



Air Quality Permitting Statement of Basis

February 12, 2007

Permit to Construct No P-060452

**Jayco, Inc.
Twin Falls, ID**

Facility ID No. 083-00097

Prepared by:

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AIR QUALITY DIVISION

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FINAL

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Acronyms, Units, and Chemical Nomenclatures

acfm	actual cubic feet per minute
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
ft	feet
HAP	hazardous air pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
MMBtu/hr	million British thermal units per hour
MMCF/yr	million cubic feet per year
MSDS	Material Safety Data Sheet
O&M	Operation and Maintenance
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PTC	permit to construct
Rules	Rules for the Control of Air Pollution in Idaho
RV	recreational vehicle
TAP	toxic air pollutant
T/yr	tons per any consecutive 12-month period
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

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

2. FACILITY DESCRIPTION

Jayco, Inc., (Jayco) is a recreational vehicle (RV) manufacturing facility located at Hankins Road, Twin Falls, Idaho. The activities at the facility include RV assembly, woodworking operations, and lamination. The facility has three natural gas-fired boilers at rated capacity of 0.58 MMBtu/hr.

3. FACILITY / AREA CLASSIFICATION

Jayco is classified as a minor facility, because Jayco's potential to emit is less than major source thresholds without requiring limits on its potential to emit. The AIRS classification is "B."

The facility is located within AQCR 64 and UTM zone 11. The facility is located in Twin Falls County which is designated as unclassifiable for all regulated criteria pollutants (PM₁₀, CO, NO_x, SO₂, lead, and ozone).

The AIRS information provided in Appendix A defines the classification for each regulated air pollutant at Jayco. This required information is entered into the EPA AIRs database.

4. APPLICATION SCOPE

Jayco has submitted a 15-Day Pre-Permit Construction approval application No. P-060452 for a new RV manufacturing facility in Twin Falls, Idaho. The facility has a capacity to produce 4 RVs per hour and up to 32 RVs per day. This is the facility's initial permit.

4.1 *Application Chronology*

November 15, 2006	DEQ received 15-Day Pre-Permit Construction approval application.
November 30, 2006	DEQ approved 15-Day Pre-Permit Construction approval application.
December 15, 2006	DEQ determined the application complete.
December 21, 2006	Opportunity for public comment published.
January 19, 2007	Opportunity for public comment closed. No comments received.
February 13, 2007	Draft permit was sent to facility for review.

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.

5.1 *Equipment and Activities Listing*

Jayco's Twin Falls RV manufacturing facility consists of an RV assembly line, woodworking operations and lamination (no emissions are associated with the lamination process). Three 0.58 MMBtu/hr natural gas-fired boilers provide heat to the facility. Sources of emissions are described below.

RV assembly Line EU-L1

- Hand application of adhesives and sealants (wiping, caulking)
- Touch-up and repair painting for scratches and maintenance (aerosol cans)

Woodworking Operations EU W-1

- Saws
- Routers
- Maximum capacity for wood processing is 5,000 pounds of wood per hour.

Particulate matter generated from woodworking is controlled by a dust collector known as CE-1. The dust collector exhausts to the interior of the building.

Natural Gas-Fired Boilers

Total maximum rated heat input capacity is 1.74 MMBtu/hr, broken down individually as follows:

- Three (3) 0.58 MMBtu/hr heat input capacity boilers

5.2 Emissions Inventory

Potential to emit emissions were estimated by Jayco. The Emissions inventory submitted by Jayco with the application showed calculated emissions using mass balance and AP-42 emission factors for the equipment and activities at the facility which emit air pollutants. DEQ calculated HAP/TAP emissions for the boilers in a separate spreadsheet for informational purposes. The emission inventory submitted is included in Appendix B.

Table 5.1 provides a summary of the emissions inventory for criteria pollutants.

Table 5.1 POTENTIAL TO EMIT CRITERIA POLLUTANT EMISSIONS

CO	NO _x	PM/PM ₁₀	SO ₂	VOC
0.64 T/yr	0.76 T/yr	1.72 T/yr	0.00 T/yr	41.74 T/yr

With respect to criteria air pollutants, the following conclusions can be drawn from the emissions analysis:

1. No criteria air pollutant is major in and of itself (i.e. no criteria air pollutant exceeds the major source trigger of 100 T/yr).
2. Because no criteria air pollutant is major, operational limitations are not required to limit potential to emit below major source thresholds.
3. Since VOCs can vary in amounts according to use and potential changes in individual products, Jayco is required to monitor and record VOC emissions.

Tables 5.2 and 5.3 summarize the comparison of potential TAPs and their respective ELs according to specific facility process. Facility totals for TAPs submitted by Jayco is included in Appendix B.

Table 5.2 RV ASSEMBLY LINE HAP/TAP POTENTIAL TO EMIT SUMMARY

HAP/TAP	Process	Lbs/hr	EL (lbs/hr)
MEK	RV Assembly Line	0.992	39.3
Dibutyl Phthalate	RV Assembly Line	0.0	0.333
Toluene	RV Assembly Line	0.345	25
Xylene	RV Assembly Line	2.189	29
Ethyl Benzene	RV Assembly Line	0.015	29
Methanol	RV Assembly Line	0.0	17.3
Ethylene Glycol	RV Assembly Line	0.0	0.846
Hexane	RV Assembly Line	0.022	12
MDI*	RV Assembly Line	0.005	0.003

