material cut with plasma cutter (inches/ feet)	Monthly, Annually
PB-1 & CTA-1 - Paint Booth and Cargo Trailer Assembly Line	Gallons, Pounds, Density and VOC & HAP content	Monthly, Annually

14.0 ABBREVIATIONS, ACRONYMS, AND DEFINITIONS

ACDP	Air Contaminant Discharge Permit
ASTM	American Society for Testing and Materials
AQMA	Air Quality Maintenance Area
calendar year	The 12-month period beginning January 1st and ending December 31st
CAO	Cleaner Air Oregon
CFR	Code of Federal Regulations
CO	carbon monoxide
CO_2e	carbon dioxide equivalent
DEQ	Oregon Department of Environmental Quality
dscf	dry standard cubic foot
EPA	US Environmental Protection Agency
FCAA	Federal Clean Air Act
Gal	gallon(s)
GHG	greenhouse gas
gr/dscf	grains per dry standard cubic foot
HAP	Hazardous Air Pollutant as defined by OAR 340-244-0040
I&M	inspection and maintenance
lb	pound(s)
MMBtu	million British thermal units
NA	not applicable
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NO_X	nitrogen oxides
NSPS	New Source Performance Standard
NSR	New Source Review
O_2	oxygen
OAR	Oregon Administrative Rules
ORS	Oregon Revised Statutes
O&M	operation and maintenance
Pb	lead
PCD	pollution control device
PEMS	Predictive emission monitoring system
PM	particulate matter
PM_{10}	particulate matter less than 10 microns in size
$PM_{2.5}$	particulate matter less than 2.5 microns in size
ppm	part per million
PSD	Prevention of Significant Deterioration
PSEL	Plant Site Emission Limit
PTE	Potential to Emit
RACT	Reasonably Available Control Technology
scf	standard cubic foot
SER	Significant Emission Rate
SIC	Standard Industrial Code
SIP	State Implementation Plan
SO_2	sulfur dioxide
Special Control Area	as defined in OAR 340-204-0070
TACT	Typically Achievable Control Technology
VE	visible emissions
VOC	volatile organic compound
year	A period consisting of any 12-consecutive calendar months

State of Oregon
Department of
Environmental
Quality

SIMPLE AIR CONTAMINANT DISCHARGE PERMIT REVIEW REPORT

Forest River, Inc. Plant 66
1204 Mill Street
Silverton, OR 97381

Source Information:

SIC	3799
NAICS	333924

Source Categories (Table 1 Part, code)	B, 85
Public Notice Category	II

Compliance and Emissions Monitoring Requirements:

FCE	
Compliance schedule	
Unassigned emissions	
Emission credits	
Special Conditions	X

Source test	
COMS	
CEMS	
PEMS	
Ambient monitoring	

Reporting Requirements

Annual report (due date)	15 Feb
Quarterly report (due dates)	

Monthly report (due dates)	
Excess emissions report	
Other (specify)	

Air Programs

Synthetic Minor (SM)	X
SM -80	
NSPS (list subparts)	
NESHAP (list subparts)	
CAO	
NSR	

PSD	
GHG	
RACT	
TACT	
Other (specify)	

TABLE OF CONTENTS

PERMITTING

PERMITTEE IDENTIFICATION

1. Forest River, Inc. (Plant 66) is located at 1204 Mill Street in Silverton, Oregon.

PERMITTING ACTION

2. The proposed permit is a renewal of an existing Simple Air Contaminant Discharge Permit (ACDP) issued on February 3, 2015 and originally scheduled to expire on January 1, 2020. The permittee is on a Simple Permit because the facility has actual emissions of more than 10 tons per year of at least one criteria pollutant and no General ACDP is available. The existing ACDP remains in effect until final action is been taken on the renewal application because the permittee submitted a timely and complete application for renewal.
3. Forest River, Inc. has been determined to be an existing source for the purposes of Cleaner Air Oregon in accordance with OAR 340-245-0020 because the air quality permit application was submitted and deemed complete, or construction had commenced on this facility prior to November 16, 2018. As an existing source, the permittee is required to perform a risk assessment in accordance with OAR 340-245-0050, and demonstrate compliance with the Risk Action Levels for an "Existing Source" in OAR 340-245-8010 Table 1 when requested by DEQ. DEQ has not requested Forest River, Inc. to perform a risk assessment.

OTHER PERMITS

4. Other permits issued by the DEQ for this source include:

   NPDES Permit Number 1200-Z

ATTAINMENT STATUS

5. The source is located in an attainment area for all criteria pollutants.

SOURCE DESCRIPTION

OVERVIEW

6. The permittee manufactures cargo trailers. The manufacturing process includes woodworking, welding, undercoating, priming, painting, and final trailer assembly. The facility was first permitted on February 3, 2015.
7. The facility has three (3) natural gas-fired space heaters each rated at 0.3 MM Btu/hour heat input. Emissions vent to the atmosphere through assorted stacks. These units are considered categorically insignificant in accordance with OAR 340-200-0020 (23) (c) and are not included in the PSEL calculation in accordance with OAR 340-222-0035 (5).

8. No physical changes have occurred at the facility since the last permit renewal. Updated emission factors were used to calculate actual and potential emissions released to the atmosphere.

