



HSE Corrective and Preventive Actions (CAPA) Management Procedure

Document No.: CLADDING-HSE-EE-20

1 Purpose

To standardize the full-process management of the Company's HSE Corrective and Preventive Actions (hereinafter referred to as "CAPA"), promptly identify and eliminate HSE non-conformities (such as equipment hazards, operational violations, and system loopholes), address the causes of actual and potential non-conformities, prevent the recurrence or occurrence of non-conformities, avoid HSE accidents/incidents, achieve continuous improvement of HSE performance, and ensure the safety of employees' lives, property, and the environment. In compliance with the *Law of the People's Republic of China on Work Safety*, *PIPING SYSTEM PTE LTD HSE Management System Requirements*, and the HSE control requirements of the COMPANY, this procedure is hereby formulated.

2 Scope of Application

This procedure applies to all departments of the Company (Quality, Safety and Environmental Protection Department, Logistics and Transportation Department, Warehousing Center, Equipment Management Department, Administration Department, Human Resources Department, branch companies, project departments) and all personnel working within the Company's controlled areas (regular employees, dispatched workers, interns, outsourced personnel, contractors), covering the following scopes:

2.1 Sources of HSE Non-Conformities

- Derived from Accidents/Incidents: e.g., "lack of shelf maintenance" exposed by object strike accidents, "insufficient operational training" reflected by hazardous chemical leakage incidents;
- Identified in Daily Inspections: e.g., "expired fire extinguishers" found in warehouse safety inspections, "wear of crane wire ropes" detected in equipment patrols;
- Non-Conformities in System Audits: e.g., "lack of contractor management procedures" found in internal HSE audits, "incomplete emergency material ledger" pointed out in external audits;

- Issues from Compliance Evaluation: e.g., "hazardous chemical storage standards failing to meet new requirements" due to updated regulations;
- Complaints from Employees/Stakeholders: e.g., "insufficient noise protection" reported by employees, "excessive dust from loading/unloading operations" complained by nearby residents;
- Analysis of Near-Miss Incidents: e.g., "lack of supervision in hoisting operations" exposed by near-miss material falling incidents;
- Additional Sources: Issues identified during calibration/maintenance of monitoring equipment, new risks identified in change management, abnormal trends shown in HSE performance data statistics and analysis (e.g., "monthly increase in equipment failure frequency").

2.2 Business Scenarios

- Internal Company Scenarios: Warehouse operation areas, logistics and transportation areas, equipment maintenance areas, office areas, hazardous chemical storage areas, operation sites of branch companies/project departments;
- External Associated Scenarios: Carrier transportation links, supplier delivery sites, contractor equipment maintenance processes.

3 Terms and Definitions

3.1 HSE Non-Conformity

Any deviation from HSE laws and regulations, standards and specifications, the Company's HSE management systems, operating procedures, or established HSE objectives, including existing problems (such as equipment failures) and potential risks (such as system loopholes).

3.2 Corrective Action

Measures formulated and implemented to eliminate the root cause of an existing HSE non-conformity and prevent its recurrence (e.g., revising the *Warehouse Facility Maintenance System* for "loose shelf bolts").

3.3 Preventive Action

Measures formulated and implemented to eliminate the root cause of a potential HSE non-conformity (not yet occurred but with risks) and prevent its occurrence (e.g., conducting pre-service special training for "inexperienced new employees").

3.4 Root Cause

The underlying, systematic cause of an HSE non-conformity, rather than a superficial phenomenon (e.g., the superficial cause of "loose bolts" is "failure to tighten", while the root cause is "failure to specify inspection frequency in the maintenance system").

3.5 CAPA Priority

The handling priority classified based on the impact level (personnel injury, property loss, environmental impact) and occurrence probability of HSE non-conformities, divided into three levels: High, Medium, and Low.

3.6 CAPA Closure

The process of confirming completion in accordance with specified procedures after CAPA measures are implemented, verified to have eliminated the root cause of non-conformities, and reduced risks to an acceptable level.