*Exceeded EL, modeled to demonstrate compliance with AAC

Table 5.3 HAP/TAP EMISSIONS FROM NATURAL GAS-FIRED BOILERS

TAP	Process	Lbs/hr	EL (lbs/hr)
Benzene	Fuel Burning	3.58E-06	8.00E-04
Benzo(a)pyrene	Fuel Burning	2.05E-09	2.00E-06
Formaldehyde	Fuel Burning	1.28E-04	5.10E-04
Hexane	Fuel Burning	3.07E-03	12
Naphthalene	Fuel Burning	1.04E-06	3.33
Pentane	Fuel Burning	4.44E-03	118
Toluene	Fuel Burning	5.80E-06	25
Arsenic	Fuel Burning	3.41E-07	1.50E-06
Barium	Fuel Burning	7.51E-06	3.30E-02
Beryllium	Fuel Burning	2.05E-08	2.80E-05
Cadmium	Fuel Burning	1.88E-06	3.70E-06
Chromium	Fuel Burning	2.39E-06	3.30E-02
Cobalt	Fuel Burning	1.43E-07	3.30E-03
Manganese	Fuel Burning	6.48E-07	3.33E-01
Mercury	Fuel Burning	4.44E-07	7.00E-03
Molybdenum	Fuel Burning	1.88E-06	6.67E-01
Nickel	Fuel Burning	3.58E-06	2.70E-05
Selenium	Fuel Burning	4.09E-08	1.30E-02
Vanadium	Fuel Burning	7.02E-06	3.00E-03
Zinc	Fuel Burning	4.95E-05	6.67E-01
Copper	Fuel Burning	1.45E-06	1.30E-02
Total PAH	Fuel Burning	1.94E-08	9.10E-05

With respect to the TAP emissions, the following conclusions can be drawn from the emissions analysis:

1. The potential to emit for each TAP listed in Tables 5.2 and 5.3 and total facility TAPs (Appendix B) with the exception of MDI is less than its respective EL.
2. MDI was modeled and met the respective AACC (see submitted modeling analysis in Appendix C).
3. In accordance with IDAPA 58.01.01.210.05.b, no further procedures for demonstrating preconstruction compliance is required for the respective TAP as part of the application process if the source's or modification's uncontrolled emission rate is less than or equal to the applicable screening emission level listed in Sections 585 and 586.
4. Since the facility may use varying amounts of, or alternate products for surface coating, adhesives, etc., TAP emissions need to be tracked to ensure compliance with TAP ambient increments.

With respect to HAPs, the following conclusions can be drawn from the emissions analysis:

1. Each individual HAP listed in the above tables is not major in and of itself (i.e. no individual HAP is greater than or equal to 10 T/yr).
2. The total HAP emissions are not major (i.e. combined HAP emissions are not greater than or equal to 25 T/yr).
3. The facility is a minor source. To remain such, and since the facility may use varying amounts of, or alternate products for surface coating, adhesives, etc., any HAP emissions need to be tracked to ensure the facility remains a minor source.

5.3 Modeling

Modeling was not performed for criteria pollutants because potential emissions were below modeling requirement thresholds. Therefore, the facility demonstrated compliance that emissions from the facility will not cause or significantly contribute to a violation of any ambient air quality standard.

Methylene diphenyl diisocyanate (MDI) was the only TAP emitted by the facility that exceeded the screening emission rate limit specified by IDAPA 58.01.01.585 or 58.01.01.586. The results of the submitted modeling analysis for MDI showed it to be within the respective acceptable ambient concentrations (AAC).

The modeling analyses submitted as part of this Permit to Construct (PTC) was accepted by DEQ on the basis of the applicant's certification of the information submitted and DEQs review of the modeling protocol that was submitted prior to the application. No review has been undertaken by DEQ on the technical or regulatory components of the analyses. This approach was used by DEQ because of current workload, considering the scope of the proposed project and the potential impact of estimated emissions. The modeling analysis submitted by the facility is included in Appendix C.

5.4 Regulatory Review

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

IDAPA 58.01.01.201 Permit to Construct Required

The facility's proposed project does not meet the permit to construct exemption criteria contained in Sections 220 through 223 of the Rules. Therefore, a PTC is required.

IDAPA 58.01.01.203 Permit Requirements for New and Modified Stationary Sources

The applicant has shown to the satisfaction of DEQ that the facility will comply with all applicable emissions standards, ambient air quality standards, and toxic increments.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

IDAPA 58.01.01.224 Permit to Construct Application Fee

The applicant satisfied the PTC application fee requirement by submitting a fee of \$1,000.00 at the time the original application was submitted, November 15, 2006.

IDAPA 58.01.01.225 Permit to Construct Processing Fee

The total emissions from the proposed new facility are between 10 and 100 T/yr; therefore, the associated processing fee is \$5,000.00. No permit to construct can be issued without first paying the required processing fee.

5.5 Permit Conditions Review

Permit Conditions 2.3 and 4.5 limit the facility's potential to emit HAPs to below major source thresholds.

Permit Conditions 2.4 and 4.6 limit the facility's potential to emit VOCs to below major source thresholds.

Permit Conditions 2.5 and 4.7 limit TAPs emissions. This condition was included specifically in relation to the RV assembly line since RV manufacturers may vary use or change products occasionally which could result in a change in TAPs emissions depending on the product used.

Permit Condition 2.6 is a throughput limit of 32 RVs per day based on maximum hourly facility capacity and hours of operation presented in the application. This condition will also help to ensure compliance with overall emissions.

Permit Condition 2.7 requires VOC product containers to be covered or closed when not in use. This condition is included to control unnecessary VOC emissions.

