

**CONSTRUCTION PERMIT
OFFICE OF AIR MANAGEMENT**

**Forest River, Inc.
201 West Elm Street
Millersburg, Indiana 46543**

is hereby authorized to construct a recreational vehicles manufacturing operation consisting of the following:

- (a) Two (2) high volume low pressure (HVLP) guns, various aerosol spray cans and manual tube extrusion guns for coating recreational vehicles in the assembly area, with a maximum capacity of manufacturing eight (8) recreational vehicles per hour, with no control for overspray.
- (b) One (1) cabinet woodworking shop saws consisting of table saws, radial arm saws, chop saws using a prefinished lumber with a maximum capacity of 600 pounds per hour (lb/hr), and exhausting at one (1) stack.
- (c) Five (5) Natural gas fired space heaters with a total rated maximum capacity of 13.50 million British thermal unit (MMBTU/hr), exhausting at stacks identified as A1, A2, A3, A4, and A5.
- (d) One (1) recreational vehicle roof and wall lamination press operation, which a maximum capacity of laminating eight (8) recreational vehicles per hour.
- (e) One (1) metal inert gas (MIG) welding operation consisting of two (2) welding stations rated at a maximum capacity of consuming 0.18 pound electrode per hour.

This permit is issued to the above mentioned company (herein known as the Permittee) under the provisions of 326 IAC 2-1 and 40 CFR 52.780, with conditions listed on the attached pages.

Construction Permit No.: CP-039-8971-00471	
Issued by: Paul Dubenetzky, Branch Chief Office of Air Management	Issuance Date:

Construction Conditions

General Construction Conditions

1. That the data and information supplied with the application shall be considered part of this permit. Prior to any proposed change in construction which may affect allowable emissions, the change must be approved by the Office of Air Management (OAM).
2. That this permit to construct does not relieve the permittee of the responsibility to comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder, as well as other applicable local, state, and federal requirements.

Effective Date of the Permit

3. That pursuant to IC 13-15-5-3, this permit becomes effective upon its issuance.
4. That pursuant to 326 IAC 2-1-9(b)(Revocation of Permits), the Commissioner may revoke this permit if construction is not commenced within eighteen (18) months after receipt of this approval or if construction is suspended for a continuous period of one (1) year or more.
5. That notwithstanding Construction Condition No. 6, all requirements and conditions of this construction permit shall remain in effect unless modified in a manner consistent with procedures established for modifications of construction permits pursuant to 326 IAC 2 (Permit Review Rules).

First Time Operation Permit

6. That this document shall also become a first-time operation permit pursuant to 326 IAC 2-1-4 (Operating Permits) when, prior to start of operation, the following requirements are met:
 - (a) The attached affidavit of construction shall be submitted to the Office of Air Management (OAM), Permit Administration & Development Section, verifying that the facilities were constructed as proposed in the application. The facilities covered in the Construction Permit may begin operating on the date the Affidavit of Construction is postmarked or hand delivered to IDEM.
 - (b) If construction is completed in phases; i.e., the entire construction is not done continuously, a separate affidavit must be submitted for each phase of construction. Any permit conditions associated with operation start up dates such as stack testing for New Source Performance Standards (NSPS) shall be applicable to each individual phase.
 - (c) Permittee shall receive an Operation Permit Validation Letter from the Chief of the Permit Administration & Development Section and attach it to this document.
 - (d) The operation permit will be subject to annual operating permit fees pursuant to 326 IAC 2-1-7.1(Fees).
 - (e) Pursuant to 326 IAC 2-1-4, the Permittee shall apply for an operation permit renewal at least ninety (90) days prior to the expiration date established in the validation letter. The operation permit issued shall contain as a minimum the conditions in the Operation Conditions section of this permit.

7. That when the facility is constructed and placed into operation the following operation conditions shall be met:

Operation Conditions

General Operation Conditions

1. That the data and information supplied in the application shall be considered part of this permit. Prior to any change in the operation which may result in an increase in allowable emissions exceeding those specified in 326 IAC 2-1-1 (Construction and Operating Permit Requirements), the change must be approved by the Office of Air Management (OAM).
2. That the permittee shall comply with the provisions of the Indiana Environmental Management Law (IC 13-11 through 13-20; 13-22 through 13-25; and 13-30), the Air Pollution Control Law (IC 13-17) and the rules promulgated thereunder.

Preventive Maintenance Plan

3. That pursuant to 326 IAC 1-6-3 (Preventive Maintenance Plans), the Permittee shall prepare and maintain a preventive maintenance plan, including the following information:
 - (a) Identification of the individual(s) responsible for inspecting, maintaining, and repairing emission control devices.
 - (b) A description of the items or conditions that will be inspected and the inspection schedule for said items or conditions.
 - (c) Identification of the replacement parts which will be maintained in inventory for quick replacement.

The preventive maintenance plan shall be submitted to IDEM, OAM upon request and shall be subject to review and approval.

Transfer of Permit

4. That pursuant to 326 IAC 2-1-6 (Transfer of Permits):
 - (a) In the event that ownership of this cabinet shop saws and RV assembly area is changed, the Permittee shall notify OAM, Permit Branch, within thirty (30) days of the change. Notification shall include the date or proposed date of said change.
 - (b) The written notification shall be sufficient to transfer the permit from the current owner to the new owner.
 - (c) The OAM shall reserve the right to issue a new permit.