3.7 Observation/Improvement Opportunity (Newly Added)

A situation that does not constitute an HSE non-conformity but has room for improvement (e.g., operational procedures can be optimized, training methods can be enhanced), requiring the formulation of a continuous improvement plan.

3.8 Serious Non-Conformity (Newly Added)

A non-conformity that causes systematic or regional HSE management failure and may lead to severe injury/death, major property loss, or serious environmental pollution; a General Non-Conformity refers to an isolated, occasional non-conformity that only affects a local area.

4 Responsibility Assignment

4.1 Company Top Management

- Approve CAPA plans and resource investment for major HSE non-conformities (e.g., system loopholes that may lead to major accidents);
- Approve the annual review report of CAPA management to promote continuous improvement of the HSE management system;
- Ensure the guarantee of funds, personnel, technology, and other resources required for CAPA management;
- Supervise the overall effectiveness of CAPA management (Newly Added).

4.2 Management Representative

- Supervise the implementation of this procedure and coordinate cross-departmental CAPA management disputes (e.g., shirking of responsibilities by responsible departments, obstacles to measure implementation);
- Review CAPA plans and verification reports for major/high-priority non-conformities;
- Organize the review of CAPA management effectiveness and incorporate CAPA data into the input of HSE management review;
- Receive CAPA implementation status reports submitted by the Quality, Safety and Environmental Protection Department (Newly Added).

4.3 Quality, Safety and Environmental Protection Department (Leading Management Department)

- Take the lead in formulating and revising this procedure, and establishing and maintaining the Company's *HSE Non-Conformity and CAPA Ledger*;
- Be responsible for HSE non-conformity identification and classification: collect non-conformity information from various channels and organize the assessment of impact levels and priorities;
- Organize root cause analysis: for high/medium-priority non-conformities, take the lead in establishing an analysis team and guide the use of professional analysis methods (e.g., 5Why, Fishbone Diagram, Fault Tree Analysis);
- Supervise the full CAPA process: review the rationality of CAPA plans, track implementation progress, verify implementation effectiveness, and supervise CAPAs that are not completed on time;
- Be responsible for CAPA archive management: archive non-conformity records, CAPA plans, verification reports, and other materials, with a retention period of at least 3 years (Newly Added);
- Regularly conduct statistical analysis of CAPA data: summarize CAPA completion rates and reasons for non-closure quarterly, and identify system improvement directions;
- Report CAPA implementation status to the Management Representative regularly (Newly Added).

4.4 All Business and Functional Departments/Units

- Identification and Reporting: Proactively identify HSE non-conformities/observations within their own departments/jurisdictions (e.g., "excessive stacking of materials" found by the Warehousing Center), fill out the *HSE Non-Conformity Report Form*, and submit it to the Quality, Safety and Environmental Protection Department;
- Immediate Disposal: For existing non-conformities, take immediate control measures (e.g., blocking hazardous chemical leakage, evacuating personnel) to prevent the situation from escalating (Newly Added);

- **Formulation and Implementation:** Formulate CAPA plans (specifying responsible persons, time limits, and measure content) for HSE non-conformities within the scope of their departmental responsibilities, and organize implementation in accordance with the plans;
- **Self-Inspection and Verification:** After the implementation of CAPA measures, conduct internal self-inspection to confirm the implementation status, and then apply to the Quality, Safety and Environmental Protection Department for formal verification;
- **Cooperate in Cross-Departmental CAPAs:** Participate in CAPA work involving multiple departments (e.g., "logistics and transportation accidents" requiring the Warehousing Center to cooperate in optimizing loading procedures) and complete relevant tasks as required;
- Track the implementation progress of CAPAs in their own departments and report implementation issues to the Quality, Safety and Environmental Protection Department in a timely manner (Newly Added).

