

Air Permit Review

Permit Issue Date: **date, 2007**

Region: Winston-Salem Regional Office
County: Davidson
NC Facility ID: 2900076
Inspector's Name: Steve Moser
Date of Last Inspection: 11/01/2006
Compliance Code: 3/In Compliance - Inspection

Facility Data			Permit Applicability (this application only)
<p>Applicant (Facility's Name): T I Industries</p> <p>Facility Address: T I Industries 40 West 12th Avenue Lexington, NC 27292</p> <p>SIC: 2499 / Wood Products, Nec NAICS: 339999 / All Other Miscellaneous Manufacturing</p> <p>Facility Classification: Before: Title V After: Title V Fee Classification: Before: Title V After: Title V</p>			<p>SIP: NSPS: NESHAP: PSD: PSD Avoidance: NC Toxics: 112(r): Other:</p>
Contact Data			Application Data
Facility Contact	Authorized Contact	Technical Contact	<p>Application Number: 2900076.07A Date Received: 03/21/2007 Application Type: Renewal Application Schedule: TV-Renewal</p> <p style="text-align: center;">Existing Permit Data</p> <p>Existing Permit Number: 05052/T21 Existing Permit Issue Date: 10/17/2006 Existing Permit Expiration Date: 12/31/2007</p>
<p>Hal Routh Personnel Manager (336) 249-4901 P O Box 1737 Lexington NC, 27293-1737</p>	<p>H Christensen President (336) 249-4901 P O Box 1737 Lexington NC, 27293-1737</p>	<p>Hal Routh Personnel Manager (336) 249-4901 P O Box 1737 Lexington NC, 27293-1737</p>	
<p>Review Engineer: Mark Cuilla</p> <p>Review Engineer's Signature: Date: date, 2007</p>		<p style="text-align: center;">Comments / Recommendations:</p> <p>Issue 05052/T22 Permit Issue Date: date, 2007 Permit Expiration Date: date, 2012</p>	

I. Purpose of Application

This permitting action is a renewal of an existing Title V permit pursuant to 2Q .0513. The existing Title V permit (**05052T21**) was issued on **October 17, 2006**, and is currently scheduled to expire on **December 31, 2007**. The renewal application was received on **March 21, 2007**, or at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

In addition to the request for renewal, the Permittee is requesting the following "descriptive" changes:

1. The wood waste boiler (**ID No. ES-1000**) is controlled by a multicyclone (**ID No. CD-1000**) which has *nine* (rather than 16) tubes;
2. The compo machines (**ID Nos. ES-0080, 0082, and 0084**) do not exist as well as the extrusion machines (**ID Nos. ES-0070 and ES-0072**). These can be removed from the permit;
3. The dust collector system (**ID No. ES-2002**) with bagfilter (**ID No. CD-2002**) has been eliminated. These can be removed from the permit.

II. Facility Description

The facility is a former wood/wood composite picture frame manufacturing facility. However, as stated above, the Permittee, as part of this renewal is requesting that all composite and extrusion equipment be removed from the permit. The remaining permitted equipment includes one woodwaste-fired boiler, various woodworking operations, and wood finishing operations.

III. History/Background/Application Chronology

October 17, 2006 – Permit **05052T21** was issued as a significant modification for the inclusion of a MACT avoidance condition.

March 21, 2007 – Permit application **2900076.07A** was received for the renewal of the facility's Title V permit. Application was deemed complete for processing.

April 16, 2007 – Received WSRO comments and recommendations on the air permit application.

April 25, 2007 – Mark Cuilla requested via email confirmation from WSRO on whether they want the one woodwaste-fired boiler tested for particulate matter for this five-year permit cycle. Steve Moser replied **April 26, 2007** that the boiler was tested in 1984 and again in 2004 showing particulate emissions less than the allowable. He also stated that all routine inspections and maintenance are being performed. He sees no benefit in making this facility test again this permit cycle.