Permit Conditions 2.8 requires Jayco to maintain purchase records for RV assembly line materials that contain HAPs, VOCs and/or TAPs. This information is used to estimate emissions to demonstrate compliance with HAPs, VOCs and TAPs emissions limits in the permit.

Permit Conditions 2.9 require Jayco to maintain MSDS' for all materials purchased pursuant to Permit Condition 2.8. The MSDS' contain the material density (pounds per gallon), the weight percent VOCs, weight percent solids, and the weight percent of the ingredients (e.g. toluene, MEK, etc.) of each product purchased. This information is used to estimate emissions to demonstrate compliance with HAPs, VOCs and TAPs emissions limits.

Permit Condition 2.10 requires Jayco to monitor daily throughput of RVs to demonstrate compliance with Permit Condition 2.6.

Permit Conditions 2.11 requires Jayco to monitor and record the usage of all RV assembly line products that contain HAPs, VOCs and/or TAPs materials monthly. This information is used to estimate emissions to demonstrate compliance with HAPs, VOCs and TAPs emissions limits in the permit.

Permit Condition 2.12 requires Jayco to monitor and record monthly and annually the HAP emissions (single and total) from the RV assembly line using purchase records, MSDS', and material usages to demonstrate compliance with HAP emissions limits in the permit.

Permit Condition 2.13 requires Jayco to monitor and record monthly and annually the VOC emissions (single and total) from the RV assembly line using purchase records, MSDS', and material usages to demonstrate compliance with VOC emissions limits in the permit.

Emissions would be estimated using an equation such as the following:

Example equation:

Solvent:

- Density = 6.0 lb/gal
- VOC content (% by weight) = 100
- Xylene content (% by weight) = 60
- Monthly usage = 15 gallons

VOC Monthly Emissions:

$$(6.0 \text{ lb/gal})(1.0 \text{ lb VOC/lb})(15 \text{ gal/mo})(1 \text{ T}/2,000 \text{ lb}) = 0.04 \text{ T VOC/mo}$$

Assume the facility used 15 gal/mo over the previous consecutive 12-month period. Annual VOC emissions would then be:

VOC Annual Emissions:

$$(6.0 \text{ lb/gal})(1.0 \text{ lb VOC/lb})(15 \text{ gal/mo})(12 \text{ mo/yr})(1 \text{ T}/2,000 \text{ lb}) = 0.54 \text{ T VOC/yr}$$

Now estimate xylene emissions.

Xylene Monthly Emissions:

$$(6.0 \text{ lb/gal})(0.6 \text{ lb xylene/lb})(15 \text{ gal/mo})(1 \text{ T}/2,000 \text{ lb}) = 0.036 \text{ T xylene/mo}$$

Annual Xylene Emissions:

$$(6.0 \text{ lb/gal})(0.6 \text{ lb xylene/lb})(15 \text{ gal/mo})(12 \text{ mo/yr})(1 \text{ T}/2,000 \text{ lb}) = 0.324 \text{ T xylene/yr}$$

Permit Condition 2.14 requires Jayco to estimate TAP emissions from the assembly line to demonstrate compliance with Permit Condition 2.5.

Permit Condition 3.3 requires Jayco to comply with IDAPA 58.01.01.700-703 for PM emissions from wood processing.

Permit Condition 3.4 limits visible emissions in accordance with IDAPA 58.01.01.625.

Permit Condition 3.8 limits wood processing throughput to 5,000 lb/hr. The equation for process weight used in Permit Condition 3.3 is based on this throughput.

Permit Condition 3.9 requires Jayco to control fugitive dust emissions in accordance to IDAPA 58.01.01.650-651.

Permit Condition 3.10 requires Jayco to operate the dust collector during woodworking operations. This will help to control PM₁₀ emissions from the process.

Permit Condition 3.11 requires Jayco to maintain and operate the dust collector according to manufacturer and O&M manual specifications. This will help ensure proper operation of the control device.

Permit Condition 3.12 requires Jayco to develop an O&M manual for the dust collector based on manufacturer specifications and recommendations, and submit to DEQ for review.

Permit Condition 3.13 requires Jayco to monitor and record the amount of wood material processed to demonstrate compliance with Permit Condition 3.8.

6. PERMIT FEES

Jayco submitted the required application fee of \$1,000.00 on November 15, 2006. A processing fee of \$5,000.00 was due, because the increase in emissions from the new facility are between 10 tons and 100 tons per year. The processing fee was paid on February 26, 2007.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0.76	0	0.76
SO ₂	0	0	0
CO	0.64	0	0.64
PM ₁₀	1.72	0	1.72
VOC	41.7	0	41.7
TAPS/HAPS	AS VOC	0	AS VOC
Total:	44.82	0	44.82
Fee Due	\$ 5,000.00		

7. PERMIT REVIEW

7.1 *Regional Review of Draft Permit*

The draft permit was provided to the Twin Falls regional office for review on February 12, 2007.

7.2 *Facility Review of Draft Permit*

The draft permit was provided to the facility for review on February 13, 2007.