Permit Revocation

5. That pursuant to 326 IAC 2-1-9(a)(Revocation of Permits), this permit to construct and operate may be revoked for any of the following causes:

- (a) Violation of any conditions of this permit.
- (b) Failure to disclose all the relevant facts, or misrepresentation in obtaining this permit.
- (c) Changes in regulatory requirements that mandate either a temporary or permanent reduction of discharge of contaminants. However, the amendment of appropriate sections of this permit shall not require revocation of this permit.
- (d) Noncompliance with orders issued pursuant to 326 IAC 1-5 (Episode Alert Levels) to reduce emissions during an air pollution episode.
- (e) For any cause which establishes in the judgment of IDEM, the fact that continuance of this permit is not consistent with purposes of 326 IAC 2-1 (Permit Review Rules).

Availability of Permit

6. That pursuant to 326 IAC 2-1-3(I), the Permittee shall maintain the applicable permit on the premises of this source and shall make this permit available for inspection by the IDEM or other public official having jurisdiction.

Annual Emission Reporting

7. That pursuant to 326 IAC 2-6 (Emission Reporting), the Permittee must annually submit an emission statement for the source. This statement must be received by April 15 of each year and must comply with the minimum requirements specified in 326 IAC 2-6-4. The annual statement must be submitted to:

Indiana Department of Environmental Management
Technical Support and Modeling Section, Office of Air Management
100 North Senate Avenue, P. O. Box 6015
Indianapolis, Indiana 46206-6015

The annual emission statement covers the twelve (12) consecutive month time period starting December 1 and ending November 30.

Opacity Limitations

8. That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:
- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
 - (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

Particulate Matter Emission Limitations

9. That pursuant to 326 IAC 6-3 (Process Operations): the recreational vehicles assembly area, cabinet shop saws operation and welding operation shall comply with 326 IAC 6-3-2(c) using the following equation:

$$E = 4.10P^{0.67} \quad \text{where: } E = \text{rate of emission in pounds per hour,} \\ P = \text{process weight in tons per hour.}$$

10. Fugitive Dust Emissions
That pursuant to 326 IAC 6-4 (Fugitive Dust Emissions), the permittee shall be in violation of 326 IAC 6-4 (Fugitive Dust Emissions) if any of the criteria specified in 326 IAC 6-4-2(1) through (4) are violated. Observations of visible emissions crossing the property line of the source at or near ground level must be made by a qualified representative of IDEM. [326 IAC 6-4-5(c)].

11. Open Burning
That the Permittee shall not open burn any material except as provided in 326 IAC 4-1-3, 326 IAC 4-1-4 or 326 IAC 4-1-6. The previous sentence notwithstanding, the Permittee may open burn in accordance with an open burning approval issued by the Commissioner under 326 IAC 4-1-4.1.

12. Part 70 Permitting Condition
Any change or modification which may increase the volatile organic compound (VOC) and particulate matter less than ten (10) micron in aerodynamic diameter (PM₁₀) emissions to 100 tons per year or an individual hazardous air pollutant emissions to 10 tons per year or combination hazardous air pollutants to 25 tons per year from the recreational vehicle area must be approved by the Office of Air Management (OAM) before such change may occur, pursuant to 326 IAC 2-7.

Indiana Department of Environmental Management Office of Air Management

Technical Support Document (TSD) for New Construction and Operation

Source Background and Description

Source Name: Forest River, Inc.
 Source Location: 201 West Elm Street, Millersburg, Indiana 46543
 County: Elkhart
 Construction Permit No.: CP-039-8971-00471
 SIC Code: 3792
 Permit Reviewer: Manoj Patel

The Office of Air Management (OAM) has reviewed an application from Forest River, Inc. relating to the construction and operation of a recreational vehicles manufacturing operation, consisting of the following equipment:

- (a) Two (2) high volume low pressure (HVLP) guns, various aerosol cans and manual tube extrusion guns for coating recreational vehicles in the assembly area with a maximum capacity of manufacturing eight (8) recreational vehicles per hour, with no control for overspray. This assembly area was constructed prior to 1980.
- (b) One (1) cabinet woodworking saws consisting of table saws, radial arm saws, chop saws using a prefinished lumber with a maximum capacity of 600 pounds per hour (lb/hr), and exhausting at one (1) stack. This operation was constructed prior to 1980.
- (c) Five (5) natural gas fired space heaters with a total rated maximum capacity of 13.50 million British thermal units (MMBtu/hr), exhausting at one (1) stack.
- (d) One (1) recreational vehicle roofs and walls lamination press, which has a capacity of laminating eight (8) recreational vehicles per hour. This operation was constructed prior to 1980.
- (e) One (1) metal inert gas (MIG) welding operation consisting of two (2) welding stations rated at a maximum capacity of consuming 0.18 pound RE 70S electrode per hour. This operation was constructed prior to 1980.

