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	STANDARD: **NFPA 652 / NFPA 654 / OSHA 29 CFR 1910.22**	AUDIT FREQUENCY: **Annual Audit**

Combustible Dust Hazard Assessment Sop Template

Operational Scope: This standard operating procedure establishes a mandatory framework for identifying, evaluating, and mitigating combustible dust hazards within oil, gas, and energy facilities. The objective is to prevent catastrophic dust deflagrations, fires, and explosions through rigorous hazard assessment and compliance verification.

MANDATORY PPE:	Flame-Resistant (FR) Coveralls (NFPA 2112), Anti-Static Safety Boots (ASTM F2413), Conductive Safety Glasses with Side Shields, NIOSH-Approved N95 or PAPR Particulate Respirator, Ear Plugs or Muffs (NRR 25+)
PREREQUISITES:	Review previous combustible dust hazard analysis (DHA) documentation and incident logs. | Ensure all electrical classification zones (Class II, Div 1/2) within the assessment area are verified. | Notify facility operations supervisor and execute hot work/entry permits if physical sampling is required.

SECTION 1: DUST GENERATION, ACCUMULATION, AND CONTAINMENT

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
1	**Surface Dust Accumulation**	Accumulation of combustible dust on horizontal surfaces, structural members, and equipment does not exceed the 1/32-inch (0.8 mm) screening threshold over 5% of the floor area.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
2	**Process Equipment Enclosures**	Hoppers, conveyors, elevators, and dust collectors maintain structural integrity with zero fugitive dust leaks escaping into ambient plant areas.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
3	**Ventilation and Exhaust Ductwork**	Local exhaust ventilation (LEV) systems maintain required transport velocity to prevent dust fallout within duct runs; internal inspections reveal no blockages.	**Warning**	[ ] PASS [ ] FAIL [ ] N/A
4	**Housekeeping and Vacuum Systems**	Industrial central vacuum systems or certified portable explosion-proof vacuums are utilized; compressed air blowdown is strictly prohibited in unapproved zones.	**Standard**	[ ] PASS [ ] FAIL [ ] N/A

SECTION 2: IGNITION SOURCE CONTROL & ELECTRICAL COMPLIANCE

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
5	**Electrical Classification & Wiring**	All lighting, motors, switches, and control panels located within classified hazardous dust areas comply with NEC Class II standards and are free of dust ingress.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
6	**Bonding and Grounding Systems**	Pneumatic conveying systems, silos, and mixing vessels exhibit continuous electrical continuity to earth ground with measured resistance of less than 10 ohms.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
7	**Hot Work Prevention Controls**	Hot work permits are rigorously enforced within 50 feet of potential dust processing areas; spark detection and extinguishing systems are fully operational.	**Warning**	[ ] PASS [ ] FAIL [ ] N/A
8	**Friction and Mechanical Heat Monitoring**	Bearings, drives, and gearboxes on high-speed material handling equipment are equipped with high-temperature vibration or thermal sensors with auto-shutdown interlocks.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A

SECTION 3: EXPLOSION PROTECTION & EMERGENCY PREPAREDNESS

#	COMPONENT / ITEM	VERIFICATION CRITERIA & ACCEPTANCE STANDARD	SEVERITY	STATUS
9	**Explosion Venting and Duct Diverters**	Explosion relief vents, rupture disks, and flame front diverters on dust collectors are unobstructed, unobstructed by snow/ice, and discharge to safe outdoor locations.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
10	**Isolation and Suppression Systems**	Automatic fast-acting isolation valves and chemical suppression systems connected to dust filtration units are certified, pressure-tested, and within inspection date.	**Critical (Immediate Out of Service)**	[ ] PASS [ ] FAIL [ ] N/A
11	**Safety Data Sheets (SDS) & Testing Data**	Current dust explosibility parameters (Kst values, Pmax, MEC) are documented in the facility safety registry and accessible to emergency response teams.	**Standard**	[ ] PASS [ ] FAIL [ ] N/A

Certified Inspector / Lead Operations Auditor Signature: _____	**Date / Time:** _____	**Badge / Cert #:** _____
Site Safety Supervisor / Operations Manager Sign-off: _____	**Review Date:** _____	**Audit Status:** [ ] Approved [ ] Rectify

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