7.3 *Public Comment*

An opportunity for public comment period on the PTC application was provided from December 21, 2006, to January 19, 2007, in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of the application materials, and all applicable state and federal rules and regulations, staff recommend that Jayco, Inc., be issued a draft PTC No. P-060452 for the new RV manufacturing facility. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

TD/bf Permit No. P-060452

Appendix A
AIRS Information
P-060452

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

Facility Name: Jayco, Inc.
Facility Location: 510 Hankins Road, Twin Falls
AIRS Number: 083-00097

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION
								A-Attainment U-Unclassified N- Nonattainment
SO ₂	B							U
NO _x	B							U
CO	B							U
PM ₁₀	B							U
PT (Particulate)	B							
VOC	B							U
THAP (Total HAPs)	B							
			APPLICABLE SUBPART					

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B
Emissions Inventory
P-060452

**Jayco, Inc.
Emissions Summary**

Emission Unit	Emissions (tons/yr)					Total HAPs
	VOC	PM/PM10	SOx	NOx	CO	
RV Assembly Line	41.70	0.19	0.00	0.00	0.00	16.01
Woodworking Operations	0.00	1.47	0.00	0.00	0.00	0.00
Lamination	0.00	0.00	0.00	0.00	0.00	0.00
Combustion	0.04	0.06	0.00	0.76	0.64	0.00
Total	41.74	1.72	0.00	0.76	0.64	16.01

Jayco, Inc.
Actual RV Assembly Emissions

Part No.	Description	Actual Emissions (tons/yr)													
		VOC	PM/PM10	Dipropylene Ether	MEK	Dibenzyl Phthalate	Toluene	Ethylbenzene	Xylene	Methanol	Ethylene Glycol	Propyleneimine	Hexane	4-4' Methylene-diphenyl Diisocyanate	Vinyl Acetate
10289	Adhesive ABS Cement Cast #88-7787	0.790	0.000	0.000	0.790	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10291	Sealant, pipe reactor seal 3 nonvolatile	0.047	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10314	Silicone White Cast	0.050	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10324	Sealant natural wood dough	0.003	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10325	Putty, Colored Boring-Smith	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10330	Putty Stick 900 White Shelter van 548000 vni 634297	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10671	Paint Spray 'n Go Dep Gloss Black B.A.R.T. Supply	0.436	0.027	0.000	0.051	0.000	0.026	0.015	0.051	0.000	0.000	0.000	0.000	0.000	0.000
10712	Lubricant, Vaseline Boring-Smith	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40558	Chem Solvent Prep-Sol D3919S Finishmaster Silicone Bronze Colorment/Cast #88-	0.875	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45607	Linoleum Spread Adhesive #433 Lasalle	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
52871	Dietch	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
65371	Anti-Freeze Biodegradable	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
66490	Silicone Spray C-33 B.A.R.T. Supply	0.612	0.019	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
71386	Degreaser De-Solve	0.028	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
81087	Adhesive Wood Dep#253117 Boring-Smith	1.299	0.000	0.000	0.000	0.000	0.333	0.000	0.333	0.000	0.000	0.000	0.000	0.000	0.000
81326	Cement ABS Pipe #88-7784 Cast/Colormentid	0.189	0.000	0.000	0.189	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

10/18/06

Jayco, Inc.
Actual RV Assembly Emissions

Part No.	Description	Actual Emissions (tons/yr)													
		VOC	PM/PMP10	Dipropylene Ether	MEK	Dibutyl Phthalate	Toluene	Ethylbenzene	Xylene	Methanol	Ethylene Glycol	Propyleneimine	Hexane	4-4' Methylene-diphenyl Diisocyanate	Vinyl Acetate
182578	DiCor Roof Adhesive#05BA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.043
182579	DiCor Seam Sealant	2.900	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
182580	DiCor Seam Sealant	0.001	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
161162	Sealant	2.604	0.000	0.000	0.000	0.000	0.000	0.000	1.860	0.000	0.000	0.000	0.000	0.000	0.000
167966	Putty, Oak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
178326	Putty, Sand Dollar Color Putty (Aleo Tool Supply)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
175672	Sealant, Solid Seal - White Silaprene	0.032	0.000	0.000	0.000	0.000	0.000	0.000	0.032	0.000	0.000	0.000	0.000	0.000	0.000
180738	Polyurethane Foam Sealant	0.035	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total (tons/yr)		9.901	0.046	0.047	1.031	0.000	0.359	0.015	2.277	0.000	0.000	0.000	0.000	0.000	0.043
Total HAPs (tons/yr)															3.901

VOC Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% VOC x (1 ton / 2000 lbs)
HAP Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% HAP x (1 ton / 2000 lbs)
PM/PMP10 Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% solids x (1 - transfer efficiency) x (1 ton / 2000 lbs)

10/18/06

Jayco, Inc.
Potential RV Assembly Emissions

Part No.	Description	Potential Emissions													
		VOC	PM/ PM10	Dipropylene Ether	MEK	Dibutyl Phtalate	Toluene	Ethyl- benz	Xylene	Methanol	Ethylene Glycol	Propylamine	Hexane	4,4' Methylene- diphenyl Diisocyanate	Vinyl Acetate
10289	Adhesive ABS Cement Cast #88- 7787	3.329	0.000	0.000	3.329	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10291	Sealant, pipe reactor seal 3 nonvolatile	0.199	0.000	0.199	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10314	Silicone White Cast	0.210	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10324	Sealant natural wood dough	0.014	0.000	0.000	0.004	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10325	Puny, Colored Boring-Smith	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10330	Puny Stick-900 White Shelter ven 548000 vn B-4297	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10671	Paint, Spray 'n' Go Dap Glass Black B.A.R.T. Supply	1.835	0.113	0.000	0.216	0.000	0.108	0.665	0.216	0.000	0.000	0.000	0.000	0.000	0.000
10712	Lubricant, Vasoline Boring-Smith	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
40558	Chem Solvent Prep Sol D3919S Finishmaster	3.685	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
45607	Silicone Bronze Colormetric/Cast #88-4545	0.002	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.000	0.000	0.000	0.000
52871	Linoleum Spread Additive #433 Lesalle-Diench	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
65571	Anti-Freeze Biodegradable	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
66490	Silicone Spray C 33 B.A.R.T. Supply	2.576	0.078	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
71386	Degreaser De- Solvent	0.119	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