June 7, 2007 – DRAFT permit sent to Permittee, Regional Office, and Title V Coordinator for comment prior to public notice and EPA review.

date, 2007 – DRAFT permit sent to 30-day public notice and 45-day EPA review.

IV. Permit Modifications/Changes and ESM Discussion

The following table describes the modifications to the current permit as part of this renewal:

Page(s)	Section	Description of Change(s)
Attachment	Insignificant activities	-amended permit revision number -updated source description per ESM
Cover	-	-amended permit revision numbers and all dates
All	Header	-amended permit revision numbers
3	Equipment table	-updated equipment descriptions for clarity -removed references to compo machines, extrusion machines, and dust collection system per Permittee request
4	2.1 A (table) 2.1 A.1.a 2.1 A.1.b 2.1 A.1.c	-updated visible emissions limit per regional office request -updated regulation citation -added ID Nos. -updated shell language -added ID Nos.

Page(s)	Section	Description of Change(s)
5	2.1 A.1.d 2.1 A.1.e 2.1 A.1.f 2.1 A.2.a 2.1 A.2.c 2.1 A.3.a	-added ID Nos. -added ID Nos. -corrected paragraph numbering -added ID Nos. -added ID Nos. -corrected visible emissions limit per regional office request
6	2.1 A.3.c 2.1 B (former) 2.1 B (new)	-added ID Nos. -removed complete Section (renumbered subsequent sections) -removed reference to dust collector
7	2.1 B.1.b 2.1 B.1.c 2. 1B.1.d	-added ID Nos. -added ID Nos. -added ID Nos.
8	2.1 B.2.a 2.1 B.2.c 2.1 B.2.d	-added ID Nos. -corrected cross reference -updated shell language and added ID Nos.
9	2.1 C (table) 2.1 C.1.b	-regulatory citation correction -added ID Nos. for clarity -added ID Nos.
10	2.1 C.1.c 2.1 C.2.a 2.1 C.2.b 2.1 C.2.c	-added ID Nos. -added ID Nos. -corrected cross reference -updated shell language and added ID Nos.
11	2.2 A	-removed reference to compo and extrusion machines
12-13	2.2 A.1	-modified MACT avoidance language to remove compo and extrusion machine references
14	2.2 A.2.e	-updated shell language
15	2.2 B	-removed reference to compo and extrusion machines
15-16	2.2 B.1	-modified 2D .1100 toxics condition to remove compo and extrusion machine references
16	2.2 B.2	-corrected rule citation
18-27	General Conditions	-updated shell conditions (V 2.20)

The following table describes the modifications to ESM as a result of this permit renewal:

Current Description	Change resulting from permit renewal
Two extrusion machines (ID Nos. ES-0070 and ES-0072)	Sources end dated per Permittee request
Three compo machines (ID Nos. ES-0080, ES-0082, and ES-0084)	Sources end dated per Permittee request
One wood working operation (ID No. ES-2002) with associated bagfilter (ID No. CD-2002)	Source and control device end dated per Permittee request

V. Regulatory Review

The facility is currently subject to the following regulations:

15A NCAC 2D .0504, Particulates from Wood Burning Indirect Heat Exchangers
15A NCAC 2D .0512, Particulates from Miscellaneous Wood Products Finishing
15A NCAC 2D .0516, Sulfur Dioxide Emissions from Combustion Sources
15A NCAC 2D .0521, Control of Visible Emissions
15A NCAC 2D .0958, Work Practices for Sources of Volatile Organic Compounds
15A NCAC 2D .1100, Control of Toxic Air Pollutants
15A NCAC 2D .1806, Control and Prohibition of Odorous Emissions
15A NCAC 2Q .0317, Avoidance Conditions (for 15A NCAC 2D .0530, Prevention of Significant Deterioration and 15A NCAC 2D .1111, Maximum Achievable Control Technology)
15A NCAC 2Q .0711, Emission Rates Requiring a Permit
40 CFR Part 51, Appendix S, Emission Offset Interpretive Ruling

A regulatory review for these existing requirements will not be included in this document.

