**Note: This workbook is provided as one optional method of collecting data for the WPAC Combustible Dust Audit. In case of discrepancy between this document and the official audit tool, the official audit tool shall prevail.**

## Documentation Review

All aspects of the facility’s wood dust control program will be reviewed during the audit. 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.

# Audit Questions and Guidelines

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| Program  |

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| 1.1A | Does the company have a written combustible wood dust management program applicable to any facility generating wood dust? | **O** | **D** | **I** | **Total** |
|  |  |  |  |  | **0** |
|  |  |  | **0-15** |  | **/15** |
| 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. The program must contain the following elements: Note: The Auditor is to only identify if all the elements specified in the question exist (program element compliance will be reviewed later in the audit).Award up to 15 points based on the % inclusion of the following 10 topics.1. Is the program reviewed on an annual basis?
2. Are responsibilities documented?
3. Is there a documented investigation process for fires or similar incidents?
4. Does the program include the identification of combustible wood dust?
5. Are ignition sources identified?
6. Is there a hazard assessment process that prioritizes the ignition sources?
7. Is the hazard mitigation and control process documented?
8. Is there a corrective action management process (CAL or similar)?
9. Is there a system to document employee training?
10. Is there a hazard change management process?
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| Audit Note from previous page:  |
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| 1.2A | Does the company have a wood dust audit process? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-12** |  | **/12** |
| Does to company have, for 2 points each:1. An annual wood dust mitigation and control audit process?
2. Are auditors educated and trained on wood dust mitigation and control?
3. Are there defined standards and protocols used by the auditor?
4. Does the facility have independent third party Wood Dust Audit at least once every year?
5. Is there evidence that the non-conformance items from the previous third party audit are corrected in a timely manner? Not applicable if there were no previous audits.
6. Are the results of the previous audit communicated to the staff and employees? Not applicable if there were no previous audits.
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| Audit Note:  |
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| 1.2B | Has an annual audit been performed in the last calendar year? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,5** | **0-5** | **/10** |
| D – If the last annual audit, excluding this one, took place in the last calendar year, award 5 points. |
| Audit Note:  |
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| 1.3A | Has the Facility identified areas of responsibility and those personnel who are accountable for the safe management of combustible wood dust at the Facility? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-8** | **0-10** | **/18** |
| The Facility must be able to provide a written list or matrix or other document that identifies areas of responsibility and who at the Facility are assigned these responsibilities, including verification that the personnel are qualified to manage those areas. This may be included in the overall program.Areas of responsibility should include (at 1 point each):1. Program Administration, Reviews, Maintenance & Management of Change
2. Maintenance Supervision including contractor supervision
3. Orientation
4. Emergency Response Plans (ERP’s)
5. Inspections, measuring and monitoring of combustible dust
6. Clean up / Housekeeping
7. Mechanical PM
8. Electrical PM

Aspects of responsibilities may be divided among members of a group. |
| Audit Note:  |
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| 1.4 | Does the Facility have an Emergency Preparedness and Response Plan (EPRP) | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check the ERPs to verify that combustible wood dust hazards are included in the program. (5 points)If documentation supports that the responding fire department has completed pre-incident planning and site visits of the mill within the last 3 years or since the last major process change, whichever is more recent. (The responding fire department may be salaried, volunteer or a company fire brigade provided the brigade meets NFPA 1081 standard. Documentation may include posted Fire Department inspection results.) (2 points)If the ERP requires an annual (or more frequent) drill award 3 points. |
| Audit Note:  |
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| 1.5 | Does the facility have an incident investigation process? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** | **0-10** | **/20** |
| D- Check documentation for 1. a reporting process (internal 3 points and external regulators/insurers 2 points)
2. an incident investigation process 3 points
3. that the process is required to be used for evaluation of events involving combustible wood dust and fire and electrical/gas equipment events if any have occurred in the last year 2 points
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| Audit Note:  |
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| 1.6 | Does the Facility have a change management process that includes consideration for combustible wood dust hazards? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| The process should include (for one point each):1. Combustible Wood Dust Hazards and Controls.
2. A process to re-evaluate hazards when equipment or processes change, including when auxiliary or other equipment or processes are added on the property that are not directly related to the primary production stream.
3. A defined form to record the process and show both worker and management participation, including JOHSC review where applicable
4. A process to track action plans that are identified in the management of change process.
5. Changes to policies, work procedures to reflect the changes.
6. Upset Conditions (I.e. ventilation system disabled).
7. A recognition and process to review codes and regulations during the management of change activities.
8. A defined responsibility to authorize change only after the safety aspects have been evaluated
9. Notification of applicable external agencies before planned change will occur if the change requires notification
10. Notification of external agencies promptly when unplanned change has already occurred or is occurring if the change requires notification
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| Audit Note:  |
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| Education/Training/Communication  |