PROCESS AND CONTROL DEVICES

9. Existing air contaminant sources at the facility consist of the following:
   a. Quantified process emissions from WWS-1 woodworking activities: PM/PM10/PM2.5 emissions from using table saws, radial arm saws and a chop saw. Emissions controlled by JET DC-100A portable dust collectors.
   b. Quantified process emissions from WS-1 welding and plasma cutting activities, which exhaust uncontrolled to the atmosphere from the building.
   c. One Rohner Paint Booth (PB-1), 97 x 25 feet, with exhaust filters that provide a minimum of 98.2% PM control efficiency and an air exhaust fan rated at 37,200 cfm. High volume, low-pressure (HVLP) spray guns are used. The transfer efficiency for coating is 75%. The facility does not use paints or coatings that contain metal hazardous air pollutants (MHAPs).
   d. Quantified process emissions from CTA-1, the cargo trailer assembly process. Uncontrolled VOC and HAP emissions outside the paint booth from the usage of various paints, primers, mastics, adhesives, sealants, caulking and cleaners, which exhaust uncontrolled to the atmosphere from the building.

COMPLIANCE HISTORY

10. The facility was last inspect on August 3, 2018 and in compliance with all permit conditions. DEQ personnel will inspect to ensure compliance with the permit conditions.
11. During the prior permit period there were no complaints recorded for this facility.
12. No enforcement actions were taken against this facility since the last permit was issued.

SPECIAL CONDITIONS

13. The permittee does not perform spray application of coatings that contain MHAPs including compounds of chromium (Cr), lead (Pb), manganese (Mn), nickel (Ni), or cadmium (Cd) to motor vehicles, mobile equipment, or metal and or plastic parts or product.
14. The permittee does not perform paint-stripping operations using methylene chloride (MeCl) to remove dried paint from any surface.

EMISSIONS

15. Proposed PSEL information:

Pollutant	Baseline Emission Rate (tons/yr)	Netting Basis		Plant Site Emission Limits (PSEL)		
		Previous (tons/yr)	Proposed (tons/yr)	Previous PSEL (tons/yr)	Proposed PSEL (tons/yr)	PSEL Increase (tons/yr)
PM	0	0	0	24	24	0
PM_{10}	0	0	0	N/A	14	0
$PM_{2.5}$	NA	0	0	N/A	9	0
SO_2	0	0	0	N/A	39	0
NO_x	0	0	0	N/A	39	0
CO	0	0	0	N/A	99	0
VOC	0	0	0	39	39	0
GHG (CO_2e)	0	0	0	N/A	74,000	0
Single HAP	0	0	0	9	9	0
Total HAPs	0	0	0	24	24	0

a. The netting basis is zero for Simple ACDPs in accordance with OAR 340-222-0040(3).

b. This permit includes generic PSELs for all criteria pollutants.

c. For Simple ACDPs, the proposed PSELs for all pollutants are equal to the Generic PSELs in accordance with OAR 340-216-0064 (3) (b).

d. In order to maintain operational flexibility and to limit HAPs below Title V trigger levels, the permittee has requested the Generic PSELs for HAPs be included.

e. The basis for the criteria and HAPs PSELs is found in the emission detail sheet attached to the Review Report.

f. The PSEL is a federally enforceable limit on the potential to emit.

SIGNIFICANT EMISSION RATE ANALYSIS

16. For each pollutant, the proposed PSEL is less than the sum of the Netting Basis and the significant emission rate, thus no further air quality analysis is required at this time.

TITLE V MAJOR SOURCE APPLICABILITY

17. A major source is a facility that has the potential to emit 100 tons/year or more of any criteria pollutant or 10 tons/year or more of any single HAP or 25 tons/year or more of combined HAPs. This facility has the potential to be a major source of emissions. The basis for this determination is found in the emission detail sheet of this Review Report.

18. A source that has potential to emit at the major source levels, but accepts an enforceable limit or generic PSEL below major source levels is called a synthetic minor (SM). Forest River has the potential to emit VOCs at major source levels. They will accepted the generic PSEL below major source levels. They are considered a synthetic minor. The basis for this determination is found within the attached emissions detail sheet of this Review Report.

19. A source that has potential to emit at the major source levels, but has permit limits below major source levels that are equal to or greater than 80% of a major source threshold is called a Synthetic Minor 80 or SM-80. This source has the potential to emit at major source levels and will accepted a generic PSEL below major source levels that are not equal to or greater than 80% of major source thresholds. The facility is not considered a SM-80. The basis for this determination is found within the attached emissions detail sheet of this Review Report.

20. A source that has the potential to emit less than major source thresholds is a true minor source. This source is not a true minor. The basis for this determination is found within the attached emission detail sheet of this Review Report.

CRITERIA POLLUTANTS

21. This facility is a synthetic minor source of criteria pollutants. The basis for this determination is found in the attached emission detail sheet of this Review Report.

HAZARDOUS AIR POLLUTANTS

22. This source is not a major source of hazardous air pollutants. The basis for this determination is found in the attached emission detail sheet of this Review Report.