10/30/06

Jayco, Inc.
Potential RV Assembly Emissions

Part No.	Description	Potential Emissions												
		VOC	PM / PM10	Dipropylene Ether	MEK	Dibutyl Fthalate	Toluene	Ethylbenzene	Xylene	Methanol	Ethylene Glycol	Propyleneimine	Hexane	4-4' Methylene-diphenyl Dibiscyanate
81087	Adhesive Wood Dap#25117 Boring-Scarf	5.470	0.000	0.000	0.000	1.403	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
81326	Cement ABS Pipe #88-7784	0.795	0.000	0.000	0.795	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
182578	DjCor Roof Adhesive 905BA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.180
182579	DjCor Seam Sealant	12.212	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
182580	Sealant	0.003	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
161162	Sealant	10.965	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
167966	Pure, Oak	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
178526	Pure, Sand Dollar Color Pure (Also Tool Suppl)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
179672	Sealant, Solid Seal White Slagpene	0.137	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.025	0.000
180738	Polyurethane Foam Sealant	0.146	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total (tons/yr)		41.698	0.192	0.199	4.343	0.002	1.511	0.065	9.588	0.001	0.000	0.095	0.025	0.180
Total (lbs/yr)		5,520	0.044	0.046	0.992	0.000	0.345	0.015	2,189	0.000	0.000	0.022	0.005	0.041
Total HAPs (tons/yr)														16.017

IDAPA SE-01.01.585 TAP Increments:												
EL (lb/hr)	not listed	39.3	0.333	25	29	29	17.3	0.846*	not listed	12	0.003	—
OEL (mg/m3)	not listed	590	5	375	435	435	260.0	127*	not listed	180	0.05	0.2
AAC (mg/m3)	not listed	29.5	0.25	19	22	22	13.0	6.35*	not listed	9	0.0025	—

*Ethylene Glycol vapor (CL)
VOC Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% VOC x (1 ton / 2000 lbs)
HAP Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% HAP x (1 ton / 2000 lbs)
PM10 Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% solids x (1 - transfer efficiency) x (1 ton / 2000 lbs)

10/30/06

Jayco, Inc.
Woodworking Operations Emissions

Unit ID	Control Efficiency	Grain Loading per Actual Cubic Foot of Air (gr/acfm)	Air Flow Rate (acfm)	Emission Rate after Controls (lb/hr)	Emission Rate after Controls (tons/yr)
CE-1	98.00%	0.0087	4500	0.336	1.470

Emissions (tons/yr) = Grain Loading(gr/acfm) x Flow (acfm) x 60 (min/hr) x (lb/7,000 gr) x 8,760 (hrs/yr) x (1 ton / 2000 lbs)

**Jayco, Inc.
Combustion Emissions**

Rating	1.74 MMBtu/hr 0.00174 MMscf/hr	
Pollutant	Emission Factor (lb/MMscf)	Emissions (tons/yr)
SOx	0.6	0.00
NOx	100.0	0.76
PM/PM10	7.6	0.06
CO	84.0	0.64
VOC	5.5	0.04

Emissions = Rating (MMBtu/hr) x MMscf / 1000 MMBtu x Emission Factor (lb/MMscf) x 8760 hrs/yr x 1 ton / 2000 lbs
Emission factors from AP-42, Table 1.4-1 and 1.4-2.