Stack Summary

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
A	Natural Gas Heater Vent	25'	6"	200	Ambient
C	Woodworking	25'	1'	4000	Ambient

Enforcement Issue

IDEM is aware that the facilities listed on page 1 of this TSD has been constructed and operated prior to receipt of the proper permit. IDEM is reviewing this matter and will take appropriate action. This proposed permit is intended to satisfy the requirements of the construction permit rules.

Recommendation

The staff recommends to the Commissioner that the construction and operation be approved. This recommendation is based on the following facts and conditions:

Information, unless otherwise stated, used in this review was derived from the application and additional information submitted by the applicant.

An application for the purposes of this review was received on September 12, 1997, with additional information received on October 9, 1997.

Emissions Calculations

(A) Space Heaters: Natural Gas-Fired Combustion:

See Appendix A of TSD for detailed calculation.

Heat Input Capacity: 13.84 MMBtu /hour			Potential Throughput: 121.2 MMCF / year			
Pollutant	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb /MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emissions in tons/yr	0.727	0.727	0.036	6.062	0.321	1.273

Methodology:

Emission (tons /year) = Potential Throughput (MMCF/year) x Emission Factor (lb/MMCF) x (1 ton/ 2000 lb)

(B) RV Assembly Area: Surface Coating Operation:

See Appendix B of TSD for Detailed VOC calculation.

See Appendix C of TSD for detailed HAP calculation.

(C) Cabinet Saw Sawing Operation:

Emission Factor is chosen from the log sawing operation (SCC # 30700802) from the Source Classification Codes (SCC) and Emission Factor Listing for Criteria Air Pollutants (EPA-454/R-95-012). Cyclone is connected with the cabinet shop operation but considered only as a stack.

$$\begin{aligned}\text{Potential PM Emissions (lb/hr)} &= (0.35 \text{ lb/ton of log processed}) \times (600 \text{ lb lumber / hr}) \times \\ &\quad (1 \text{ ton}/2000 \text{ lb}) \\ &= 0.105 \text{ lb / hour}\end{aligned}$$

$$\begin{aligned}\text{Potential PM Emissions (ton/yr)} &= 0.105 \text{ lb/hour} \times 8760 \text{ hr / year} \times 1 \text{ ton} / 2000 \text{ lb} \\ &= 0.46 \text{ ton/ year}\end{aligned}$$

(D) RV Roof and Wall Lamination Press Operation:

The Hybond 9600 urethane adhesive supplied to Forest River, Inc. contain 15% methyl diisocyanate (MDI) and 85% polymethyl diisocyanate (PDMI). 120 lb of Hybond 9600 urethane adhesive (15% methyl diisocyanate, 85% polymethyl diisocyanate) evaporates MDI to the atmosphere at a rate of 0.426 lb/hr volatile organic compound in the form of methyl diisocyanate released into the atmosphere.

MDI emission to the atmosphere in three minutes

$$\begin{aligned}&= (0.426 \text{ lb/hr}) \times (0.050 \text{ hr}) \\ &= 0.0213 \text{ lb}\end{aligned}$$

Methyl diisocyanate (MDI =VOC) emission factor form the Hybond 9600 urethane:

$$\begin{aligned}&= (0.0213 \text{ lb emitted} / 120 \text{ lb spilled}) \times (9.93 \text{ lb spilled} / \\ &\quad \text{gallon}) \\ &= 0.0018 \text{ lb VOC emitted} / \text{gal usage}\end{aligned}$$

Each recreational vehicle requires 1.71 gallons of adhesive at the lamination process.

$$\begin{aligned}\text{MDI emission rate into atmosphere} &= (0.018 \text{ lb VOC/ gal adhesive}) \times (1.71 \text{ gal adhesive/RV}) \\ &= 0.03 \text{ lb/ RV}\end{aligned}$$

$$\begin{aligned}\text{Potential Emissions form the lamination} &= (0.03 \text{ lb/ RV}) \times (8 \text{ RV} / \text{hr}) \times (8760 \text{ hr /yr}) \times \\ &\quad (1 \text{ ton}/2000\text{lb}) \\ &= 1.08 \text{ ton/year}\end{aligned}$$

(E) Welding Operation

See Appendix D of TSD for Detailed VOC calculation.

SUMMARY OF EMISSIONS (TONS/YEAR)						
Pollutant	Space Heaters	Cabinet Shop Saws	RV Assembly Area	RV roof and wall lamination	Welding Process	Total Uncontrolled Emissions
PM	0.72	0.46	0.75	0.00	0.008	1.95
VOC	0.72	0.0	49.34	1.08	0.0	50.06
NO _x	6.06	0.0	0.0	0.0	0.0	6.06
SO ₂	0.036	0.0	0.0	0.0	0.0	0.036
CO	1.27	0.0	0.0	0.0	0.0	1.27

Total Potential and Allowable Emissions

Indiana Permit Allowable Emissions Definition (after compliance with applicable rules, based on 8,760 hours of operation per year at rated capacity):

Pollutant	Allowable Emissions (tons/year)	Potential Emissions (tons/year)
Particulate Matter (PM)	152.36	1.95
Particulate Matter (PM10)	152.36	1.95
Sulfur Dioxide (SO ₂)	0.036	0.036
Volatile Organic Compounds (VOC)	50.06	50.06
Carbon Monoxide (CO)	1.27	1.27
Nitrogen Oxides (NO _x)	6.06	6.06
Single Hazardous Air Pollutant (HAP)	9.53	9.53
Combination of HAPs	16.15	16.15

(a) Allowable emissions are determined from the applicability of rule 326 IAC 6-3.