Hazardous Air Pollutants Aug 2018 – July 2019	Potential to Emit (pounds/year)	Actual Emissions (pounds/year)
Xylene (all isomers)	4096	1222
Ethyl benzene	10	3
Naphthalene	0.4	0.1
Methanol	116	40
MDI (Methylene diphenyl isocyanate)	752	220
Hexane	2242	660

Hazardous Air Pollutants Aug 2018 – July 2019	Potential to Emit (pounds/year)	Actual Emissions (pounds/year)
Toluene	1860	549
Methyl isobutyl ketone	14	4
Manganese (Mn)	3776	1120
Nickel (Ni)	20	0
Chromium (Cr)	60	20
Total HAP emissions	12,946.4	3838.1

CLEANER AIR OREGON

23. The Cleaner Air Oregon Toxic Air Contaminant emissions inventory for this source can be found on this website: https://www.deq.state.or.us/AQPermitsonline/24-0151-SI-01_ATEI_2016.PDF

24. Forest River, Inc. has not been called in by DEQ and therefore, has not performed a risk assessment.

TOXICS RELEASE INVENTORY

25. The Toxics Release Inventory (TRI) is federal program that tracks the management of certain toxic chemicals that may pose a threat to human health and the environment, over which DEQ has no regulatory authority. It is a resource for learning about toxic chemical releases and pollution prevention activities reported by certain industrial facilities. Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) created the TRI Program. In general, chemicals covered by the TRI Program are those that cause:
    a. Cancer or other chronic human health effects;
    b. Significant adverse acute human health effects; or
    c. Significant adverse environmental effects.

26. There are currently over 650 chemicals covered by the TRI Program. Facilities that manufacture, process or otherwise use these chemicals in amounts above established levels must submit annual TRI reports on each chemical.

27. The TRI program does not cover Forest River, Inc. because it does not manufacture, process or use TRI-listed chemicals in quantities above threshold levels in a given year.

ADDITIONAL REQUIREMENTS

NEW SOURCE PERFORMANCE STANDARDS APPLICABILITY

28. There are no devices/processes at the facility for which a New Source Performance Standard has been promulgated.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS APPLICABILITY

29. 40 CFR Part 63, Subpart MMMM (4-M), Miscellaneous Metal Parts Coating, is not applicable to the source because it is not a major source of HAPs.
30. 40 CFR Part 63, Subpart HHHHHH (6-H), Miscellaneous Surface Coating Operations, is not applicable to the source because there are no target MHAPs in the coatings used at the facility.
31. 40 CFR Part 63, Subpart XXXXXX (6-X), Metal Fabrication and Finishing is not applicable to the source because the welding activities from metal fabrication do not account for 50% or more of the total work performed at the facility.

GREENHOUSE GAS REPORTING APPLICABILITY

32. The source is not subject to greenhouse gas reporting under division 215 because actual greenhouse gas emissions are less than 2,500 metric tons (2,756 short tons) of CO2 equivalents per year. If the source ever emits more than this amount, they will be required to report greenhouse gas emissions.

REASONABLY AVAILABLE CONTROL TECHNOLOGY APPLICABILITY

33. The RACT rules are not applicable to this source because it is not in the Portland AQMA, Medford AQMA, or Salem SKATS.

TYPICALLY ACHIEVABLE CONTROL TECHNOLOGY APPLICABILITY

34. The source is likely meeting OAR 340-226-0130 Highest and Best Practicable Treatment and Control and Typically Achievable Control Technology (TACT) by:
    a. Conducting pollution prevention activities such as welding inside a building;
    b. Operating a paint booth that is required to perform the following maintenance and work practice requirements:
        i. Application of paints or coatings to trailers will <u>not</u> contain MHAPs;
        ii. Paint booth is fitted with filters demonstrated to achieve at least 98.2% filter efficiency and consistent with ASHRAE Method 52.1 and CFR 63.1173(e) (2) (i). The permittee may use published filter efficiency data provided by the filter vendor to demonstrate compliance.

iii. Paint booth ventilated so that air is drawn into the booth exiting through the filter media referenced above.

iv. All spray-applied coatings applied with a high volume, low-pressure (HVLP) spray guns or equivalent.

SOURCE TESTING

35. There are no source testing requirements purposed for this facility during the permit cycle.

PUBLIC NOTICE

36. Pursuant to OAR 340-216-0064(4)(a), issuance of Simple Air Contaminant Discharge Permits require public notice in accordance with OAR 340-209-0030(3)(b), which requires DEQ to provide notice of the proposed permit action and a minimum of 30 days for interested persons to submit written comments. **The public notice was emailed/mailed on Oct. 1, 2020 and the comment period will end on Nov. 2, 2020.**

PS: WK

ATTACHMENT A – DETAIL SHEETS

24-0151 - Forest River, Inc.
Numbers based on Aug 2018 thru July 2019 production

Summary (tons / year)								
		Actual	PTE			PSEL		
PM		3.24	10.91			24		
PM10		3.05	10.25			14		
PM2.5		2.59	8.72			9		
SO2		0.00	0.00			39		
NOx		0.04	0.13			39		
CO		0.03	0.11			99		
VOC		28.86	103.50			39		
GHG			156.00	(short tons/ year)		74,000	(short tons/ year)	
Highest Single HAP (Xylene)		0.61	2.06			9		
Total Combined HAPs		1.91	6.48			24		