4.5 Equipment Management Department / Human Resources Department / Administration Department / Finance Department (Omitted, retain original responsibilities, supplemented with "cooperate in revising standardized documents")

4.6 All Employees (Including Contractors)

- Proactively identify HSE non-conformities/observations in their posts/operations (e.g., "non-standard PPE wearing", "abnormal equipment noise") and report them to the department head or the Quality, Safety and Environmental Protection Department in a timely manner;
- Participate in the implementation of CAPA measures for their own posts (e.g., learning new procedures, participating in training, implementing new operational processes);
- Cooperate in CAPA verification: provide records related to measure implementation (e.g., training attendance, equipment maintenance records) and accept inquiries from verifiers;
- Implement formulated preventive measures to avoid potential non-conformities (Newly Added).

5 Work Procedures

5.1 Identification, Reporting and Immediate Disposal of HSE Non-Conformities

5.1.1 Identification Channels and Methods (Supplemented with New Sources)

1. Daily Inspections: All departments conduct regular/irregular inspections in accordance with the *HSE Inspection Management Procedure* (e.g., daily patrols by the Warehousing

Center, monthly equipment inspections by the Equipment Management Department), and record non-conformities immediately upon discovery;

2. Accident/Incident Analysis: Extract non-conformities from accident/incident investigations in accordance with the *HSE Accident and Incident Reporting, Investigation and Handling Management Procedure*;
3. System Audits: Non-conformities identified in internal audits (once a year) and external audits (once every 2 years);
4. Compliance Evaluation: Conduct annual HSE compliance evaluations to identify non-conformities caused by updated laws and standards;
5. Employee/Stakeholder Feedback: Collect non-conformity information through employee HSE suggestion boxes, complaints from nearby residents, and feedback from contractors;
6. Additional Channels: Issues identified during calibration/maintenance of monitoring equipment (e.g., "unqualified pressure relief valve calibration"), new risks identified in change management (e.g., "unassessed operational risks from new equipment introduction"), abnormal trends in HSE performance data (e.g., "20% monthly increase in equipment failure frequency").

5.1.2 Non-Conformity Classification (Newly Added)

Classification	Judgment Criteria	Corresponding CAPA Priority
Serious Non-Conformity	Systematic/regional management failure (e.g., "no leakage prevention facilities for hazardous chemicals"), which may lead to severe consequences	High
General Non-Conformity	Isolated/occasional failure (e.g., "single instance of non-standard PPE wearing"), affecting only local areas	Medium
Observation/Improvement Opportunity	Does not constitute a non-conformity but has room for improvement (e.g., "training materials	Low/Continuous Improvement

	can be supplemented with cases")	
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5.1.3 Recording and Reporting

1. After discovering an HSE non-conformity/observation, the discoverer or responsible department shall fill out the *HSE Non-Conformity Report Form* (Appendix A) within 24 hours, including:
 - Description of the non-conformity (time, location, specific situation, e.g., "Loose bolts on Shelf No. 2 in Warehouse Area A on X date X month 2026");
 - Source channel (e.g., "daily inspection", "accident investigation", "calibration record");
 - Preliminary impact analysis (e.g., "may cause shelf collapse and object strike");
 - Classification determination (Serious/General/Observation);
2. Submit the form to the Quality, Safety and Environmental Protection Department; for emergency situations (e.g., "hazardous chemical leakage"), oral reporting may be made first, followed by supplementary written records within 24 hours.

5.1.4 Immediate Measures (Newly Added)

For existing non-conformities (especially Serious/General Non-Conformities), the responsible department shall take the following measures immediately (≤ 1 hour):

1. Control the Situation: e.g., closing hazardous chemical valves, stopping operation of faulty equipment, evacuating affected personnel;
2. Protect the Site: Setting up warning zones and preserving accident/non-conformity traces (e.g., leakage residues, faulty equipment parts) to facilitate subsequent investigations;
3. Mitigate Impacts: e.g., using absorbent cotton to handle minor hazardous chemical leakage, providing initial first aid to injured personnel;
4. Record the implementation of immediate measures in the *HSE Non-Conformity Report Form* as the basis for subsequent investigations.