VI. NSPS, NESHAPS/MACT, PSD, 112(r), CAM

NSPS – The facility is not currently subject to any New Source Performance Standards. This permit renewal does not affect that status.

NESHAPS/MACT – The facility is currently subject to a MACT avoidance condition that limits emissions of any individual HAP to below 9.5 tons per year and any combination of HAPs to less than 22.5 tons per year for the compo machines, extrusion machines, and steam-heated drying oven. It should be noted that the limits are purposely less than the major source thresholds of 10/25 tons per year to remove the HAP contribution from the combustion source at the facility, therefore, making monitoring, recordkeeping, and reporting requirements less cumbersome. As part of the renewal, the Permittee has requested that all references to the compo and extrusion machines be removed. The permit condition must be modified accordingly. The following modified language appears as Section 2.2 A.1:

1. 15A NCAC 2Q .0317: AVOIDANCE CONDITIONS for 15A NCAC 2D .1111: MAXIMUM ACHIEVABLE CONTROL TECHNOLOGY

- a. In order to remain classified a minor source for hazardous air pollutants and avoid applicability of MACT standards, including 40 CFR 63 Subpart DDDD and Subpart DDDDD, combined emissions from these sources (ID Nos. ES-0003, ES-0005, ES-0007, ES-0009, ES-0011, ES-0013, ES-0015, ES-0017, ES-0019, ES-0021, ES-0027, ES-0031, ES-0033, ES-0050, ES-0052, ES-0054, ES-0056, ES-0058, ES-0060, ES-0062, ES-0064, and ES-0023) shall be less than the following limitations:
 - i. 9.5 tons per year of each hazardous air pollutant; and,*
 - ii. 22.5 tons per year of all hazardous air pollutants combined.*The Permittee shall be deemed in noncompliance with this condition and 15A NCAC 2D .1111 if the HAP emissions exceed this limit.*

Monitoring/Recordkeeping [15A NCAC 2Q .0508(f)]

- b. The Permittee shall maintain monthly consumption records of each material used containing volatile hazardous air pollutants (VHAPs) as follows:
- quantity of coating (V_c) applied at the spray booths during the previous calendar month (in gal/month);
 - density of each coating (ρ_c) applied at the spray booths (in lb/gal); and
 - concentration of each volatile HAP (i) in each coating applied ($C_{c,i}$) (in lb-VHAP/lb-coating);

The Permittee shall also maintain a record of purchase orders and invoices of materials containing VHAPs. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if the monitoring and recordkeeping are not maintained

- c. **Individual HAP Emissions.** Each month the Permittee shall calculate emissions of each HAP (i) from the affected sources during the previous calendar month and during the previous consecutive 12-months according to the following equation:
- monthly emissions (in tons/month) for each HAP shall be calculated as follows:

$$E_i = \frac{\sum (V_c * \rho_c * C_{c,i})}{2,000 \text{ lb/ton}}$$

Where: E_i = Emissions of HAP "i" (in tons/month);
 V_c = Volume of coating "c" applied during the previous calendar month (in gal/month);
 ρ_c = Density of coating "c" (in lb/gal); and
 $C_{c,i}$ = Concentration of HAP "i" in coating "c" (in lb-VHAP/lb-coating);

- 12-month rolling emissions of each HAP (i) shall be calculated by summing the monthly emissions (E_i) from the previous consecutive 12 months.

The results of the monthly and 12-month rolling emissions calculations shall be recorded in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if the monitoring and recordkeeping are not maintained.

- d. **Total Combined HAP Emissions.** Each month the Permittee shall calculate the total, combined HAP emissions (E_{Total}) from the affected sources during the previous calendar month and during the previous consecutive 12-months according to the following equation:
- Monthly emissions (in tons/month) for total, combined HAP shall be calculated as follows:

$$E_{Total} = \sum_i E_i$$

- 12-month rolling emissions of total, combined HAP shall be calculated by summing the monthly emissions (E_{Total}) from the previous consecutive 12 months.