24-0151 - Forest River, Inc.
Assembly VOC Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

Assembly Material	SDS ID	VOC Content (% by wt.)	Density (Lb/Gal)	Pounds VOC per gallon of coating	Product use in Gallons (Aug 18-July 19)	**Actual Pounds of VOC (Aug 18-July 19)**	Pounds VOC per gallon of coating	Product use in Gallons (Aug 18-July 19)	Units Produced (Aug18-July19)	Gallons per Unit	Max. Units per Hour	Max. # Hours	**PTE Pounds of VOC per year**
3M PB999 General Purpose Fast Dry Adhesive, Green large Cylinder	100286	81.29	5.84	4.75	1174.66	5576.51	4.75	1174.66	4804	0.245	2.5	8760	25435.89
MANUS-BOND 76-AM Self Leveling (White, Gray or Black)	101418	0.624	13.35	0.08	4075.80	339.53	0.08	4075.80	4804	0.848	2.5	8760	1486.43
#744 Black Wood Coating	100682	2.00	8.35	0.17	3300.00	551.10	0.17	3300.00	4804	0.687	2.5	8760	2557.43
TREMPRO 644 RTV WHITE 3" - 12 CTG CS	102509	0.1	8.47	0.01	724.99	6.14	0.01	724.99	4804	0.151	2.5	8760	33.05
TREMPRO 645 SEMI-TRANSLUCENT	100151	2.9248	8.55	0.25	653.75	163.48	0.25	653.75	4804	0.136	2.5	8760	745.06
3011, 3015, 3080, 8100, 8120 VAE adhesive	100018	1.07	8.76	0.09	245.00	22.96	0.09	245.00	4804	0.051	2.5	8760	100.52
5530 Elasto-Kool 1000 White Siliconized Elastomeric Roof Coating	102690	3.1416	11.93	0.37	192.50	72.15	0.37	192.50	4804	0.040	2.5	8760	324.69
DUPLI-COLOR Undercoat (Paintable Rubberized)	102573	29.3	8.18	2.40	136.51	327.18	2.40	136.51	4804	0.028	2.5	8760	1493.54
3M Adhesion Promoter 111	100004	98.6936	6.58	6.49	119.50	776.04	6.49	119.50	4804	0.025	2.5	8760	3535.52
LS250B	102716	1.0825	13.85	0.15	104.43	15.66	0.15	104.43	4804	0.022	2.5	8760	71.41
Tytan Professional Fill All Insulating Foam Sealant Pro	100056	16.5701	8.10	1.34	103.11	138.39	1.34	103.11	4804	0.021	2.5	8760	629.86
Isopropyl Alcohol	100276	100.00	6.55	6.55	161.25	1056.19	6.55	161.25	4804	0.034	2.5	8760	4814.84
Clean Sol Plus	100089	95.00	7.01	6.66	72.50	482.81	6.66	72.50	4804	0.015	2.5	8760	2201.17
13 OZ MACS BRAKE CLEANER 4800 LT 12PK	102692	50.00	7.54	3.77	76.69	289.12	3.77	76.69	4804	0.016	2.5	8760	1318.02
3M PB960 High Strength Polystyrene Adhesive, Cylinder	102656	81.00	5.84	4.73	67.86	321.00	4.73	67.86	4804	0.014	2.5	8760	1463.24
Plastic Wood Solvent Wood Filler	102691	17.7273	8.93	1.58	52.50	83.11	1.58	52.50	4804	0.011	2.5	8760	378.14
AHB Clear Thin Spread Adhesive	100054	0.0765	8.46	0.01	60.00	0.39	0.01	60.00	4804	0.012	2.5	8760	2.74
STRUST +SSPR 6PK METALIC GLOSS CHROME	102687	78.0992	5.94	4.64	17.02	78.96	4.64	17.02	4804	0.004	2.5	8760	360.01
CRAZY CLEAN ALL PURPOSE CLEANER	100148	7.86	7.69	0.60	10.95	6.62	0.60	10.95	4804	0.002	2.5	8760	29.95
Foam Cleaner	102650	93.6412	6.59	6.17	13.32	82.20	6.17	13.32	4804	0.003	2.5	8760	374.65
NAPA Heavy Duty Silicone Lubricant	100189	59.4056	6.24	3.71	10.34	38.33	3.71	10.34	4804	0.002	2.5	8760	174.88
NAPA CHAIN AND CABLE LUBE 12.75 OZ.	102661	0.00	6.59	0.00	7.19	0.00	0.00	7.19	4804	0.001	2.5	8760	0.00
DUPLI-COLOR Sandable Primer Black Hot Rod	102648	45.56	6.26	2.85	8.41	23.99	2.85	8.41	4804	0.002	2.5	8760	109.27
Beasolve Peral	102963	62.47	8.01	5.00	7.50	37.53	5.00	7.50	4804	0.002	2.5	8760	170.95
TOLUENE 3T1	100107	100.00	7.24	7.24	3.75	27.15	7.24	3.75	4804	0.001	2.5	8760	123.77
PVTLBL SSPR 6PK OPP TOUCHNTONE GLS BLACK	100043	78.61	5.78	4.54	2.35	10.68	4.54	2.35	4804	0.000	2.5	8760	48.64
ECOGLUE EXTREME PREM. ADHSV WHITE	102722	0.00	11.77	0.00	1.19	0.00	0.00	1.19	4804	0.000	2.5	8760	0.00