5.1.5 Assessment and Prioritization

1. Within 48 hours of receiving the form, the Quality, Safety and Environmental Protection Department shall organize relevant departments (e.g., jurisdictional department, technical department) to conduct an assessment and determine:
 - Impact Level: High (may cause severe injury/death, major property loss, serious pollution), Medium (may cause minor injury, general property loss, minor pollution), Low (no personnel injury, minimal loss, no environmental impact);
 - Occurrence Probability: High (≥ 1 time per week), Medium (1-3 times per month), Low (≤ 1 time per quarter);
2. Determine CAPA priority based on "Classification + Impact Level + Occurrence Probability" (Adjusted and Optimized):

Priority	Judgment Criteria (Meet Any One)	Handling Time Limit Requirement
High	Serious Non-Conformity (regardless of probability); General Non-Conformity with Medium Impact Level + High Occurrence Probability	Initiate CAPA plan within 24 hours, complete implementation within 7 days
Medium	General Non-Conformity with Medium Impact Level + Medium/Low Occurrence Probability; General Non-Conformity with Low Impact Level + High Occurrence Probability	Initiate CAPA plan within 3 days, complete implementation within 30 days
Low	Observations; General Non-Conformity with Low Impact Level + Low Occurrence Probability	Initiate improvement plan within 7 days, complete implementation within 90 days

1. Record the assessment results in the *HSE Non-Conformity and CAPA Ledger* and notify the responsible department.

5.2 Root Cause Analysis (Supplemented and Optimized)

5.2.1 Analysis Organization (Retain Original, Supplemented with "Observations Analyzed by Departments Themselves")

- High-Priority/Serious Non-Conformities: The Quality, Safety and Environmental Protection Department takes the lead in establishing an analysis team (members include the jurisdictional department head, technical experts, and Human Resources Department), with the Management Representative as the team leader;
- Medium-Priority/General Non-Conformities: The Quality, Safety and Environmental Protection Department coordinates, the jurisdictional department takes the lead, and technical personnel participate;
- Low-Priority/Observations: The jurisdictional department organizes the analysis independently, and the Quality, Safety and Environmental Protection Department provides methodological guidance.

5.2.2 Analysis Methods (Supplemented with New Methods)

1. 5Why Analysis: Continuously ask "why" for non-conformities until the root cause is identified (see Appendix B for examples);
2. Fishbone Diagram Analysis: Sort out causes from six dimensions: "Man, Machine, Material, Method, Environment, Measurement" (see Appendix B for examples);
3. Fault Tree Analysis (FTA) (Newly Added): For complex non-conformities (e.g., "continuous failures of multiple pieces of equipment"), identify the combined causes of failures through logical modeling;
4. Brainstorming (Newly Added): Organize cross-post personnel to conduct divergent discussions to identify potential causes and avoid omissions from a single perspective;
5. Failure Mode and Effects Analysis (FMEA): For potential non-conformities, analyze failure modes and their effects to identify root causes in advance.

5.2.3 Analysis Requirements (Newly Added, Clarify Cause Levels)

The analysis shall clarify three levels of causes and avoid staying at the superficial level:

- Direct Cause: The behavior/state that directly leads to the non-conformity (e.g., "bolts not tightened", "driver fatigue driving");
- Indirect Cause: Defects in management/processes (e.g., "failure to inspect bolts", "failure to arrange driver rest");
- Root Cause: Systematic problems at the system level (e.g., "failure to specify inspection frequency in the maintenance system", "failure to specify rest requirements in transportation procedures");

After the analysis, form the *HSE Non-Conformity Root Cause Analysis Report* (Appendix C) and submit it to the Quality, Safety and Environmental Protection Department for review.

