



Wood Dust Mitigation and Control Audit

July 2014 v.1



Company Name:

Date:

Auditor:

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Preamble

The use of this audit with a qualified auditor and rigorous implementation of recommendation generated from the audit will aid Employers in meeting regulatory conformance. However, the completion of this audit does not imply that conformance is achieved; users of this audit must consult and apply applicable regulations and standards.

The auditor will use judgement and discretion when assessing the facility's wood dust mitigation and control program. The auditor shall factor in the level of complexity of the operation and balance the effectiveness of the mitigation features presented against the level of hazards encountered.

General Audit Information

Confidentiality

The audit results are the property of the facility and cannot be used externally without consent of the client.

Introduction

The Employer is committed to minimizing or eliminating the risks and hazards associated with combustible wood dust.

A key component of this commitment is the process of auditing each facility's equipment, systems and processes, specifically from a wood dust mitigation and control perspective.

The audits conducted at each facility are designed to be comprehensive and objective. The audits will provide a critical evaluation of the facility's wood dust management practices and their effectiveness.

The Employer conducts this audit for the purposes of:

- obtaining valuable input from employees, supervisors, management and others on the site as to the existence and applicability of the facility's health and safety systems and processes, including its wood dust mitigation and control program;
- reviewing individual safety program "components," for the purpose of assessing not only their conformance (with regulations and the Employer's expectation), but also their effectiveness;
- reviewing specific "physical conditions," for the purpose of assessing conformance with wood dust mitigation and control requirements and the Employer's control program standards/expectations;
- identifying specific areas of wood dust mitigation and control best practices;
- identifying those locations where improvements can (and must) be made in order to minimize or eliminate the risks and hazards associated with combustible wood dust; and
- assisting in the development of action plans and follow-up.

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Audit Scope

This audit can be utilized by all manufacturing facilities that produce or utilize combustible wood dust during their manufacturing activities. The physical scope of the audit will extend from the facility's raw material handling areas/departments through to loading and shipping areas/departments. The audit will review and evaluate several elements of an effective wood dust mitigation and control program, and will focus on the hazards associated with both combustible dust and potential ignition sources. This audit is intended to provide recommendations to the facility on the appropriate management of combustible wood dust and ignition sources. As such, this audit helps document the steps the facility is or should be taking to manage the combustible dust issue.

Pre-Audit Information Package

Prior to commencing the audit, the Auditor will request relevant background information from the Facility for the purposes of assessing the current wood dust mitigation and control plan and other relevant safety programs. This information will be requested by the auditor one month prior to the planned facility visit. This information must be provided to the auditor at least two weeks prior to the auditor's visit to the facility. The following information (as related to wood dust) must be provided as a part of the pre-audit information package:

- wood dust control and mitigation program;
- local fire department inspection reports;
- WorkSafeBC Inspection reports, variances and acceptance letters;
- BC Safety Authority inspection reports, variances, acceptance letters
- hazardous location assessment report (classification) and action plan;
- insurer reports;
- designs, drawings and specifications for engineered dust mitigation systems;
- other 3rd party wood dust mitigation audits that have been completed in the last year;
- internal audits relevant to combustible wood dusts;
- facility fire incident/investigation reports pertaining to wood dust;
- hazard and risk identification and assessment documents pertaining to the presence and accumulation of combustible wood dusts in the facility;
- Hazardous location assessment and classification report;
- Inspection pertaining to combustible wood dust management;
- Maintenance and inspection records/in-house/3rd party pertaining to dust collection equipment
- combustible wood dust sampling and analysis, if available;
- safe work procedures used in the management of combustible wood dust;

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- facility's fire safety plan and emergency preparedness and response procedures;
- facility's organization chart or a current list of site employees and supervisors to the auditor (for interview scheduling purposes).
- facility's orientation program for new hires and contractors;
- facility's training program pertaining to combustible wood dust; and
- safety committee meeting minutes and crew talk minutes (as applicable to dust hazards).

The auditor must factor into the audit all relevant findings, orders, instructions, and content found in the documentation above.

Audit Opening Meeting

To initiate the audit, the audit team members will meet with the senior management team and other appropriate site employees. The purpose of the meeting is to:

- 1) Introduce the key participants
- 2) Describe the purpose of the audit, how audit results will be presented (i.e., the final audit report) and to schedule a post-audit meeting.
- 3) Describe the audit process/procedures, including:
 - documentation reviews;
 - facility inspections (general and targeted);, and
 - employee interviews.