	A	B	C	D	E	F	G	
1	DEQ emissions verification worksheet for a Natural Gas Fired Boiler							
2								
3	Emissions Unit:	A natural gas (NG) fired boiler						
4	Purpose:	To calculate emissions for criteria air pollutants, hazardous air pollutants (HAPs), and toxic air pollutants (TAPs) from natural gas fired boiler, to determine the NSPS applicability (except for Da), to determine the compliance status for grain loading standard, to generate corresponding permit conditions for this boiler						
5								
6	Source Information ^a							
7	Facility:	Jayco, Inc.						
8	Permit No.:	P-060452						
9	Facility ID No.:	777-00384						
10	Emissions Unit:	Boilers (3 at 0.58 MMBtu/hr each)						
11								
12	Rated Heat Input Rate ^b :	1.7 MMBtu/hr						
13	Commenced construction, modification, or reconstruction date in M/D/Y ^c :							
14	Annual fuel consumption of this boiler (input a value or leave it as its default value.) ^d						16	10 ⁹ scf (heat input rate MMBtu/hr / heating value 102)
15								
16	Type of boiler (input Y/N to each question) ^e	"Y/N"?						
17	Is the boiler a large wall-fired boiler? (default)	n						
18	Is the boiler a tangential fired boiler?							
19								
20	Type of NO _x control (input Y/N to each question) ^f						"Y/N"?	
21	Is this boiler NO _x controlled?						n	
22								
23								
24								
25	NSPS Applicability ^g							
26	D does not apply							
27	Db does not apply							
28	Dc does not apply							
29								
30	Criteria Air Pollutants ^h							
31			Emissions Factors (EFs)		Emissions			
32		lb/10 ⁹ scf	lb/MMBtu	lb/hr	T/yr			
33	PM	7.6	0.0075	0.013	0.06			
34	PM ₁₀	7.6	0.0075	0.013	0.06			
35	NO _x ⁱ	100	0.0980	0.171	0.76			
36	CO ^j	84	0.0824	0.143	0.64			
37	SO ₂	0.6	0.0008	0.001	0.00			
38	VOC	5.5	0.0054	0.009	0.04			
39	Lead (Pb)	0.0005	0.0000	0.000	3.81E-08			
40								
41	TAPs ^k							
42	Cas No.	TAPS	lb/10 ⁹ scf	lb/MMBtu	lb/hr	TAP EL ³	Are emissions below EL? ³	
43								
44	71-43-2	Benzene (HAP)	2.1 E-03	2.06 E-06	3.58E-06	8.00E-04	below	
45	60-32-8	Benzo(a)pyrene ²	1.2 E-08	1.18 E-09	2.05E-09	2.00E-08	below	
46	50-00-0	Formaldehyde (HAP)	7.5 E-02	7.35 E-05	1.28E-04	5.10E-04	below	
47	110-54-3	Hexane (HAP)	1.8 E+00	1.76 E-03	3.07E-03	1.20E+01	below	
48	91-20-3	Naphthalene (HAP)	6.1 E-04	6.08 E-07	1.04E-06	3.33E+00	below	
49	108-68-0	Pentane	2.6 E+00	2.55 E-03	4.44E-03	1.18E+02	below	
50	108-68-3	Toluene (HAP)	3.4 E-03	3.33 E-06	5.80E-06	2.50E+01	below	
51	7440-38-2	Arsenic (HAP)	2.0 E-04	1.98 E-07	3.41E-07	1.50E-08	below	
52	7440-39-3	Barium	4.4 E-03	4.31 E-06	7.51E-06	3.30E-02	below	
53	7440-41-7	Beryllium (HAP) ²	1.2 E-05	1.18 E-08	2.05E-08	2.60E-05	below	
54	7440-43-9	Cadmium (HAP)	1.1 E-03	1.08 E-06	1.88E-06	3.70E-06	below	
55	7440-47-3	Chromium (HAP)	1.4 E-03	1.37 E-06	2.39E-06	3.30E-02	below	
56	7440-48-4	Cobalt (HAP)	8.4 E-05	8.24 E-08	1.43E-07	3.30E-03	below	
57	7440-50-8	Copper	8.5 E-04	8.33 E-07	1.45E-06	1.30E-02	below	
58	7439-98-5	Manganese (HAP)	3.6 E-04	3.73 E-07	6.48E-07	3.33E-01	below	
59	7439-97-6	Mercury (HAP)	2.6 E-04	2.55 E-07	4.44E-07	7.00E-03	below	
60	7439-98-7	Molybdenum	1.1 E-03	1.08 E-06	1.88E-06	6.67E-01	below	
61	7440-02-0	Nickel (HAP)	2.1 E-03	2.08 E-06	3.68E-06	2.70E-05	below	
62	7782-49-2	Selenium (HAP) ²	2.4 E-05	2.35 E-08	4.09E-08	1.30E-02	below	
63	7440-82-2	Vanadium ^h	2.3 E-03	2.26 E-06	7.02E-06	3.00E-03	below	
64	7440-86-6	Zinc	2.9 E-02	2.84 E-05	4.95E-05	6.67E-01	below	
65		Benz(a)anthracene (HAP) <	1.80E-08	1.78 E-08				
66		Benzo(b)fluoranthene (HAP) <	1.80E-08	1.78 E-08				
67		Benzo(k)fluoranthene (HAP) <	1.80E-08	1.78 E-08				
68	NA (PAH)	Benzo(a)pyrene ²	1.2 E-06	1.18 E-08				
69		Chrysene (HAP) <	1.80E-08	1.78 E-08				
70		Dibenz(a,h)anthracene (HAP) <	1.20E-08	1.18 E-09				
71		Indeno(1,2,3-cd)pyrene (HAP) <	1.80E-08	1.78 E-09				
72	Total PAH		1.14E-05	1.12E-08	1.84E-08	9.10E-05	below	

