Overhead Crane Risk Assessment: Management Section

Serial Number	Inspection Items	Risk Sources	Possible Accident Characteristics and Consequences	Control Measures	Possibility (P)	Severity (S)	Risk (R)	Risk Level	Risk Color Code	Remarks
1	Safety Technical Archives	**Failure to Establish Safety Technical Archives:** **Archives do not meet regulations and lack the following:** (1) Usage registration certificates; (2) Design and manufacturing documents, including quality certificates, installation manuals, and inspection reports; (3) Technical documents for installation, modifications, and major repairs, including plans, drawings, quality certificates, and acceptance reports; (4) Records of periodic and annual inspections, and periodic inspection reports; (5) Daily usage records; (6) Maintenance records; (7) Safety device repair and replacement records; (8) Operational, maintenance, fault, and accident records with handling reports; (9) Emergency drill records. Original or copy of archives must be stored at the equipment's location.	Blind operations, overhead crane malfunctions, overhead crane accidents, equipment damage, and personal injury.	Establish a safety technical archives management system: Properly store and archive crane design and installation documents. Archive operational and maintenance records promptly. Ensure timely archiving of overhaul and inspection reports. Maintain at least one copy of technical documents, including manuals and drawings. Regularly inspect safety protection devices and archive the results. Store safety technical archives in dedicated cabinets managed by designated personnel.	3	4	12	3	Yellow	
2	Usage Registration	**Failure to Apply for Use Registration:** Before putting an overhead crane into use or within 30 days after starting use, the unit did not apply for use registration with the special equipment safety supervision department of the municipality directly under the central government or the city divided into districts where the crane is	Unauthorized use, lack of supervision, and accidents.	**implement Special Equipment Registration and Periodic Inspection Management System:** Assign the technical department to handle inspection or scrapping applications.	2	2	4	4	Blue	
3	Safety Management Institution	**Failure to Establish a Safety Management Institution:** For units operating 50 or more overhead cranes (including 50 cranes), no safety management institution was established.	Personal injury, equipment failure, or major accidents.	**Set Up a Safety Management Institution:** Establish an institution led by key personnel to oversee safety management; designate departments or organizations responsible for daily operations and maintenance of overhead cranes; improve safety management systems.	4	5	20	1	Red	
4	Personnel Allocation	**IInsufficient Personnel:** Inadequate allocation of safety managers, operators, and maintenance staff; responsibilities were not assigned; safety personnel lacked valid certifications; job roles didn't match certifications; periodic health checks were not conducted.	Personal injury, equipment failure, or major accidents.	**Ensure Proper Staffing:** Allocate staff according to job requirements, promptly filling any vacancies; establish a management system for crane personnel; organize regular training and certification; ensure all personnel involved in safety management, maintenance, and operation are professionally trained, certified, and qualified; conduct annual health checks for	5	5	25	1	Red	
5	Safety Management System	**Failure to Establish Operational Management Systems:** No position responsibility system centered on the operation of overhead cranes was established. The roles and responsibilities of safety management institutions and personnel were not clarified. No systems for regular maintenance, periodic self-inspection, operation and inspection records, usage registration, or periodic inspection management were developed. There was no mechanism for identifying and rectifying potential hazards, no management and training systems for safety management and operating personnel, no procurement, installation, modification, repair, or decommissioning management system, no emergency rescue management system, and no accident reporting and handling system for overhead cranes.	Falls, impacts, electric shocks, collisions, crushing, or malfunctions.	**Develop and Improve Crane Safety Management Systems:** Establish safety production standardization management systems; apply for safety standardization reviews every three years; conduct annual self-evaluations and continually improve management systems; periodically update safety management systems.	3	4	12	3	Yellow	