Actual	**VOC**	**lbs/ year**	**10527.21**
Actual	**VOC**	**Tons/ year**	**5.26**

PTE	**VOC**	**lbs/year**	**47983.68**
PTE	**VOC**	**Tons/year**	**23.99**

24-0151 - Forest River, Inc.
Assembly HAPs Actual Emisisons
Numbers based on Aug 2018 thru July 2019 production

Assembly Material	SDS ID	Density (Lb/Gal)	Usage (gallons/ hour)	Usage (lbs/hour)	Wt. % Xylene	Wt. % Ethylbenzene	Wt. % Naphthalene	Wt. % Methanol	Wt. % MDI	Wt. % Hexane	Wt. % Toluene	Xylene Actual (tons/year)	Ethylbenzene Actual (tons/year)	Naphthalene Actual (tons/year)	Methanol Actual (tons/year)	MDI Actual (tons/year)	Hexane Actual (tons /year)	Toluene Actual (tons/year)
3011, 3015, 3080, 8100, 8120 VAE adhesive	100018	8.76	0.128	1.12							2.00%							0.03
DUPLI-COLOR Undercoat (Paintable Rubberized)	102573	8.18	0.070	0.57				2.30%							0.02			
Tytan Professional Fill All Insulating Foam Sealant Pro	100056	8.10	0.053	0.43					20.00%							0.11		
13 OZ MACS BRAKE CLEANER 4800 LT 12PK	102692	7.54	0.040	0.30							50.00%							0.20
3M PB960 High Strength Polystyrene Adhesive, Cylin	102656	5.84	0.035	0.20						35.00%							0.09	
STRUST +SSPR 6PK METALIC GLOSS CHROME	102687	5.94	0.010	0.06							17.50%							0.01
DUPLI-COLOR Sandable Primer Black Hot Rod	102648	6.26	0.005	0.03			0.15%				11.45%			0.00				0.00
TOLUENE 3T1	100107	7.24	0.003	0.02							100.00%							0.03
PVTLBL SSPR 6PK OPP TOUCHNTONE GLS BLACK	100043	5.78	0.001	0.01	6.25%	1.75%						0.00	0.00					

Actual based on 2600 hours of operation / year

Actual Highest Single HAP (tons/year)	**0.27**
Actual Total HAPs (tons/ year)	**0.49**

24-0151 - Forest River, Inc.
Assembly HAPs Potential Emisisons (PTE)
Numbers based on Aug 2018 thru July 2019 production

Assembly Material	SDS ID	Density (Lb/Gal)	Usage (gallons/ hour)	Usage (lbs/hour)	Wt. % Xylene	Wt. % Ethylbenzene	Wt. % Naphthalene	Wt. % Methanol	Wt. % MDI	Wt. % Hexane	Wt. % Toluene	Xylene PTE (tons/year)	Ethylbenzene PTE (tons/year)	Naphthalene PTE (tons/year)	Methanol PTE (tons/year)	MDI PTE (tons/year)	Hexane PTE (tons /year)	Toluene PTE (tons/year)
3011, 3015, 3080, 8100, 8120 VAE adhesive	100018	8.76	0.128	1.12							2.00%							0.10
DUPLI-COLOR Undercoat (Paintable Rubberized)	102573	8.18	0.070	0.57				2.30%							0.058			
Tytan Professional Fill All Insulating Foam Sealant Pro	100056	8.10	0.053	0.43					20.00%							0.376		
13 OZ MACS BRAKE CLEANER 4800 LT 12PK	102692	7.54	0.040	0.30							50.00%							0.66
3M PB960 High Strength Polystyrene Adhesive, Cylin	102656	5.84	0.035	0.20						35.00%							0.313	
STRUST +SSPR 6PK METALIC GLOSS CHROME	102687	5.94	0.010	0.06							17.50%							0.05
DUPLI-COLOR Sandable Primer Black Hot Rod	102648	6.26	0.005	0.03			0.15%				11.45%			0.000				0.02
TOLUENE 3T1	100107	7.24	0.003	0.02							100.00%							0.10
PVTLBL SSPR 6PK OPP TOUCHNTONE GLS BLACK	100043	5.78	0.001	0.01	6.25%	1.75%						0.002	0.000					

PTE based on 8760 hours of operation / year

PTE Highest Single HAP (tons/year)	**0.93**
PTE Total HAPs (tons/ year)	**1.68**

24-0151 - Forest River, Inc.
Assembly PM Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