	A	B	C	D	E	F	G
1	DEQ emissions verification worksheet for a Natural Gas Fired Boiler						
73	Completion of Air Pollutant Emission Factors, AP-42 Section 1.4 Natural Gas Combustion (Rev. 3/98)						
74	EF in AP-42 is listed as less than (<) the value listed in "Emissions Factors" column.						
75	EL taken from IDAPA 58.01.01.585 or 586.						
76	In IDAPA 58.01.01.585, the EL and AAC is for V (74440-62-2) expressed as V2O5 (1314-62-1). This Vanadium emissions rate is converted to V2O5 by: AP-42 emissions factor (lb/MMBtu) x heat input rate (MMBtu/hr) of V x (1 lbmol of V2O5 / lbmol of V) x (181.86 lb V2O5 / lbmol of V2O5) / (50.84 lb V / lbmol of V) = lb/hr of V2O5. The calculated V2O5 rate is compared to EL taken from IDAPA 58.01.0.585.						
77	HAPs ^a						
78	Total HAP	0.01	T/yr				
79	TAPs total: ^L	0.03	T/yr				
81							
82	Grain loading standard ^m						
83	The boiler meets grain loading standard per the calculation result from the Grain Loading Calc NG spreadsheet						
84							
85	Permit Conditions ⁿ						
86	NSPS permit conditions:						
87	a. Notification per §60.7 of 40 CFR 60.						
88	b. Record and maintain natural gas usage						
89	The following row is intended to be blank.						
90							
91							
92	AP-42 Table 1.4-1 (boiler part)						
93				NO _x (lb/10 ⁶ scf)	CO (lb/10 ⁶ scf)		
94	Large Wall-Fired Boilers (>=100 MMBtu/hr) ¹						
95	Uncontrolled (pre-NSPS) ²			280	84		
96	Uncontrolled (post-NSPS)			190	84		
97	Controlled - low NOX burners			140	84		
98	Controlled - Flue gas recirculation			100	84		
99	Small Boilers (< 100 MMBtu/hr)						
100	Uncontrolled			100	84		
101	Controlled - low NOX burners			50	84		
102	Controlled - low NOX burners and flue gas recirculation			32	84		
103	Tangential-fired boilers (all sizes)						
104	Uncontrolled			170	24		
105	Controlled - flue gas recirculation			76	98		
106	¹ In AP-42, For wall-fired boilers, EF is either for a boiler with rated heat input greater than 100 MMBtu/hr or less than 100 MMBtu/hr. No EF for the boiler with rated heat input rate of 100 MMBtu/hr. I assumed that EF for a boiler with rated heat input rate greater than 100 MMBtu/hr is the same as EF for a boiler with rated heat input of 100 MMBtu/hr.						
107	² NSPS=New Source Performance Standard as defined in 40 CFR 60 Subparts D and Dc. Post-NSPS units are boilers with greater than 250 MMBtu/hr of heat input that commenced construction modification, or reconstruction after August 17, 1971, and units with heat input capacities between 100 and 250 MMBtu/hr that commenced construction modification, or reconstruction after June 19, 1984						
108	Average gross heating value of natural gas from AP-42, Section 1.4 (rev 7/98):				1020	MMBtu/10 ⁶ scf NG	
109	40 CFR 60 applicability thresholds		MMBtu/hr	triggered date			
110	D	>250		8/17/1971			
111	Db	>100		6/19/1984			
112	Dc	10-100		6/8/1980			
113	* Input facility name, permit number, and facility ID number or AIRS number						
114	* Input boiler's rated heat input rate in MMBtu/hr						
115	^a Input boiler's commenced construction modification, or reconstruction date in MDY. The definitions from NSPS are "Commenced" means, with respect to the definition of new source in section 111(o)(2) of the Act, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification; "Construction" means fabrication, erection, or installation of an affected facility; "Modification" means any physical change in, or change in the method of operation of, an existing facility which increases the amount of any air pollutant (to which a standard applies) emitted into the atmosphere by that facility or which results in the emission of any air pollutant (to which a standard applies) into the atmosphere not previously emitted; and "Reconstruction" means the replacement of components of an existing facility to such an extent that: (1) The fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable entirely new facility, and (2) It is technologically and economically						
116	^b The default calculated annual consumption (10 ⁶ scf/yr) = rated heat input rate (MMBtu/hr) / gross natural gas heating values (MMBtu/10 ⁶ scf) x 8760 hr/yr. or, you can input annual natural gas consumption in 10 ⁶ scf here.						
117	^c Input boiler type. Wall-fired is set as default. Unless input "y" to tangential fired boiler, NOx EF for wall-fired boiler will be automatically plucked. Wall-fired boilers employ individual burners, resulting in the combustion of fuel in the immediate vicinity of the wall. Burners are located in either one side (front fired) or both sides of the boiler (opposed fired). Tangential-fired boilers are characterized by fuel and air introduction from the corners of the furnace, directed toward the tangent of an imaginary circle in the center of the boiler. This type of fuel firing system is generally believed to allow the overall furnace to act as a single burner, with the fuel and air compartments serving as injection points. The slower mixing of fuel and air common in these boilers results in lower NOx emissions than wall-fired equipment. (source: http://www.epa.gov/ttn/naaqs/ozonair/totolog/finalrpt/ghps5/ghps5.html)						
118	* Input information on NO _x control						
119	^d The cells are programmed so that they automatically make applicability determination (except for Subpart Da) based on input information of heat input rate and commenced construction modification, or reconstruction date.						
120	^e hourly emissions rate (lb/hr) = rated heat input rate (MMBtu/hr) x EF (lb/MMBtu); annual emissions rate (T/yr) = annual natural gas consumption (10 ⁶ scf/yr) x EF (lb/10 ⁶ scf) / (2000 lb/T). EFs in lb/10 ⁶ scf are taken from AP-42, Section 1.4 (7/98). EFs in lb/MMBtu are converted from EFs in lb/10 ⁶ scf by dividing EFs in lb/10 ⁶ scf with gross natural gas heating values in MMBtu/10 ⁶ scf.						
121	^f The cells for NOx and CO EFs are programmed so that they will pick up the right EFs based on input information of rated heat input rate, commenced construction modification, or reconstruction date, NOx control and control type, and type of boiler.						
122	^g TAPs (lb/hr) = EF (lb/MMBtu) x rated heat input rate (MMBtu/hr). EFs in lb/10 ⁶ scf are taken from AP-42, Section 1.4 (7/98). EFs in lb/MMBtu are converted from EFs in lb/10 ⁶ scf by dividing EFs in lb/10 ⁶ scf with gross natural gas heating values in MMBtu/10 ⁶ scf.						
123	^h Total TAPs (T/yr) = total HAPs (lb/hr) x annual natural gas consumption (10 ⁶ scf/yr) x gross natural gas heating value (MMBtu/10 ⁶ scf) / rated heat input rate (MMBtu/hr) / (2000 lb/T).						
124	ⁱ TAPs total (T/yr) = total TAPs (lb/hr) x annual natural gas consumption (10 ⁶ scf/yr) x gross natural gas heating value (MMBtu/10 ⁶ scf) / rated heat input rate (MMBtu/hr) / (2000 lb/T).						
125	^j Details see the linked "grain loading calc NG" spreadsheet						
126	^k Cells for permit conditions are programmed so that the permit conditions will appear or disappear based on the input information of rated heat input rate and commenced construction modification, or reconstruction date, and annual natural gas combustion. If annual natural gas combustion is less than the product of rated heat input rate multiplying 8760 hr/yr, a permit condition of natural gas throughput limit will appear.						