Safety Indoctrination

After the audit opening meeting, the auditors must be provided with a suitable safety orientation for the facility.

Documentation Review

All aspects of the facility's wood dust control program will be reviewed during the audit. The majority of this information is included in the Pre-Audit Information Package. Safety meeting minutes will be evaluated to see if hazards are being addressed and acted upon. Management circulars, bulletins and safety notices will be reviewed to ensure good communication is happening between management and employees. The auditor may request copies of specific documentation to assist in completion of the audit summary report.

Inspection

As part of the audit process, auditors will complete various "general" and "targeted" inspections to help assess the facility's activities and conditions, and to determine the level/degree of program implementation and effectiveness.

Any critical or high risk dust condition that is identified during the inspection process will be immediately brought to the attention of senior management of the facility. The auditor expectation is that this condition is addressed before the audit concludes. If identified, high risk conditions (and their resolution) will be discussed in the post audit meeting.

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Interviews

As part of the audit process, auditors will conduct interviews with a cross section of employees. In general, the senior management team will be interviewed, along with a mix of supervisors, charge hands, equipment operators, labourers, senior/long term employees, new/young workers, maintenance employees and contractors. The actual number of persons interviewed will be at the discretion of the auditor, but the interview process is intended to provide a representative assessment of employee knowledge of the facility's wood dust control program and the hazards associated with combustible wood dust. Some of these interviews will be informal discussions with employees on the facility operating floor.

Audit Closing Meeting

At the conclusion of the audit, but prior to the release of the Final Report, a closing meeting will be held with the senior management team and other appropriate site employees. The purpose of the closing meeting is to provide a general overview of the audit findings, both strengths and weaknesses. Any recommendations to improve the management of combustible wood dust and ignition sources will be reviewed at the closing meeting prior to appearing in the Final Report.

Audit Results

Within one month of the post-audit meeting, the lead auditor will submit a Final Report. The Final Report will be provided by the auditor to either the Employer's Operation Manager or the Senior Safety Manager for review and further distribution. Once reviewed, a conference call can be scheduled with the lead auditor to answer questions/clarify findings. The division has the discretion as to whether or not such a conference call is necessary.

The Final Report for the audit will include a summary matrix that assigns a colour coding to each of the various program elements. This colour coding will communicate the level of risk/opportunity based on the audit findings and will be adjusted based on the general degree of conformance for each program element as determined by the auditor. In addition, a series of recommendations will be provided to help the Employer improve the level of conformance going forward.

A matrix to facilitate evaluation on the degree of conformance for each program element and key area of focus is provided below. A legend describing the colour coded level of risk is also provided.

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Degree of Compliance Matrix

		<i>Degree of Conformance</i>				
		<i>Exceeds Conformance</i>	<i>Full Conformance</i>	<i>Minor Non-conformance</i>	<i>Major Non-conformance</i>	<i>Critical Non-conformance</i>
Area of Focus	Combustible Wood Dust Hazard Mitigation Program	Fully in conformance. Exceeds industry standard in view of auditor. Clear use of innovation in development and implementation of program.	Scope of written program includes all elements defined in audit.	Assessment and actions identified. Not written, or limited scope (written forms or checklists only, for example).	No formal written program. Ad-hoc assessment process. Unclear action.	No formal written program. No evidence of assessment. No evidence of action.
	Education, Training and Communication	Fully in conformance. Exceeds industry standard in view of auditor.	Formal program. All personnel trained. Demonstrated application. Effective communication of changes; ongoing training.	Formal program. Recognized gaps in training scope or quantity of personnel trained.	Informal program. Significant gaps in training scope. Significant quantity of untrained personnel.	No training program. Little or no awareness of dust hazards and controls.
	Hazard and Risk Assessment	Fully in conformance. Exceeds industry standard in view of auditor. For example, use of innovative approaches, scientific evaluation of dust, etc.	Combustible dust and ignition source hazards identified throughout facility. Ongoing monitoring. Management of change in place.	Identified gaps in scope of assessment; some less critical areas not included.	A high degree of identified gaps in scope of assessment; some critical areas not included.	No assessment, or a major section of the mill excluded from the assessment (planer not included, for example)
	Controls and Mitigation	Negligible accumulations of dust on elevated surfaces throughout facility. Ignition source management and engineering controls exceed industry standard.	Generally acceptable accumulations of dust on elevated surfaces throughout facility. Ignition sources are generally well managed. All engineering controls in place are in conformance.	Moderate accumulations of dust on elevated surfaces in isolated areas, not extensive OR Identified gaps in ignition source management or implementation of engineering controls.	Moderate accumulations of dust on elevated surfaces in multiple areas, not extensive AND Identified gaps in ignition source management or implementation of engineering controls.	Excessive accumulations of dust on elevated surfaces throughout facility. Little/no ignition source management. Engineering controls are not in conformance or effective.
	Severe Risk—unacceptable, risk must be reduced immediately (shutdown)			Moderate Risk—risk should be reduced if practicable		
	High Risk—unacceptable, risk must be reduced as soon as practicable			Low Risk—acceptable/tolerable, further risk reduction measures may not be warranted		