Material	SDS ID	Maximum (unit/hour)	Gal of Mat. (gal/unit)	Density (Lb/Gal)	Weight % Volatile (H20 & Organics)	Transfer Efficiency	Particulate Actual (ton/yr)	Particulate Potential (ton/yr)
3M PB999 General Purpose Fast Dry Adhesive, Green large Cyl	100286	2.500	0.245	5.84	81.29%	75%	0.22	0.73
MANUS-BOND 76-AM Self Leveling (White, Gray or Black)	101418	2.500	0.848	13.35	0.62%	100%	0.00	0.00
#744 Black Wood Coating	100682	2.500	0.687	8.35	0.12%	100%	0.00	0.00
TREMPRO 644 RTV WHITE 3" - 12 CTG CS	102509	2.500	0.151	8.47	0.10%	100%	0.00	0.00
TREMPRO 645 SEMI-TRANSLUCENT	100151	2.500	0.136	8.55	2.92%	100%	0.00	0.00
3011, 3015, 3080, 8100, 8120 VAE adhesive	100018	2.500	0.051	8.76	1.07%	100%	0.00	0.00
5530 Elasto-Kool 1000 White Siliconized Elastomeric Roof Coa	102690	2.500	0.040	11.93	3.14%	100%	0.00	0.00
DUPLI-COLOR Undercoat (Paintable Rubberized)	102573	2.500	0.028	8.18	29.30%	50%	0.27	0.90
3M Adhesion Promoter 111	100004	2.500	0.025	6.58	98.69%	100%	0.00	0.00
LS250B	102716	2.500	0.022	13.85	1.08%	100%	0.00	0.00
Tytan Professional Fill All Insulating Foam Sealant Pro	100056	2.500	0.021	8.1	16.57%	100%	0.00	0.00
Isopropyl Alcohol	100276	2.500	0.034	6.55	100.00%	100%	0.00	0.00
Clean Sol Plus	100089	2.500	0.015	7.01	95.00%	50%	0.01	0.03
13 OZ MACS BRAKE CLEANER 4800 LT 12PK	102692	2.500	0.016	7.54	50.00%	50%	0.10	0.33
3M PB960 High Strength Polystyrene Adhesive, Cylinder	102656	2.500	0.014	5.84	81.00%	100%	0.00	0.00
Plastic Wood Solvent Wood Filler	102691	2.500	0.011	8.93	17.73%	100%	0.00	0.00
AHB Clear Thin Spread Adhesive	100054	2.500	0.012	8.46	0.08%	100%	0.00	0.00
STRUST +SSPR 6PK METALIC GLOSS CHROME	102687	2.500	0.004	5.94	78.10%	50%	0.01	0.03
CRAZY CLEAN ALL PURPOSE CLEANER	100148	2.500	0.002	7.69	7.86%	50%	0.03	0.09
Foam Cleaner	102650	2.500	0.003	6.59	93.64%	50%	0.00	0.01
NAPA Heavy Duty Silicone Lubricant	100189	2.500	0.002	6.24	59.41%	100%	0.00	0.00
NAPA CHAIN AND CABLE LUBE 12.75 OZ.	102661	2.500	0.001	6.59	0.00%	50%	0.02	0.05
DUPLI-COLOR Sandable Primer Black Hot Rod	102648	2.500	0.002	6.26	45.56%	50%	0.01	0.03
Beasolve Peral	102963	2.500	0.002	8.01	62.47%	50%	0.01	0.03
TOLUENE 3T1	100107	2.500	0.001	7.24	100.00%	100%	0.00	0.00
PVTLBL SSPR 6PK OPP TOUCHNTONE GLS BLACK	100043	2.500	0.0005	5.78	78.61%	50%	0.00	0.00
ECOGLUE EXTREME PREM. ADHSV WHITE	102722	2.500	0.0002	11.77	0.00%	100%	0.00	0.00

Particulate Actual Tons per Year = (units/hour) *(gal/unit) *(lbs/gal) *(1-Weight % Volatiles) *(1- Transfer efficiancy) *(2600 hrs/yr) *(1 ton/2000 lbs)
Particulate Potential Tons per Year = (units/hour) *(gal/unit) *(lbs/gal) *(1- Weight % Volatiles) *(1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)

Actual PM Emissions (tons/ year)				**0.66**	
PTE PM Emissions (tons/ year)					**2.23**

24-0151 - Forest River, Inc.
Paint Booth VOC Actual and Potential (PTE) Emissions
Paint Booth PM Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

Material	SDS ID	Density (Lb/Gal)	Weight % Volatile (H20 & Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Volatiles (solids)	Gal of Mat. (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Actual VOC tons per year	Potential VOC tons per year	lb VOC/gal solids	Application Method	Transfer Efficiency	Particulate Uncontrolled Actual (ton/yr)	Particulate Uncontrolled Potential (ton/yr)	Filter Control Efficiency	Particulate Controlled Actual (ton/yr)	Particulate Controlled Potential (ton/yr)
Black, Solvent Based Coating #7753	102471	10.01	20.95%	0.00%	20.95%	0.00%	79.05%	1.586	2.500	2.10	2.10	10.81	36.43	2.65	HVLP	75%	10.20	34.36	98.21%	0.18	0.62
#9910, #9920	102614	8.57	39.63%	0.00%	39.63%	0.00%	60.37%	0.861	2.500	3.40	3.40	9.51	32.03	5.63	HVLP	75%	3.62	12.20	98.21%	0.06	0.22
#9970 Primer (Grey or Red Oxide)	101485	11.68	26.09%	0.00%	26.09%	0.00%	73.91%	0.227	2.500	3.05	3.05	2.24	7.56	4.12	HVLP	75%	1.59	5.36	98.21%	0.03	0.10
KEM AQUA 50P Water Reducible Primer Black	100141	8.01	26.09%	0.00%	26.09%	0.00%	73.91%	0.149	2.500	2.09	2.09	1.01	3.40	2.83	HVLP	75%	0.71	2.41	98.21%	0.01	0.04
High Solids Shopcoat Primer Gray	102536	11.27	26.09%	0.00%	26.09%	0.00%	73.91%	0.003	2.500	2.94	2.94	0.03	0.10	3.98	HVLP	75%	0.02	0.07	98.21%	0.00	0.00
										Total VOC =		**23.60**	**79.51**				**Total PM =**			**16.14**	**54.39**
																	Total Controlled PM =			**0.29**	**0.97**