(1) Cabinet Shop Saws: (P =0.3 ton/hr)

$$\begin{aligned}
 E &= 4.10 P^{0.67} \\
 &= 4.10 (0.3)^{0.67} \\
 &= 1.83 \text{ lb/hr} \\
 &= 8.01 \text{ ton/year}
 \end{aligned}$$

Where:

E = Allowable PM emissions, lb/hr
P = Process Weight rate, ton/hr
= 0.30 ton/hr

(2) RV Assembly Area: (P= 12.32 ton/hr)

E = $4.10 P^{0.67}$
= $4.10 (12.32)^{0.67}$
= 22.06 lb/hr
= 96.61 ton/yr

Where:

E = Allowable PM emissions, lb/hr
P = Process Weight rate, ton/hr
= (3081 lb. Material/ RV) x (8 RV/hr) x (1 ton / 2000 lb)
= 12.32 ton/hr

(3) Welding Operation: (P = 9.325×10^{-5} ton/hr)

E = $4.10 P^{0.67}$
= $4.10 (9.325 \times 10^{-5})^{0.67}$
= 0.008 lb/hr
= 0.035 ton/year

Where:

E = Allowable PM emissions, lb/hr
P = Process Weight rate, ton/hr
= 9.325×10^{-5} ton/hr

- (b) The potential emissions before control are less than the allowable emissions, therefore, the potential emissions before control are used for the permitting determination.
- (c) Allowable emissions (as defined in the Indiana Rule) of volatile organic compounds (VOCs) are greater than 25 tons per year. Therefore, pursuant to 326 IAC 2-1, Sections 1 and 3, a construction permit is required.

County Attainment Status

- (a) Volatile organic compounds (VOC) and oxides of nitrogen are precursors for the formation of ozone. Therefore, VOC and NOx emissions are considered when evaluating the rule applicability relating to the ozone standards. Elkhart County has been designated as attainment or unclassifiable for ozone. Therefore, VOC and NOx emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.
- (b) Elkhart County has been classified as attainment or unclassifiable for ozone. Therefore,

these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2 and 40 CFR 52.21.

Source Status

New Source PSD Definition (emissions after controls, based on 8,760 hours of operation per year at rated capacity and/ or as otherwise limited):

Pollutant	Emissions (ton/yr)
PM	1.95
PM10	1.95
SO ₂	0.036
VOC	50.06
CO	1.27
NO _x	6.06
Single HAP	9.53
Combination HAPs	16.15

This new source is **not** a major stationary source because no attainment pollutant is emitted at a rate of 250 tons per year or greater and it is not in one of the 28 listed source categories. Therefore, pursuant to 326 IAC 2-2, and 40 CFR 52.21, the PSD requirements do not apply.

Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This new source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

This is the first air approval issued to this source.

Federal Rule Applicability

- (a) There are no New Source Performance Standards (326 IAC 12) applicable to this facility.
- (b) 40 CFR Part 63, Subpart JJ, National Emission Standards for Wood Furniture Manufacturing Operations

This woodworking operation is not covered by 40 CFR Part 63, Subpart JJ (National Emission Standards for Wood Furniture Manufacturing Operation), because this source is not a major source as defined in 40 CFR 63.2 and do not engage in manufacturing of wood furniture or wood furniture components.

State Rule Applicability

326 IAC 2-6 (Emission Reporting)

This source is subject to 326 IAC 2-6 (Emission Reporting), because the source emits more than 10 tons/yr of VOC. Pursuant to this rule, the owner/operator of this facility must annually submit an emission statement of the facility. The annual statement must be received by April 15 of each year and must contain the minimum requirements as specified in 326 IAC 2-6-4.

326 IAC 6-3 Particulate Emissions Limitation

This source is subject to this rule which mandates an allowable particulate matter (PM) emissions using the following equation:

$$E = 4.10 P^{0.67}$$

Where: E = PM allowable emissions in pound per hour
P = Process weight rate in ton / hr

Cabinet Shop Saws: (P = 0.3 ton/hr)

$$\begin{aligned} E &= 4.10 P^{0.67} \\ &= 4.10 (0.3)^{0.67} \\ &= 1.83 \text{ lb/hr} \\ &= 8.01 \text{ ton/year} \end{aligned}$$

Based on this calculations, the potential emissions are less than the allowable emissions, therefore, this cabinet shop saws complies with the rule.

RV Assembly Area: (P= 0.004 ton/hr)

$$\begin{aligned} E &= 4.10 P^{0.67} \\ &= 4.10 (0.004)^{0.67} \\ &= 0.10 \text{ lb/hr} \\ &= 0.448 \text{ ton/yr} \end{aligned}$$

Based on this calculations, the potential emissions are less than the allowable emissions, therefore, this RV assembly area complies with the rule.

Welding Operation: (P =9.325 x 10⁻⁵ ton/hr)

$$\begin{aligned} E &= 4.10 P^{0.67} \\ &= 4.10 (9.325 \times 10^{-5})^{0.67} \\ &= 0.008 \text{ lb/hr} \\ &= 0.035 \text{ ton/year} \end{aligned}$$

Based on this calculations, the potential emissions are less than the allowable emissions, therefore, this welding operation complies with the rule.