6	Emergency Management	**Failure to Establish an Emergency Rescue Plan:** No special emergency rescue plan for overhead cranes was established. Emergency rescue drills were not conducted regularly, and records of such drills (including text, images, and videos) were not retained. No department or personnel was responsible for daily emergency management tasks.	Inability to respond effectively and promptly to overhead crane malfunctions or accidents, leading to greater losses.	**Enhance Emergency Rescue Management Systems:** Revise emergency rescue systems; conduct emergency skills training quarterly; perform at least one emergency rescue drill annually; revise emergency rescue plans every three years and conduct joint drills; manage rescue materials daily.	3	5	15	2	Orange	
7	Operation Management	**Lack of Operational Management Systems:** No operational emergency plans were in place, and violations of operational regulations were observed.	Operational failures and accidents resulting in equipment damage and personal injury.	**Refine Crane Operation Management Systems:** Update operation management systems and emergency plans, including special plans for crane failures; standardize employee operation behavior.	2	5	10	3	Yellow	
8	Maintenance Management	**No Maintenance Management Systems:** No periodic or comprehensive maintenance plans, acceptance standards, or periodic inspection procedures; violations during maintenance.	Improper maintenance causing accidents; violations resulting in personal injury.	**Establish Maintenance Management Systems:** The technical operations department should strictly follow a four-level maintenance system; prohibit outdoor maintenance during severe weather; enhance employee safety education, standardize operations, ensure personal protection, and strictly adhere to safety procedures; apply for periodic inspections of cranes.	2	5	10	3	Yellow	
9	Safety Training	**No Safety Training:** Training was not conducted regularly or did not cover all personnel.	Equipment malfunctions, equipment damage, and personal injury.	**Develop Employee Training Programs:** Provide safety production training for all employees at least once a year; ensure special equipment operators pass safety assessments before starting work.	2	5	10	3	Yellow	
10	Operational Procedures	**No Operation or Maintenance Procedures:** Procedures were not developed or displayed prominently.	Equipment damage and personal injury.	**Create and Maintain Operational Procedures:** Establish comprehensive operational procedures, post key content prominently, and regularly organize training sessions on these procedures; revise procedures as necessary.	3	5	15	2	Orange	
11	Hazard Identification	**Failure to Conduct Regular Safety Inspections:** Safety hazards were not regularly identified, and production safety hazards were not promptly rectified.	Equipment damage and personal injury.	**Institute Hazard Identification Systems:** Conduct regular safety inspections; address identified issues immediately; create specialized rectification plans for unresolved	2	5	10	3	Yellow	
12	Non-Destructive Testing of Key Components	**Lack of Non-Destructive Testing:** Critical components such as wire ropes and the butt weld quality of main load-bearing structural parts were not tested according to regulations, and non-destructive testing reports were not retained. Components requiring disassembly were not maintained or recorded.	Equipment damage and personal injury.	**Adopt Non-Destructive Testing for Key Components:** Implement a safety management system for critical components and conduct regular inspections.	3	5	15	2	Orange	
13	Electrical Safety	**Failure to Manage Electrical Safety:** No electrical safety system, violations of safe electricity usage.	Electric shocks or fires causing equipment damage and personal injury.	**Strengthen Electrical Safety Management:** Improve electrical safety systems, conduct regular inspections, educate employees on electrical safety, and penalize violations.	2	5	10	3	Yellow	
14	Fire Safety	**Failure to Establish Fire Safety Management Systems:** No fire safety management system was developed, and fire safety management requirements were not followed.	Fires causing equipment damage and personal injury.	**Enhance Fire Safety Management:** Develop fire safety systems, conduct regular checks, educate employees on fire safety, organize at least one fire drill annually, and penalize	2	5	10	3	Yellow	
15	Safety Production Standardization Management	**Failure to Establish Production Safety Standard Management Systems:** Production safety standard management requirements were not met, and safety standardization work was not evaluated or reviewed.	Safety production accidents causing personal injury and property loss.	**Improve Safety Production Standardization:** Refine safety standardization procedures, regularly check compliance, educate employees on safety standards, and conduct annual evaluations to continuously improve	2	5	10	3	Yellow	

16	Safety Warnings	**Failure to Set Safety Warning Signs:** Visible textual safety warning signs and hazard graphic symbols were not placed in appropriate locations or work areas of lifting machinery.	Falls, impacts, electric shocks, collisions, crushing, or malfunctions.	**Ensure Safety Warning Signs:** Place safety warning signs and hazard symbols at dangerous parts of lifting machinery, and regularly check their presence and condition.	2	2	4	4	Blue	