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| 2.1 | Do the indoctrination, education and training programs include information on Combustible Wood Dust? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-10** | **0-5** | **0-5** | **/20** |
| D - Check training documentation for:Has specific combustible dust training applicable to each position been identified? The Auditor must determine if the training being provided is adequate for the hazards and risks associated with combustible wood dust in the Facility.Examples of adequate training include:FIPI TRAINING MODULES: * Combustible Dust Hazard Recognition
* Combustible Dust Hazard Mitigation
* Contractor Introduction to Combustible Dust
 |
| Audit Note:  |
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| 2.2 | Do the indoctrination, education and training programs include identification of Combustible Wood Dust? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,1** | **0-9** | **/10** |
| D - Check training documentation for:Identification of combustible dust hazards. 1 point |
| Audit Note:  |
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| 2.3 | Do the indoctrination, education and training programs include control of Combustible Wood Dust? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-5** | **0-5** | **/10** |
| Check training documentation for:Methods of control for combustible dust.These should include:**Regular Activities:*** Monitoring
* Reporting

**Cleanup Activities:*** Low pressure Air (defined)
* Brooms
* Minimize stirring up dust.
 |
| Audit Note:  |
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| 2.4 | Do the indoctrination, education and training programs include information on ignition sources? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,1** | **0-4** | **/5** |
| Check training documentation for:Identification and control of ignition sources. The training is intended to cover the topic of ‘bearings’ rather than listing every bearing, for example. 1 point |
| Audit Note:  |
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| 2.5 | Do the indoctrination, education and training programs include information on Emergency Response related to Combustible Wood Dust? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,1** | **0-4** | **/5** |
| D - Check training documentation for:Emergency Response Procedures**. Note that this is only for training on emergency response. The actual ERP content is covered elsewhere. (1 point)** |
| Audit Note:  |
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| 2.6 | Do the indoctrination, education and training programs include information on reporting fires and/or electrical and gas incidents? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,1** | **0-4** | **/5** |
| D - Check training documentation for:Reporting and investigation requirements for fires and electrical/gas equipment. 1 points |
| Audit Note:  |
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| --- | --- | --- | --- | --- | --- |
| 2.7 | Do the indoctrination, education and training programs include providing contractors with information on Combustible Wood Dust? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-5** | **0-5** | **/10** |
| D - Check training documentation for:The auditor must confirm that sampled contractors are provided with appropriate training, education and orientation for combustible wood dust hazards and controls. **5 points** |
| Audit Note:  |
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| --- | --- | --- | --- | --- | --- |
| 2.8 | Do the indoctrination, education and training programs include Raw Material Inventory management? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0,1** | **0-9** | **/10** |
| D – Check Training Documentation (for applicable supervisors) for:Raw Material Inventory Management 1 point. |
| Audit Note:  |
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| Hazard and Risk Assessment Process  |

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| 3.1 | Has the Facility correctly identified areas where combustible wood dust conditions and potential ignition sources exist? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-15** | **0-5** |  | **/20** |
| D - The Auditor must verify that all ignition sources have been correctly identified. Ignition sources may include:

|  |  |
| --- | --- |
| * Hot Work
* Hot Surfaces
* Heating Equipment
* Friction
* Machine and Processing Equipment
* Electrical Systems
 | * Boilers or Steam Vessels
* Smoking
* Lightning
* Static Electricity
* Tramp Metal
* Facility Lighting
* Mobile Equipment
 |