326 IAC 5-1-2 Opacity Limitation

That pursuant to 326 IAC 5-1-2 (Visible Emission Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), the visible emissions shall meet the following:

- (a) visible emissions shall not exceed an average of 40% opacity in 24 consecutive readings.
- (b) visible emissions shall not exceed 60% opacity for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period.

326 IAC 8-1-6 (General Reduction Requirement)

This facility is not subject to 326 IAC 8-1-6 (General Reduction Requirement), even though the source has the potential emissions of volatile organic compound (VOC) of 25 tons per year but it was constructed prior to January 1, 1980.

326 IAC 8-2-12 (Surface Coating Emission Limitations: Wood Furniture and Cabinet Coating)

This facility is not subject to 326 IAC 8-2-12 (Surface Coating Emission Limitations: Wood Furniture and Cabinet Coating), because the cabinet shop saws operation does not surface coat wood furnishings which includes cabinets, tables, chairs, sofas, art objects, and any other coated furnishing made of solid wood, wood composition or simulated wood material.

326 IAC 8-2-9 (Surface Coating Emission Limitations: Miscellaneous Metal Coating Operation)

This source is not subject to the provision of 326 IAC 8-2-9 (Surface Coating Emission Limitations: Miscellaneous Metal Coating Operation). This rule requires all facilities existed as of November 1, 1980, which have potential VOC emission rates of 100 or more tons per year and facilities existing as of July 1, 1990, which have actual emissions of greater than 15 pounds of VOC before add on controls. RV assembly area has potential VOC emission rates 50 tons per year and It does not surface coat on the metal parts. It surface coats on the prefinished wood and plastic surface.

326 IAC 8-2-2 (Surface Coating Emission Limitations: Automobile and Light Duty Truck Coating Operations)

This source is not subject to the provision of 326 IAC 8-2-2 (Surface Coating Emission Limitations: Automobile and Light duty truck Coating Operations). This rule requires surface coating operations include all passenger car or its derivatives capable of seating 12 or fewer passengers and any motor vehicle rated 8,500 pounds gross weight is primarily for the purpose of transportation of such vehicles. RV assembly area does not surface coat automobile and light duty truck bodies, hoods, door, cargo boxes, fenders and grill openings.

326 IAC 8-6 (Organic Solvent Emission Limitations)

This facility is not subject to 326 IAC 8-6 (Organic Solvent Emission Limitations), because the

source does not have potential volatile organic compound (VOC) emissions of 100 tons per year.

There are no other 326 IAC 8 rule that apply to this source.

Air Toxic Emissions

Indiana presently requests applicants to provide information on emissions of the 187 hazardous air pollutants set out in the Clean Air Act Amendments of 1990. These pollutants are either carcinogenic or otherwise considered toxic and are commonly used by industries. They are listed as air toxics on the Office of Air Management (OAM) Construction Permit Application Form Y.

- (a) See attached spreadsheets for detailed air toxic calculations.
- (b) See Appendix C of this TSD for detailed calculation of Hazardous Air Pollutants (HAPs).
- (c) 326 IAC 2-1-3.4 does not apply because the facilities in page 1 of this TSD constructed prior the effective date (July 27, 1997) of this rule.

Conclusion

The construction of high volume low pressure (HVLP) guns for coating recreational vehicles in the assembly area, cabinet woodworking shop saws, space heaters, welding operation and lamination press operation will be subject to the conditions of the attached proposed **Construction Permit No. CP-039-8971-00471**.

Appendix B: Emissions Calculations

VOC and Particulate
From Surface Coating Operations
RV ASSEMBLY AREA

Company Name:	Forest River, Inc.
Address City IN Zip:	201 W. Elm Street, Millersburg, IN 46543
CP:	039-8971
Plt ID:	039-00471
Reviewer:	MANOJ PATEL
Date:	October 9, 1997