The results of the monthly and 12-month rolling emissions calculations shall be recorded in a logbook (written or electronic format) on-site and made available to an authorized representative upon request. The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if the monitoring and recordkeeping are not maintained.

- e. The Permittee shall keep a record of the MACT applicability determination, as provided above, on-site at the source for a period of at least five years after the determination, or until the source becomes an affected source. The determination must include the analysis demonstrating why the Permittee believes the source is unaffected pursuant to 40 CFR Part 63.10(b)(3). The Permittee shall be deemed in noncompliance with 15A NCAC 2D .1111 if the records are not maintained.

Reporting [15A NCAC 2Q .0508(f)]

- f. The Permittee shall submit a semiannual summary report, acceptable to the Regional Air Quality Supervisor, of monitoring and recordkeeping activities postmarked on or before January 30 of each calendar year for the preceding six-month period between July and December, and July 30 of each calendar year for the preceding six-month period between January and June. The report shall contain the following information:
- i. For each consecutive 12-month period ending during the previous calendar half, identify:
 - A. which individual HAP had the highest 12-month rolling in emission rate; and,
 - B. the 12-month rolling emission total (in tons) of the HAP.
 - ii. Provide total combined HAP emission rate (in tons) for each of the six consecutive 12-month periods ending during the previous calendar half.

PSD – The facility is currently subject to a volatile organic compound PSD avoidance limit of less than 40 tons per year from the three compo machines (**ID Nos. ES-0080, ES-0082, and ES-0084**) and the two extrusion machines (**ID Nos. ES-0070 and ES-0072**) [Section 2.1 B.1]. However, the Permittee has requested that this equipment be removed from the permit. Therefore, the current permit condition will also be removed as part of this renewal.

112(r) – The facility is not currently subject to the 112(r) “Prevention of Accidental Releases” requirements because it does not store any chemicals in amounts greater than the applicability threshold.

CAM – 40 CFR 64 requires that a continuous compliance assurance monitoring plan be developed for all equipment located at a major facility, that have pre-controlled emissions above the major source threshold, and use a control device to meet an applicable standard. The facility currently employs the following control device/equipment relationships:

Emission Source ID No.	Emission Source Description	Control Device ID No.	Control Device Description
ES-1000	One wood waste-fired boiler (14.4 million Btu per hour maximum heat input capacity)	CD-1000	One multicyclone (9 nine-inch diameter tubes)
ES-0101	Wood dust load-out system	CD-0101	Burlap cloth or other suitable covering placed over trailer vents
ES-WDCS	Wood working operations	CD-2000, CD-2001, CD-2003, and CD-2004	Four bagfilters (3296, 4614, 3296, and 3296 square feet of filter area, respectively)

The control equipment is installed for the control of particulate matter. The pollutant of concern is potential uncontrolled PM₁₀ emissions. The Permittee estimates emissions from these sources as follows in support of its determination that CAM does not apply to the facility.

Emission Source ID No.	Total Inlet Loading (lb/hr)	Total Inlet Loading (ton/yr)	Maximum PM ₁₀ Fraction	Potential Uncontrolled Emission Rate (ton/year)	CAM Applicable?
ES-1000	6.0	26.3	0.9*	24	No
ES-WCDS	45	197.1	0.23**	45	No
ES-WCDS	45	197.1	0.23**	45	No
ES-WCDS	27	118.3	0.23**	27	No
ES-WCDS	31	135.8	0.23**	31	No

* Boiler PM₁₀ emissions data from woodwaste combustion spreadsheet.