The auditor shall use discretion when evaluating non-conformance considering defragrable wood dust accumulation in layers greater than 1/8", over 5% of an area taking into consideration particle size distribution, moisture content and control of ignition sources for fire hazard (ref: NFPA 664).

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Audit Documentation

This section includes the final report, summary matrix and recommendation templates for use by the auditor in documentation of results.

1. Program

1.1 Combustible Wood Dust Program

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Does the Facility have a written combustible wood dust management program?	<p>The Facility must be able to demonstrate they have a written combustible wood dust management program including a policy and procedures for the management of combustible wood dust.</p> <p>The program must contain the following elements:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The identification of combustible wood dust in the workplace <input type="checkbox"/> The identification of ignition sources <input type="checkbox"/> A hazard assessment process that determines the risks associated with combustible wood dust in the workplace <input type="checkbox"/> A hazard mitigation and control process <input type="checkbox"/> A hazard change management process <input type="checkbox"/> A corrective action management process <input type="checkbox"/> A fire incident reporting and investigation process <input type="checkbox"/> Operational responsibilities and accountability <input type="checkbox"/> Orientation and training of employees and contractors <input type="checkbox"/> Fire Safety Plan and Emergency Preparedness and Response Plan <input type="checkbox"/> An annual program review process <p>The Auditor is to only identify if all the elements specified in the question exist (program element conformance will be reviewed later in the audit).</p>						

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1.2 Management Review

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Is there evidence Management has reviewed the Facility's program within the past 12 months?	<p>The Auditor must review any relevant documentation and interview the person(s) responsible for the overall program.</p> <p>The Auditor must verify:</p> <p><input type="checkbox"/> An annual program review process exists</p> <p><input type="checkbox"/> A review of the program took place</p>						

1.3 Assigned Responsibility

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Has the Facility identified areas of responsibility and those personnel who are accountable for the safe management of combustible wood dust at the Facility?	<p>The Facility must be able to provide documentation that identifies areas of responsibility and who at the Facility are assigned these responsibilities.</p> <p>Areas of responsibility should include:</p> <p><input type="checkbox"/> Orientation and training of employees</p> <p><input type="checkbox"/> Hazard assessment processes</p> <p><input type="checkbox"/> Audit program including inspection, measuring and monitoring of combustible wood dust accumulations</p> <p><input type="checkbox"/> Tracking and completion of corrective actions</p> <p><input type="checkbox"/> Housekeeping</p> <p><input type="checkbox"/> Engineered dust mitigation and controls</p> <p><input type="checkbox"/> Electrical PM program</p> <p><input type="checkbox"/> Mechanical PM program</p> <p><input type="checkbox"/> Emergency Preparedness and Response Plan</p> <p><input type="checkbox"/> Annual combustible wood dust program review</p>						

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1.4 Fire Safety Plan

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Does the Facility have a Fire Safety Plan?	The Auditor must verify that the Facility has reviewed its Fire Safety Plan in relation to combustible wood dust hazards.						

1.5 Incident Investigation Program

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Does the facility have an incident investigation process?	The Auditor must verify that the Facility has a reporting (internal and external regulators) and an incident investigation process and that the process is used for evaluation of events involving combustible wood dust and fire and electrical/gas equipment events.						