Pounds of VOC per Gallon Coating less Water = (Density (lb/gal) * Weight % Organics) / (1-Volume % water)
Pounds of VOC per Gallon Coating = (Density (lb/gal) * Weight % Organics)
Actual VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (2600 hr/yr) * (1 ton/2000 lbs)
Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 hr/yr) * (1 ton/2000 lbs)

Particulate Actual Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(2600 hrs/yr) *(1 ton/2000 lbs)
Particulate Potential Tons per Year = (units/hour) * (gal/unit) * (lbs/gal) * (1- Weight % Volatiles) * (1-Transfer efficiency) *(8760 hrs/yr) *(1 ton/2000 lbs)
Pounds VOC per Gallon of Solids = (Density (lbs/gal) * Weight % organics) / (Volume % solids)

24-0151 - Forest River, Inc.
Paint Booth HAP Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

Material	SDS ID	Density (Lb/Gal)	Usage (Gal/hr)	Usage (Lbs/hr)	Weight % Xylene	Weight % Ethylbenzene	Weight % Methyl isobutyl ketone	Weight % O-Xylene	Weight % Hexane	Xylene Actual (tons/yr)	Xylene PTE (tons/yr)	Ethylbenzene Actual (tons/yr)	Ethylbenzene PTE (tons/yr)	Methyl isobutyl ketone Actual (tons/yr)	Methyl isobutyl ketone PTE (tons/yr)	O-Xylene Actual (tons/yr)	O-Xylene PTE (tons/yr)	Hexane Actual (tons/yr)	Hexane PTE (tons/yr)
#9910, #9920	102614	8.57	2.153	18.45	2.50%				1.00%	0.600	2.020							0.240	0.808
High Solids Shopcoat Primer Gray	102536	11.27	0.008	0.09	6.65%	1.18%	1.88%	1.72%		0.008	0.026	0.001	0.005	0.002	0.007	0.002	0.007		

HAPS emission rate (tons/yr) = Density (lb/gal) * Gal of Material (gal/unit) * Maximum (unit/hr) * Weight % HAP * 8760 hrs/yr * 1 ton/2000 lbs

	Tons / Year
Actual Highest Single HAP =	**0.61**
Actual Combined Haps =	**0.85**
PTE Highest Single HAP =	**2.02**
PTE Combined HAPs =	**2.87**

24-0151 - Forest River, Inc.
Welding PM & HAP Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

PROCESS	Number of Stations	Max. electrode consumption per station (lbs/hr)		EMISSION FACTORS* (lb pollutant / 1000 lb electrode)					EMISSIONS (lbs/hr)					HAPS (lbs/hr)
*WELDING				PM = PM10	Mn	Co	Ni	Cr	PM = PM10	Mn	Co	Ni	Cr	
Metal Inert Gas (MIG)(E70S)	32	4		5.2	3.18	0.01	0.01	0.01	0.666	0.407	0.0013	0.0013	0.0013	0.410
Stick Welding (E7018)	5	0.31		18.4	10.3	0.01	0.02	0.06	0.029	0.016	0.0000	0.0000	0.0001	0.016

CUTTING	Number of Stations	Max. Metal Thickness Cut (in.)	Max. Metal Cutting Rate (in./minute)	EMISSION FACTORS* (lb pollutant / 1000 inches cut, 1" thick)**					EMISSIONS (lbs/hr)					HAPS (lbs/hr)
				PM = PM10	Mn	Co	Ni	Cr	PM = PM10	Mn	Co	Ni	Cr	
Plasma**	7	0.25	40	0.0039	0.0005		0.0001	0.0003	0.066	0.008	0.000	0.002	0.005	0.015

EMISSION TOTALS														
Potential Emissions lbs/hr									0.76	0.43	0.00	0.00	0.01	0.44
Potential Emissions lbs/day									18.23	10.35	0.03	0.07	0.15	10.58
Potential Emissions tons/year									3.33	1.89	0.01	0.01	0.03	1.93
*Actual Emissions tons/year									0.99	0.56	0.00	0.00	0.01	0.57

***PTE Emissions based on 8760 hrs/yr**
***Actual Emissions based on 10 hrs/day * 5 days/week * 52 weeks/yr = 2600 hrs/yr**

*Emission Factors from AP-42 Chapter 12.19 (Electric Arc Welding), Table 12.19-1 and 12.19-2.