Material	Density (Lb/Gal)	Weight % Volatile (H2O& Organics)	Weight % Water	Weight % Organics	Volume % Water	Volume % Non-Vol (solids)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Pounds VOC per gallon of coating less water	Pounds VOC per gallon of coating	Potential VOC pounds per hour	Potential VOC pounds per day	Potential VOC tons per year	Particulate Potential ton/yr	lb VOC /gal solids	Transfer Efficiency
Adhesive 676	6.26	79.20%	0.0%	79.2%	0.0%	21.00%	0.009	8.0	4.96	4.96	0.37	8.89	1.62	0.00	23.61	100%
Hardner 792S	9.20	76.20%	0.0%	76.2%	0.0%	24.00%	0.00078	8.0	7.01	7.01	0.0437	1.05	0.19	0.01496	29.21	75%
Reducer 8034S	7.50	99.40%	0.0%	99.4%	0.0%	0.60%	0.00445	8.0	7.46	7.46	0.27	6.37	1.16	0.00	1242.50	75%
ABS Cement	7.09	100.00%	0.0%	100.0%	0.0%	0.00%	0.00136	8.0	7.09	7.09	0.08	1.85	0.34	0.00	ERR	100%
ABS Cleaner	6.61	100.00%	5.0%	95.0%	0.0%	0.00%	0.00039	8.0	6.28	6.28	0.02	0.47	0.09	0.00	ERR	100%
Adhesive 8011	8.35	0.60%	0.0%	0.6%	0.0%	99.00%	0.03110	8.0	0.05	0.05	0.01	0.30	0.05	0.00	0.05	100%
White Caulk	7.25	7.00%	0.0%	7.0%	0.0%	100.00%	0.30000	8.0	0.51	0.51	1.22	29.23	5.33	0.00	0.51	100%
S-W Latex Paint	9.00	85.00%	0.0%	85.0%	0.0%	15.00%	0.00002	8.0	7.65	7.65	0.00	0.03	0.01	0.00	51.00	100%
Aliphatic Resin Adhesive	9.49	0.00%	0.0%	0.0%	0.0%	100.00%	0.08198	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100%
SCS1202 Silicone	8.92	5.00%	0.0%	5.0%	0.0%	95.00%	0.00488	8.0	0.45	0.45	0.02	0.40	0.07	0.00	0.47	100%
Centari Paint	10.95	60.00%	0.0%	60.0%	0.0%	40.00%	0.00250	8.0	6.57	6.57	0.13	3.15	0.58	0.10	16.43	75%
Chassis Black Paint	8.47	35.50%	0.0%	35.5%	0.0%	50.00%	0.23300	8.0	3.01	3.01	5.60	134.51	24.55	0.00	6.01	100%
Chroma Clear 7601S	9.02	67.10%	0.0%	67.1%	0.0%	33.00%	0.00078	8.0	6.05	6.05	0.04	0.91	0.17	0.02	18.34	75%
Denatured alcohol	6.70	100.00%	0.0%	100.0%	0.0%	0.00%	0.00078	8.0	6.70	6.70	0.04	1.00	0.18	0.00	ERR	100%
Lacquer Thinner	7.19	100.00%	0.0%	100.0%	0.0%	0.00%	0.02500	8.0	7.19	7.19	1.44	34.51	6.30	0.00	ERR	100%
S-W G2C139	7.40	75.00%	0.0%	75.0%	0.0%	25.00%	0.00117	8.0	5.55	5.55	0.05	1.25	0.23	0.00	22.20	100%
Sealer	7.40	81.37%	0.0%	81.4%	0.0%	20.00%	0.00078	8.0	6.02	6.02	0.04	0.90	0.1646	0.00	30.11	100%
Mineral Spirits	6.51	100.00%	0.0%	100.0%	0.0%	0.00%	0.00389	8.0	6.51	6.51	0.20	4.87	0.89	0.00	ERR	100%
MEK	6.70	100.00%	0.0%	100.0%	0.0%	0.00%	0.00389	8.0	6.70	6.70	0.21	5.00	0.91	0.00	ERR	100%
Para-sil Silicone	8.76	0.00%	0.0%	0.0%	0.0%	100.00%	0.95000	8.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	100%
RTV Sealant 732	8.76	5.00%	0.0%	5.0%	0.0%	95.00%	0.02345	8.0	0.44	0.44	0.08	1.97	0.36	0.00	0.46	100%
Elixir Silicone	12.87	0.00%	0.0%	0.0%	0.0%	100.00%	0.00117	8.0	0.00	0.00	0.00000	0.00	0.00	0.00	0.00	100%
Spray'n Go Paint	6.09	86.10%	0.0%	86.1%	0.0%	14.00%	0.00818	8.0	5.24	5.24	0.3430	8.23	1.50	0.06	37.44	75%
Spot / Panel clear Coat	7.94	56.50%	0.0%	56.5%	0.0%	40.00%	0.00078	8.0	4.49	4.49	0.0280	0.67	0.12	0.02	11.22	75%
Titeco Adhesive	6.10	68.00%	0.0%	68.0%	0.0%	34.00%	0.03110	8.0	4.15	4.15	1.0320	24.77	4.52	0.53	12.20	75%

State Potential Emissions Add worst case coating to all solvents 11.26 270.34 49.34 0.75

METHODOLOGY

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)
 Potential VOC Pounds per Hour = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)
 Potential VOC Pounds per Day = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (24 hr/day)
 Potential VOC Tons per Year = Pounds of VOC per Gallon coating (lb/gal) * Gal of Material (gal/unit) * Maximum (units/hr) * (8760 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)
 Total = Worst Coating + Sum of all solvents used

Total VOC : 49.34 Ton/year

Following Products are sprayed in the RV assembly area.