1.6 Management of Change

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Does the Facility have a management of change process that includes consideration for combustible wood dust hazards?	<p>The Auditor must review the facility management of change process to confirm that combustible wood dust hazard is considered when evaluating the impact of change.</p> <p>The Auditor must verify:</p> <p><input type="checkbox"/> A management of change process exists</p> <p><input type="checkbox"/> Combustible wood dust hazard is addressed</p>						

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2. Education/Training/Communication

2.1 Training and Orientation

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
<p>Do the Facility indoctrination, education and training programs for employees and contractors include the risks and hazards associated with combustible wood dust?</p>	<p>The Auditor must determine if the training being provided is adequate for the hazards and risks associated with combustible wood dust in the Facility.</p> <p>The indoctrination, education and training programs should include information on:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Characteristics of combustible dust <input type="checkbox"/> Identification of combustible dust hazards <input type="checkbox"/> Methods of control for combustible dust <input type="checkbox"/> Identification and control of ignition sources <input type="checkbox"/> Firefighting controls <input type="checkbox"/> Emergency response procedures <input type="checkbox"/> Reporting and investigation requirements for fires and electrical/gas equipment <p>The auditor must confirm that contractors are provided with appropriate training, education and orientation programs as well.</p>						

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3. Hazard and Risk Assessment Process

3.1 Hazard Assessment Process

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Does the facility have a combustible wood dust hazard and ignition source assessment process?	<p>The Auditor must verify the elements of the hazard assessment process.</p> <p>A hazard assessment process should include:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Identification of all areas where combustible wood dust can accumulate in the Facility including concealed spaces <input type="checkbox"/> Identification of potential ignition sources <input type="checkbox"/> Identification of combustible wood dust properties <input type="checkbox"/> Categorization of risk <input type="checkbox"/> Mitigation and control strategies <input type="checkbox"/> Follow up 						
Has the Facility correctly identified areas where combustible wood dust conditions and potential ignition sources exist?	<ul style="list-style-type: none"> <input type="checkbox"/> The Auditor must verify that the hazard assessment takes into consideration all areas of the Facility where combustible wood dust accumulations can occur including concealed spaces. <input type="checkbox"/> The Auditor must verify that ignition sources within the aforementioned areas have been correctly identified. This must be done through inspection of the Facility. 						

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	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Has the Facility categorized the combustible wood dust hazard?	<input type="checkbox"/> The Auditor must confirm through documentation that combustible wood dust hazard assessments have taken place. <input type="checkbox"/> The Auditor must confirm through documentation that results from the assessments have been categorized based on severity and consequence. <input type="checkbox"/> The Auditor must verify that the risks associated with combustible wood dust hazards in the Facility have been correctly identified. This must be done through inspection of the Facility.						

4. Controls

4.1 Controls and Mitigation Process

	Auditor Instructions	D	I	O	Auditor Observations	Conformance	N/A
Has the Facility implemented appropriate mitigation and controls for the combustible wood dust hazard?	<p>The auditor must identify what the Facility has implemented to control the combustible wood dust hazard.</p> <p>Controls may include but are not limited to the following:</p> <input type="checkbox"/> Housekeeping <input type="checkbox"/> Passive containment <input type="checkbox"/> Construction features <input type="checkbox"/> Misting <input type="checkbox"/> Engineered ventilation systems including cyclones and bag houses <input type="checkbox"/> Ignition source management <input type="checkbox"/> Deflagration management <input type="checkbox"/> Preventative maintenance						
	<p>For all areas subjected to the hazard assessment, the Auditor must evaluate whether the controls are appropriate.</p>						

Executive Summary, Matrix and Recommendations

An example audit summary matrix and recommendation list is provided below for reference.

<i>Executive Summary</i>	

<i>Area of Focus</i>	<i>Risk Ranking</i>
Combustible Wood Dust Hazard Mitigation Program	No concerns
Education, Training and Communication	Training program in place, but housekeeping personnel not trained on use of compressed air and associated hazards from airborne dust.
Hazard and Risk Assessment	Planer building was not included in hazard assessment
Controls and Mitigation	Significant dust accumulations on majority of elevated surfaces throughout facility (in excess of 1/8 inch and over 5% of the area) AND/OR potentially dispersible/actually dispersed significant dust clouds

<i>Area of Focus</i>	<i>Recommendation</i>
Controls and Mitigation	Shutdown and perform baseline cleanup; review and improve housekeeping program as short term measure and investigate engineering solutions

Action Plan and Follow Up

Facility management are expected to develop an action plan for all areas which resulted with a risk ranking of moderate or higher (yellow, orange or red). Recommendations provided by the Auditor should be taken into consideration. This action plan should be retained for review at subsequent wood dust audits.