** Maximum potential PM₁₀ emissions from woodworking spreadsheet.

VII. Facility Wide Air Toxics

The facility is currently subject to both 15A NCAC 2D .1100, Control of Toxic Air Pollutants, and 15A NCAC 2Q .0711, Emission Rates Requiring a Permit, for the following equipment and pollutants:

Emission Source(s)	TAP(s)	Limit(s)	Regulation
Plant wide	Toluene	1,581 pounds per day 258 pounds per hour	2D .1100
	Methyl ethyl ketone	1,245 pounds per day 407 pounds per hour	
	Formaldehyde	0.139 pounds per hour	
Each spray booth (ID Nos. ES-0003, ES-0005, ES-0007, ES-0009, ES-0011, ES-0013, ES-0015, ES-0017, ES-0019, ES-0021, ES-0027, ES-0031, ES-0033, ES-0050, ES-0052, ES-0054, ES-0056, ES-0058, ES-0060, ES-0062, and ES-0064)	Toluene	511 pounds per day 71 pounds per hour	2D .1100
	Methyl ethyl ketone	402 pounds per day 113 pounds per hour	
Each compo machine (ID Nos. ES-0080, ES-0082, and ES-0083)*	Toluene	511 pounds per day 71 pounds per hour	2D .1100
	Methyl ethyl ketone	402 pounds per day 113 pounds per hour	

Emission Source(s)	TAP(s)	Limit(s)	Regulation
Each extrusion machine (ID Nos. ES-0070 and ES-0072)*	Toluene	511 pounds per day 71 pounds per hour	2D .1100
	Methyl ethyl ketone	402 pounds per day 113 pounds per hour	
Plant-wide	Xylene	57 pounds per day 16.4 pounds per hour	2Q .0711

* Sources to be eliminated as part of the permit renewal.

Currently the Permittee is required to monitor and record daily usage of operational information while using and/or when not using toluene or MEK containing materials in either the compo or extrusion machines. Because this equipment is being removed from the permit, the 2D .1100 condition has been modified to removed this requirement (*the remaining equipment is not affected by the modification of this language*). The following modified language appears as Section 2.2 B.1:

State-enforceable only

1. 15A NCAC 2D .1100: CONTROL OF TOXIC AIR POLLUTANTS - Pursuant to 15A NCAC 2D .1100 and in accordance with the approved application for an air toxic compliance demonstration, the following permit limit(s) shall not be exceeded:

<i>Emission Source(s)</i>	<i>Toxic Air Pollutant(s)</i>	<i>Emission Limit(s)</i>
<i>Facility-wide</i>	<i>Toluene</i>	<i>1,581 pounds per day 258 pounds per hour</i>
	<i>Methyl ethyl ketone</i>	<i>1,245 pounds per day 407 pounds per hour</i>
	<i>Formaldehyde</i>	<i>0.139 pounds per hour</i>
<i>Each spray booth</i>	<i>Toluene</i>	<i>511 pounds per day 71 pounds per hour</i>
	<i>Methyl ethyl ketone</i>	<i>402 pounds per day 113 pounds per hour</i>

Monitoring/Recordkeeping

- a. *The Permittee shall maintain records (written or electronic format) on-site and made available to an authorized representative upon request of all appropriate operational information to ensure compliance with the above limits. As a minimum, the Permittee shall record the following:*
 - i. *the pounds of toluene and methyl ethyl ketone emitted from each spray booth using toluene or methyl ethyl ketone containing materials on a daily basis; and*
 - ii. *the hours of operation for each spray booth using toluene or methyl ethyl ketone containing materials on a daily basis.*
- b. *To ensure compliance with the modeled plant-wide emissions rate for formaldehyde as listed above, the Permittee shall:*
 - i. *operate no more than four spray booths at one time with formaldehyde containing materials;*
 - ii. *limit the operation of each spray booth to less than or equal to five gallons per hour maximum application rate; and*

- iii. *not use formaldehyde containing materials with a concentration of formaldehyde in excess of 0.012 pounds per gallon.*