Jayco, Inc.
Actual Lamination Operation Emissions

Part No.	Description	Actual Emissions (tons/yr)													
		VOC	PM10	Dipropylene Ether	MEK	Dibutyl Phthalate	Toluene	Ethylbenzene	Xylene	Methanol	Ethylene Glycol	Propylamine	Hexane	4,4'-Methylene-bis(phenyl) Diisocyanate	Diphenylacetone diisocyanate
SIA-116	Polyurethane prepolymer adhesive	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SIA-115	Polyurethane prepolymer adhesive	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total (tons/yr)		0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total HAPs (tons/yr)															0.000

VOC Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% VOC x (1 ton / 2000 lbs)
HAP Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% HAP x (1 ton / 2000 lbs)
PM10 Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% solids x (1 - transfer efficiency) x (1 ton / 2000 lbs)

Jayco, Inc.
Potential Lamination Operation Emissions

Adhesive No.	Description	Potential Emissions (tons/yr)													
		VOC	PM ₁₀ /PM ₁₀	Dipropylene Ether	MEK	Dibutyl Phthalate	Toluene	Ethyl-benzene	Xylene	Methanol	Ethylene Glycol	Propylencaine ac	Hexane	4-4' Methylene-bis(benzyl Diisocyanate)	Diphenylacetone-diisocyanate
SLA-116	Polyurethane prepolymer adhesive	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
SLA-115	Polyurethane prepolymer adhesive	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Total	HAPs (tons/yr)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

VOC Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% VOC x (1 ton / 2000 lbs)
HAP Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% HAP x (1 ton / 2000 lbs)
PM₁₀/PM₁₀ Emissions (tons/yr) = Annual Usage (gal/yr) x Density (lb/gal) x wt% solids x (1 - transfer efficiency) x (1 ton / 2000 lbs)

Appendix C
Modeling Analysis
P-060452

MODELING ANALYSIS

FOR

JAYCO

510 HANKINS ROAD

TWIN FALLS, IDAHO

Prepared by:

KERAMIDA Environmental, Inc.
401 North College Avenue
Indianapolis, IN 46202

October 2006

Jayco is planning to locate a recreational vehicle manufacturing operation at 510 Hankins Road in Twin Falls, Idaho. Figure 1 shows the building and the emission sources.

The painting operation is vented through four roof vents (shown in Figure 1). Table 1 shows the emission rates of the toxic air pollutants (TAPs). Based on the worst-case emission rates, the only TAP that needs to be modeled is MDI.

Model

Modeling was done with the latest version (02035) of the Industrial Source Complex (ISC3) model. The short-term version of the model was used in this analysis.

Meteorological Data

One year of meteorological data from Heyburn was furnished by the Idaho DEQ. This data set contains data from the 2000 – 2001 time period. Since only one year of meteorological data is being modeled, the high instead of the second high 24-hour values will be compared with the appropriate standard.

Urban/Rural Land Use Classification

U.S. EPA has specified that land use is the most definitive criterion for determining the rural or urban characteristics of an area. The rural or urban designation is used as criteria in the modeling effort. U.S. EPA accepts the Auer (1978) land-use typing methodology. Using the land use typing scheme and area is designated urban when more than 50 percent of the following land use types: heavy industrial (I1), light-moderate industrial (I2), commercial (c1), single-family compact residential (R2) and multi-family compact residential (R3). Otherwise the site area is considered rural.

The land use classification for the facility and surrounding area is designated rural, allowing rural dispersion coefficients to be used in the modeling analysis.

Receptor Locations

Receptors were located around the property boundary at a 25 meter spacing. This spacing was increased to 100 meters as shown in Figure 2. Elevations of receptors were determined by using the AERMAP program along with 7.5 minute digital elevation model (DEM) files for the area.

Sources

Table 2 shows the emission rates and modeling parameters used in the analysis. Per guidance from Kevin Schilling, the vents were modeled as volume sources followed procedures outlined in the ISC manual.

The maximum predicted 24-hour concentration of MDI is 0.214 ug/m³. This compares to an acceptable ambient concentration (AAC) of 2.5 ug/m³. The predicted level is based upon operating at maximum levels 24 hours a day.

Table 1
Air Toxic Emission Rates

CAS No	HAP	Emissions (lb/hr)	EBL (lb/hr)	Model (Y/N)
34590-34-8	Dipropylene ether	0.046	40	N
78-03-3	MEK	0.992	39.3	N
108-88-3	Toluene	0.345	25	N
100-41-4	Ethylbenzene	0.015	29	N
1330-20-7	Xylenes	2.189	29	N
110-54-3	Hexane	0.022	12	N
101-68-8	MDI	0.005	0.003	Y
108-05-4	Vinyl acetate	0.041	NA	N

Table 2
Modeling Parameters

	Volume source 1	Volume source 2	Volume source 3	Volume source 4
X	711910.0	711910.0	711910.0	711910.0
Y	4712839.0	4712817.0	4712804.0	4712769.0
MDI (g/s)	1.57E-4	1.57E-4	1.57E-4	1.57E-4
Sigma Yo	0.248	0.248	0.248	0.248
Sigma Zo	4.395	4.395	4.395	4.395