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| Audit Note:  |
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| --- | --- | --- | --- | --- | --- |
| 3.2 | Do hazard assessments include the identification of combustible wood dust properties? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check the completed hazard assessment to verify that it includes the identification of the combustible wood dust properties.Does this method include collection plates, moisture testing, particle size distribution, measurement devices and/or visual observation. Etc.? |
| Audit Note:  |
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| 3.3 | Has the Facility categorized the combustible wood dust hazard? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-15** | **0-5** |  | **/20** |
| D - Check the completed hazard assessment to verify that it includes identification of all areas where combustible wood dust can accumulate in the Facility including concealed spaces.Assessments should include:* Concealed spaces such as attics, false ceilings, crawl spaces, inside duct work, etc.
* Dispersion methods in enclosed areas
* Other concerns such as winter.
* The classification of electrical and gas equipment within the last 5 years or with the installation of any new equipment.
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| Audit Note:  |
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| 3.4 | Has the facility identified potential ignition sources? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check the completed hazard assessment to verify that it includes a list of the potential ignition sources.Identified ignition sources should include:* Hot Work (confirm a documented Hot Work Process that includes combustible Wood Dust)
* Hot Surfaces
* Heating Equipment
* Friction
* Machine & Process Equipment including Boilers and Steam vessels
* Electrical Equipment
* Smoking
* Lightning
* Static Electricity
* Tramp Metal
* Facility Lighting
* Mobile Equipment
 |
| Audit Note:  |
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| 3.5 | Do completed hazard assessments include the categorization of risk? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-15** |  | **/15** |
| Check the completed hazard assessment to verify that all areas with combustible wood dust hazards have been completed and are categorized for risk.Assessments may include:* The rate of dust accumulated in various areas of the facility.
* The risk rating for various areas.
* Frequency of monitoring accumulations:
	+ Daily
	+ Weekly
	+ Monthly
	+ Quarterly
	+ Annually

Award up to 10 points based on the % of hazard assessments completed compared to those that should have been completed.Award up to 5 points based on the % of hazard assessments that use a rating system to categorize the risk |
| Audit Note:  |
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| 3.6 | Does the hazard assessment process demonstrate mitigation and control strategies and follow up of issues? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check the completed hazard assessment to verify that it includes mitigation and control strategies. 4 pointsCheck the completed hazard assessment to verify that it includes a process for corrective action plan follow-up. 4 points . Also check documents to verify that corrective actions are addressed in a timely manner.2 points |
| Audit Note:  |
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| --- | --- | --- | --- | --- | --- |
| 3.7 | Were the hazard assessment results categorized based on severity and consequence? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| The Auditor must confirm through documentation that results from the assessments have been categorized based on severity and consequence or other company-specific terms for ‘severity’ and ‘consequence’. |
| Audit Note:  |
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| Controls |

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| 4.1 | Does the Facility have a written combustible wood dust management program applicable to the pellet industry? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Is there a policy / program on the inspection and cleaning of the magnets or other apparatus in the magnetic separation / detection equipment? (2 points)Is there a policy / program on the inspection and cleaning of the fractionating equipment? (2 points)Do documents:* specify a maximum safe thermal limit in piled materials (excluding logs) of 60C or less. (1 point)
* specify a warning limit of 40C followed by a 10C rise in 24 hours, or a more stringent limit. (1 point) (N/A if no piles)
* indicate that the spark detection system has multiple spark detection that will shut down the equipment if limits are exceeded, (1 point)
* describe how the feed of materials into the dryer is monitored and interlocked to shut off or divert heat from the burner (if a burner is used) if the feed of material is interrupted. (1 point)

Is there a policy / program for waste removal from site, including maximum on-site limits, transfer of waste material to the transport equipment and covering of the load. This applies to all waste, including garbage, recycling and process wastes, whether solid or liquid. (2 points)  |
| Audit Note:  |
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| 4.2 | Has the facility implemented housekeeping controls for combustible wood dust hazards? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-10** | **0-10** | **0-10** | **/30** |
| D - Check documentation for:* Housekeeping SWP that includes combustible dust identification, hazards and controls.
* Alternative clean up methods that minimize wood dust disbursement (brooms, air/water wands, vacuuming)
* SWPs for using compressed air (and/or prohibition of compressed air use).
* A documented risk assessment process for the use of compressed air (in excess of 15 psi).
* Established Housekeeping Standards (no more than average 1/8” over 5% of the compartment area).
* Dedicated Clean Up Crews / resources
* Housekeeping Frequencies established for:
	+ Floors
	+ Horizontal Surfaces
	+ Equipment
	+ Ducts
	+ Pipes
	+ Hoods
	+ Beams
	+ Ledges
	+ Suspended Ceilings
* Housekeeping Logs
* Mobile equipment used for fibre handling has daily records of inspection for cleanliness and/or cleaning.