Product	Process	Transfer Efficiency (%)
Hardener 792S	HVLP	60
Reducer 8034 S	HVLP	60
Centari	HVLP	60
Chroma Cleaner	HVLP	60
Panel / Spot Clear	Airless	75
Spray 'n Go Paint	Airless	75
Titeco Adhesive	Airless	75

Appendix C: HAP Emission Calculations

Company Name: **Forest River, Inc.**
 Plant Location: 201 W. Elm Street, Millersburg, Indiana 46543
 County: Elkhart
 CP: 039-8971
 PI ID: 039-00471
 Permit Reviewer: **MANOJ PATEL**
 Date: October 9, 1997

Material	Density (Lb/Gal)	Gal of Mat (gal/unit)	Maximum (unit/hour)	Weight % Hexane	Weight % MIBK	Weight % Xylene	Weight % MEK	Weight % Toluene	Weight % Trichloro1,1,1	Weight % Styrene	Weight % MDI	Weight % Ethylbenzene	Weight % Methanol	Weight % Cumene	Hexane Emissions (ton/yr)	MIBK Emissions (ton/yr)	Xylene Emissions (ton/yr)	MEK Emissions (ton/yr)	Toluene Emissions (ton/yr)	Trichloro 1,1,1 Emissions (ton/yr)	Styrene Emissions (ton/yr)	MDI Emissions (ton/yr)	Ethylbenzene Emissions (ton/yr)	Methanol Emissions (ton/yr)	Cumene Emissions (ton/yr)	
Adhesive 676	6.26	0.009	8.00	40.00%											0.82											
Hardner 792S	9.20	0.00078	8.00																							
Reducer 8034S	7.50	0.00445	8.00																							
ABS Cement	7.09	0.00136	8.00				75.00%											0.25								
ABS Cleaner	6.61	0.00039	8.00				95.00%											0.09								
Adhesive 8011	8.35	0.03110	8.00																							
White Caulk	7.25	0.30000	8.00					7.00%											5.33							
S-W Latex Paint	9.00	0.00002	8.00			16.00%		3.00%				3.00%					0.001		0.0002				0.00019			
Aliphatic Resin Adhesive	9.49	0.08198	8.00																							
SCS1202 Silicone	8.92	0.00468	8.00																							
Centari Paint	10.95	0.00250	8.00			20.00%	4.00%	11.00%									0.19184	0.03837	0.10551							
Chassis Black Paint	8.47	0.23300	8.00																							
Chroma Clear 7601S	9.02	0.00078	8.00			17.00%	28.00%	28.00%									0.04	0.07	0.07							
Denatured alcohol	6.70	0.00078	8.00																							
Lacquer Thinner	7.19	0.02500	8.00		10.00%		10.00%	59.50%				9.90%				0.63		0.63	3.75				0.62			
S-W G2C139	7.40	0.00117	8.00					40.00%											0.12							
Sealer	7.40	0.00078	8.00		6.70%	13.62%	6.06%	30.70%							0.01	0.03	0.01	0.06								
Mineral Spirits	6.51	0.00389	8.00																							
MEK	6.70	0.00389	8.00				100.00%											0.91								
Para-sil Silicone	8.76	0.95000	8.00																							
RTV Sealant 732	8.76	0.02345	8.00																							
Elixir Silicone	12.87	0.00117	8.00			2.00%											0.01									
Spray'n Go Paint	6.09	0.00818	8.00			10.00%	10.00%	5.00%									0.17	0.17	0.09				0.05			
Spot / Panel clear Coat	7.94	0.00078	8.00																							
Titeco Adhesive	6.10	0.03110	8.00	28.00%											1.86											

Total State Potential Emissions

2.68 0.64 0.45 2.18 9.53 0.00 0.00 0.00 0.05 0.62 0.00

METHODOLOGY

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

Individual HAP (Toluene): 9.53 ton/yr
 Combination of Total HAPS: 16.15 ton/yr

**Appendix A: Emission Calculations
 Natural Gas Combustion
 MM Btu/hr 0.3 - < 10
 Radiant Space heaters**

Appendix A of TSD

Company Name: Forest River, Inc.
Address City IN Zip: 201 W. Elm Street, Millersburg, Indiana 46543
CP: 039-8971
Plt ID: 039-00471
Reviewer: Manoj Patel
Date: Oct.8,1997

Heat Input Capacity*
 MMBtu/hr

Potential Throughput
 MMCF/yr

13.84

121.2

Pollutant

	PM	PM10	SO2	NOx	VOC	CO
Emission Factor in lb/MMCF	12.0	12.0	0.6	100.0	5.3	21.0
Potential Emission in tons/yr	0.727	0.727	0.036	6.062	0.321	1.273
Potential Emission in lb./hour	0.166	0.166	0.008	1.384	0.073	0.291

**Heat input capacity of 13.84 mmbtu/hr is the total heat input capacity from the all space heaters at the source.
 Emission factors of natura gas fired boiler (<10 mmBtu/hr) used because of an individual space heater capacity is less than 10 mmBtu/hr.

Methodology

Total of 21 space heater each of rated at 0.10 mmBtu per hour considered in the calculation.
 MMBtu = 1,000,000 Btu
 MMCF = 1,000,000 Cubic Feet of Gas
 Emission Factors for NOx: uncontrolled = 100, Low Nox Burner = 17, Flue gas recirculation = 36
 Emission Factors for CO: uncontrolled = 21, Low NOx Burner = 27, Flue gas recirculation = ND
 Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu
 Emission Factors from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, and 1.4-3, SCC #1-03-006-03
 Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton
 Emission (lb./hour)= Emission (tons/year) x 2000 lb./1 Ton x 1 year / 8760 hours