Reporting

- c. *The Permittee shall submit a summary report of monitoring and recordkeeping activities within 30 days after each calendar year quarter, due and postmarked on or before January 30 of each calendar year for the preceding three-month period between October and December, April 30 of each calendar year for the preceding three-month period between January and March, July 30 of each calendar year for the preceding three-month period between April and June, and October 30 of each calendar year for the preceding three-month period between July and September. The report shall contain the following:*
 - i. *the highest hourly toluene and methyl ethyl ketone emission totals for each spray booth during the reporting period;*
 - ii. *the highest daily toluene and methyl ethyl ketone emission totals for each spray booth during the reporting period; and*
 - iii. *for days when formaldehyde is being used:*
 - A. *the number of spray booths operating with formaldehyde containing materials and their number of hours of operation per day; and*
 - B. *the appropriate material data sheets showing the concentration of formaldehyde in all formaldehyde containing materials applied and the total number of gallons applied per spray booth per day.*

There are no required modifications to the 2Q .0711 permit condition in Section 2.2 B.2 as part of this permit renewal.

VIII. Facility Emissions Review

There is no change in emissions for this renewal.

The following table represents the latest years emission inventory from the facility:

Pollutant(s)	2005 Actual Emissions (tpy)
CO	3.45
NO _x	2.82
PM ₁₀	3.51
SO ₂	0.14
VOC	58.30
Total HAP/TAP	6.12

IX. Stipulation Review

WSRO did not have any requested recommendations or permit condition modifications as part of this permit renewal. They did not request a DRAFT permit prior to public notice.

WSRO, when asked if testing of the wood-fired boiler (**ID Nos. ES-1000**) was needed this permit cycle, commented that the boiler was tested in 1984 and again in 2004 showing particulate emission rates of 0.345 and 0.403 pounds per million Btu respectively. Both these values are comfortably below the 0.65 pounds per million Btu allowable. Routine inspections conducted over many years suggest this boiler has a decent record of compliance with visible emission standards and is properly maintained. Therefore, WSRO sees no benefit in making the facility test again this permit cycle.

Steve Moser of the WSRO made the following observations/notes in his **November 1, 2006** inspection report:

1. the facility is not subject to the risk management provisions of the 112(r) program and is not subject to the furniture MACT because picture frame molding is not considered wooden furniture. Additionally, the facility has recently taken limits to avoid Title III major limits for HAPs thus avoiding the applicability of Subpart DDDD (Plywood and Composite Wood Products) and DDDDD (Industrial, Commercial and Institutional Boilers and Process Heaters);
2. The boiler (**ID No. ES-1000**) was built in 1971 and is currently permitted as a 20% source, which is erroneous. 15A NCAC 2D .0521 is written such that equipment manufactured prior to July 1971 is subject to the 40% opacity limit. This should be corrected when the permit is reopened;
3. The multicyclone (**ID No. CD-1000**) is actually nine tubes and not 16 as the permit indicates. This should be changed when the permit is reopened; and
4. The compo machines and extruders are no longer used at the facility. When the permit is renewed, the facility should be asked if they want this equipment removed from the permit (Note, facility has requested this removal). If so, the VOC condition 2.1 B.1.a and c should be removed.

X. Public Notice/EPA and Affected State(s) Review

Pursuant to 15A NCAC 2Q .0521, a notice of the DRAFT Title V Permit shall be placed in a newspaper of general circulation in the area where the facility is located. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit shall be provided to EPA. Also pursuant to 2Q .0522, a notice of the DRAFT Title V Permit shall be provided to each affected State at or before the time notice provided to the public under 2Q .0521 above. Mecklenburg and Forsyth Counties are affected Local Programs within 50 miles of this facility.

XI. Conclusions, Comments, and Recommendations

A professional engineer's seal was not required for this renewal.

A consistency determination was not required for this renewal.

WSRO recommends issuance of the permit and was presented with a DRAFT permit prior to notice and issuance.

RCO concurs with WSRO's recommendation to issue the renewed air permit.