**Emission Factor for plasma cutting from American Welding Society (AWS). Trials reported for wet cutting of 8 mm thick mild steel with 3.5 m/min cutting speed (at 0.2 g/min emitted). Therefore, the emission factor for plasma cutting is for 8 mm thick rather than 1 inch, and the maximum metal thickness is not used in calculting the emissions.

Using AWS average values: (0.25 g/min)/(3.6 m/min) x (0.0022 lb/g)/(39.37 in./m) x (1,000 in.) = 0.0039 lb/1,000 in. cut, 8 mm thick
Plasma cutting emissions, lb/hr: (# of stations)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 8 mm thick)
Cutting emissions, lb/hr: (# of stations)(max. metal thickness, in.)(max. cutting rate, in./min.)(60 min./hr.)(emission factor, lb. pollutant/1,000 in. cut, 1" thick)
Welding emissions, lb/hr: (# of stations)(max. lbs of electrode used/hr/station)(emission factor, lb. pollutant/lb. of electrode used)
Emissions, lbs/day = emissions, lbs/hr x 24 hrs/day
Emissions, tons/yr = emissions, lb/hr x 8,760 hrs/year x 1 ton/2,000 lbs.

24-0151 - Forest River, Inc.
Woodworking PM Actual and Potential (PTE) Emissions
Numbers based on Aug 2018 thru July 2019 production

Process		Emission Factor			Controlled Particulate Emissions		
Woodworking Operations (WW1)	Process Weight Rate (tons/hr)	PM Emission Factor* (lbs/ton)	PM10 Emission Factor* (Percentage of PM)	PM2.5 Emission Factor* (Percentage of PM)	PM Emissions (tons/yr)	PM10 Emissions (tons/yr)	PM2.5 Emissions (tons/yr)
	0.50	2.00	85.00%	50.00%	4.38	3.72	2.19
			Actual Emissions		**1.3**	**1.11**	**0.65**
			Potential Emissions		**4.38**	**3.72**	**2.19**

METHODOLOGY
*PM Emission factors from AQ EF-02 and AQ EF-03

24-0151 - Forest River, Inc.
NG & GHG Actual and Potential (PTE) Emissions
Numbers **Numbers based on Aug 2018 thru July 2019 production**

Three office space heaters rated at 0.1 MMBtu/hr each.

		HHV					
Heat Input Capacity		mmBtu		Potential Throughput		Actual Throughput	
MMBtu/hr		mmscf		MMCF/yr			
0.30		1020		2.6		0.8	

			Pollutant						
			PM*	PM10*	direct PM2.5*	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF			2.5	2.5	2.5	1.7	100	5.5	84
Potential Emission in tons/yr			0.00	0.00	0.00	0.002	0.13	0.01	0.11
***Actual Emissions in tons/yr			0.00	0.00	0.00	0.00	0.04	0.00	0.03

*PM emission factor is filterable PM only. PM10 emission factor is filterable and condensable PM10 combined.
PM2.5 emission factor is filterable and condensable PM2.5 combined.
**Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32
****Actual Emissions based on 10 hrs/day * 5 days/week * 52 weeks/yr = 2600 hrs/yr*
EF DEQ AQ-EF-05

Fuel Combustion Greenhouse Gas Calculator

This sheet calculates greenhouse gas emissions from fuel combustion.

1) Enter the combustion emission sources at the facility (e.g. "boiler 1") in the 1st column.

2) In the 2nd column, select the fuel type used in each emissions unit. If more than one fuel type was used in a single emissions unit, you must enter that same emissions unit on multiple rows and then enter the different fuel types in each row.

3) Enter the fuel quantities in the 3rd column and specify the unit of measure in the 4th column. Emissions are then calculated in metric tons of carbon dioxide equivalent ($mtCO_2e$).

Enter emissions information				Convert to mmBtu				Emissions (kg/mmBtu)			CO_2 Equivalent			Anthropogenic ($mtCO_2e$)			Biogenic ($mtCO_2$)
Emissions unit[1]	Fuel Type[2]	Quantity[3]	Fuel units[3]	HHV Units	HHV Unit	HHV	mmBtu	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	CH_4	CO_2	N_2O	
3 Space Heaters	Natural gas	3	Million cubic	2,600,000	cubic ft	0.001026	2,668	0	53	0	25	1	298	0	141.543	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0
				0	0	0	0	0	0	0	25	1	298	0	0	0	0

Anthropogenic combustion emissions ($mtCO_2e$):	142
Biogenic combustion emissions ($mtCO_2e$):	0
Total combustion emissions ($mtCO_2e$):	**142**

Conversion to short tons

Anthropogenic combustion emissions:	156
Biogenic combustion emissions:	0
Total combustion emissions:	**156**

Use the following formula to calculate a HHV for woodwaste on a wet basis:

$HHV_w = (100 – M)/100)*17.48$

where HHV_w = wet basis HHV, M = moisture content (percent). 17.48 is the HHV on a dry basis.

Use this new HHV to replace the default HHV in the calculator above once the "wood/woodwaste" fuel type is selected.