**Appendix D: Emission Calculations
From Welding Operations
SCC: 30905254**

Appendix D of TSD

Company Name: Forest River, Inc.
Address City IN Zip: 201 W. Elm Street, Millersburg, Indiana 46543
CP: 039-8971
Pit ID: 039-00471
Reviewer: Manoj Patel
Date: Oct.8,1997

Type of Welding	No. of Units	Electrode Type	Maximum Electrode Consumption per Unit (lb/hr)	Emission Factors					Potential Emissions				
				lbs pollutant / 1000 lbs electrode consumed					Tons / year				
				PM	Chromium	Cobalt	Managane	Nickel	PM	Chromium	Cobalt	Managane	Nickel
MIG	2	ER70S	0.1865	5.2	0.01	0.01	3.18	0.01	0.008	0.000	0.000	0.005	0.000
Total Potential Emissions (Tons/year):									0.008	0.000	0.000	0.005	0.000

Methodology:

Emissions (tons/year): Number of units * Maximum Electrode Consumption per unit * E. F. (lbs pollutant / 1000 lbs electrode)* 8760 hrs/year * (1 ton/2000 lb)

Emission Factors for welding operations are from AP-42(5th edition), section 12.19, Table 12.19-1 and 12.19-2.

Electrodes are mutually exclusive.

Indiana Department of Environmental Management Office of Air Management

Addendum to the Technical Support Document for New Construction and Operation

Source Name: Forest River, Inc.
Source Location: 201 West Elm Street, Millersburg, Indiana 46543
County: Elkhart
Construction Permit No.: CP-039-8971-00471
SIC Code: 3792
Permit Reviewer: Manoj Patel

On November 11, 1997, the Office of Air Management (OAM) had a notice published in The Elkhart Truth, Elkhart, Indiana, stating that Forest River, Inc. had applied for a construction permit to construct and operate a recreational vehicles manufacturing plant. The notice also stated that OAM proposed to issue a permit for this installation and provided information on how the public could review the proposed permit and other documentation. Finally, the notice informed interested parties that there was a period of thirty (30) days to provide comments on whether or not this permit should be issued as proposed.

On December 9, 1997, DECA, Inc. a consultant for the Forest River, Inc submitted comments on the proposed construction permit. The summary of the comments and corresponding responses is as follows:

1. Comment:

Proposed Operation Condition 7, Page 4 of the Permit: This condition should be omitted as there is no emission control equipment that is required to comply with any applicable requirements.

1. Response: IDEM

Permit has been changed accordingly by deleting this condition 7 of the Proposed permit originally as follows:

Malfunction Condition

That pursuant to 326 IAC 1-6-2 (Records; Notice of Malfunction):

- (a) A record of all malfunctions, including startups or shutdowns of any facility or emission control equipment, which result in violations of applicable air pollution control regulations or applicable emission limitations shall be kept and retained for a period of three (3) years and shall be made available to the Indiana Department of Environmental Management (IDEM), Office of Air Management (OAM) or appointed representative upon request.
- (b) When a malfunction of any facility or emission control equipment occurs which lasts more than one (1) hour, said condition shall be reported to OAM, using the Malfunction Report Forms (2 pages). Notification shall be made by telephone or facsimile, as soon as practicable, but in no event later than four (4) daytime business hours after the beginning of said occurrence.
- (c) Failure to report a malfunction of any emission control equipment shall constitute a violation of 326 IAC 1-6, and any other applicable rules. Information of the scope and expected duration of the malfunction shall be provided, including the items specified in 326 IAC 1-6-2(a)(1) through (6).

- (d) Malfunction is defined as any sudden, unavoidable failure of any air pollution control equipment, process, or combustion or process equipment to operate in a normal and usual manner. [326 IAC 1-2-39]

Due to this deletion, preceding condition have been renumbered accordingly.

2. Comment:

In the Permit, Source Description (c), page 1 of Permit : Each of the five heaters has its own stack.

2. Response: IDEM

The Permit and the TSD have been revised as follows:

The original description was written as follows:

“Five (5) Natural gas fired space heaters with a total rated maximum capacity of 13.50 million British thermal units (MMBtu/hr), exhausting at one (1) stack.”

Which is revised as follows:

“ Five (5) Natural gas fired space heaters with a total rated maximum capacity of 13.50 million British thermal units (MMBtu/hr), exhausting at stacks identified as A1, A2, A3, A4 and A5.”

Current Stack Summary:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
A	Natural Gas Heater Vent	25'	6"	200	Ambient
C	Woodworking	25'	1'	4000	Ambient

New Stack Summary:

Stack ID	Operation	Height (feet)	Diameter (feet)	Flow Rate (acfm)	Temperature (°F)
A1 - A5	Natural Gas Heater Vent	25'	6"	200	Ambient
C	Woodworking	25'	1'	4000	Ambient

3. Comment:

Operation Condition 3(Preventive Maintenance Plan), page 3 of the Permit: Expect a rather perfunctory Preventive Maintenance Plan, as the source has no control equipment. We are aware that the rule requires this condition, but it applies to nothing at this source.

Response: IDEM

Preventive Maintenance Plan (PMP) can be construed as the proper maintenance of two (2) High Volume Low Pressure (HVLP) guns. PMP is required for any emissions unit that has allowable

emissions greater than 25 tons per year or 10 lbs. per hour. There is no change in the condition due to this comment.