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| Audit Note:  |
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| 4.6 | **Are misting / fogging systems present and operational?** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-5** | **0-5** |  | **/10** |
| The question is not applicable if there is no misting system in the design Check documentation for:Analysis of misting systems for the development potential hazards such as caking, fouling and wet dust on electrical systems.Have the impacts of misting systems on the effectiveness of the ventilation systems been analyzed to ensure that additional moisture will not cake or foul the duct work? |
| Audit Note:  |
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| 4.8 | **Are bag houses and / or cyclones managed effectively?** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-7** | **0-2** | **0,1** | **/10** |
| Check documentation for:* Annual Inspection.
* Frequency of inspections/testing (bags, PMs, grounding of bags, high speed aborts gates).
 |
| Audit Note:  |
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| --- | --- | --- | --- | --- | --- |
| 4.9 | **Are storage silos and bucket elevators managed effectively** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-5** | **0-5** |  | **/10** |
| Check for documentation specifying a maximum safe limit of 60C or less award 3 points. If the program documents specify a warning limit of 40C followed by a 10C rise in 24 hours, or a more stringent limit award 2 more points. |
| Audit Note:  |
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| 4.10 | **Are electrical systems managed effectively** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-10** | **0-10** |  | **/20** |
| Check documentation for:* Regular Inspections (thermal imaging, PMs, cleaning of all switch gear, spark detection and suppression systems) according to manufacturer’s recommendations.
* Annual permit inspection from BC Safety Authority
* Documented risk assessment prior to performing cleaning activities on switch gear.
* External thermal imaging conducted by a competent person on the required semi-annual formal inspection. An example of competent person would be a level 1 thermographer as per ITC or equivalent.
* Action plans to address ‘hot spots’ are completed in a timely manner.
* Calibration and testing of switch gear (megger testing) every 3 years by a qualified electrician.
* Electrical wiring and lighting is marked for use as per National Electrical Code and NFPA 70, Enclosed location – Class II, Division II, Group G
	+ Exterior location – see National Electrical Code for exact application
 |
| Audit Note:  |
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| 4.14 | **Are fire water systems appropriately managed?** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check documentation for (2 points each up to a maximum of 10 points):* The water supply volume calculation, as performed by a qualified engineer, is sufficient to satisfy the hydraulic demands of the sprinkler system and the hose stream allowance.
* If there is documentation to show that the water supply has a minimum duration of 90 minutes. (The duration must be for both the sprinklers and the hose stream allowance simultaneously. Public utility water connections are to be considered as sufficient unless documentation to the contrary exists. Private water supplies (fire reservoir, lake, pond, etc.) must have documentation on site.)
* If there are records showing that the fire pump (whether diesel or electric) is started weekly in at least 90% of the weeks in the scope of the audit and the records indicate the date, result, and identify the personnel performing the test.
* If there are records showing that the fire pump annual performance test has been performed by a qualified person in the last calendar year.
* If the annual sprinkler system testing and service was performed by a qualified person in the last calendar year.

Verifying that this has been checked by the insurance carrier is sufficient. |
| Audit Note:  |
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| 4.17 | **Is the fibre drying system managed effectively?** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-10** | **0-5** | **0-5** | **/20** |
| Document – spark detect log, PM of detectors, alarm logs (aborts, deluges, etc.) records showing the duct work after the dryer is inspected for creosote buildup and cleaned on a quarterly basis |
| Audit Note:  |
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| 4.18 | **Is pelletizing equipment effectively managed?** | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
| **0-10** | **0-5** |  | **/15** |
| Check documentation for:* For control room pelletiser readouts including load sensors or electrical current monitoring with both high and low limits, (2 points)
* For documentation showing that 100% of any additives used in the pelletizing process have an ignition temperature above the maximum operating temperature of the press. (1 point – not applicable if there are no additives)
* If documentation shows that 100% of any liquid die cleaners (ie diesel fuel, waste oil, vegetable oil, etc.) used in the pelletizing process have an ignition temperature above the maximum operating temperature of the press. (1 point – not applicable if there are no liquid die cleaners)
* If there is a clear display in the control room indicating temperature of the cooler that will alert the operator and automatically stop the process in-feed and out-feed from each affected cooler (1 point)
 |
| Audit Note:  |
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| 4.19 | Are Preventative Maintenance records kept? | **O** | **D** | **I** | **Total** |
|  |  |  | **0** |
|  | **0-10** |  | **/10** |
| Check documentation for (1 point each):* A formal preventative maintenance program.
* Method to track repairs or action plans.
* Inspection of friction producing equipment (bearings, conveyor spools, belt drives).
* Vibration Analysis (in-house or by a 3rd party).
* Thermal Imaging and/or Temperature Monitoring for large motors or high speed bearings

If maintenance records support that spark detection and suppression systems are inspected, cleaned and tested internally by trained personnel on a regular basis in accordance with the manufacturer’s instructions.If there are records showing that all annual inspections and tests of (1 point each)* Spark detection systems
* Spark suppression systems
* Back draft dampers
* High speed abort gates

If all tests are performed by a qualified person award 1 point. |
| Audit Note:  |
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