5.3 CAPA Plan Formulation and Approval (Supplemented and Optimized)

5.3.1 Plan Formulation Requirements (Integrated with New Principles)

CAPA plans shall meet both the "SMART Principle" and the following principles (Newly Added):

- Targeted: Accurately address the root cause, avoiding "vague statements" (e.g., for "system loopholes", specify the revised clauses instead of "improving the system");
- Feasible: Technically achievable and resource-available (e.g., "adding leakage prevention facilities" requires confirmation of budget and site);
- Effective: Capable of completely eliminating the cause instead of "temporary mitigation" (e.g., for "insufficient training", optimize materials + assessments instead of "only increasing training frequency");

- Economical: Cost matching the risk (e.g., "low-risk observations" do not require high resource investment);

The plan shall specify: measure type (corrective/preventive), content, responsible department/person, completion time limit, and verification standards.

5.3.2 Approval Authority (Combined with New Classification)

CAPA Type	Formulating Department	Reviewing Department	Approving Department
High-Priority/Serious Non-Conformity	Responsible Department	Quality, Safety and Environmental Protection Department	Management Representative (review) → Company Top Management (approval)
Medium-Priority/General Non-Conformity	Responsible Department	Quality, Safety and Environmental Protection Department	Management Representative
Low-Priority/Observation	Responsible Department	Quality, Safety and Environmental Protection Department	Jurisdictional Department Head
System Change/Major Resource Involvement	Responsible Department	Quality, Safety and Environmental Protection Department	Company Top Management

Approved CAPA plans shall be recorded in the *HSE Non-Conformity and CAPA Ledger* (Appendix D), and the Quality, Safety and Environmental Protection Department shall issue them to the responsible department simultaneously.

5.4 CAPA Measure Implementation and Tracking (Supplemented and Optimized)

5.4.1 Implementation Requirements (Supplemented with "Resource Guarantee")

- The responsible department shall advance the plan in accordance with the schedule and report progress to the Quality, Safety and Environmental Protection Department regularly (daily for High Priority, weekly for Medium Priority, biweekly for Low Priority);
- Retain evidence during implementation (e.g., training attendance, revised system versions, equipment inspection reports) as the basis for verification;
- For external resources required (e.g., procurement, training instructors), coordinate with relevant departments (e.g., Procurement Department, Human Resources Department) in advance to ensure timely resource availability (Newly Added);
- If completion cannot be achieved on time due to objective reasons (e.g., delayed external resources), apply for an extension 3 days in advance, explain the reasons and new time limit, and adjust only after approval.

5.4.2 Implementation Monitoring (Supplemented with "Department Self-Tracking")

Establish a "two-tier tracking" mechanism (Newly Added):

1. Department Self-Tracking: The responsible department head checks the progress of CAPAs in the department daily/weekly and resolves implementation issues (e.g., "training venue conflicts");
2. Quality, Safety and Environmental Protection Department Tracking: Track progress through reviewing progress reports, on-site inspections, and document verification; for overdue CAPAs without valid reasons, issue the *CAPA Supervision Notice* (Appendix E), specifying rectification requirements and overdue responsibilities (e.g., deducting HSE performance scores).

5.5 CAPA Effect Verification and Closure (Supplemented and Optimized)

5.5.1 Verification Timing and Methods (Supplemented with New Methods)

Measure Type	Verification Timing	Core Verification Methods (Newly Added)
System Revision	1 month after system issuance	Review system clauses, interview employees on awareness, check implementation records
Training	15 days after training + 3-month long-term	Assessment scores, on-site operational

	verification	observation, statistics of subsequent violation frequency
Equipment/Facility	7 days after installation/maintenance + quarterly review	Equipment testing, functional testing, statistics of operational failure frequency
Operational Specification	1 month after implementation	On-site observation of operations, review of operation records, employee interviews

5.5.2 Verification Standards (Newly Added, Clarify Judgment Dimensions)

Verification shall use the *CAPA Measure Effect Verification Checklist* (Appendix F) and judge from four dimensions:

1. Non-Conformity Elimination: Whether the original non-conformity phenomenon has disappeared (e.g., "loose bolts" are qualified in subsequent inspections);
2. Root Cause Control: Whether the system-level issues causing non-conformities have been resolved (e.g., "system loopholes" have been revised and implemented);
3. No Recurrence: No similar non-conformities occur during the verification period (e.g., "no operational violations after training");
4. Performance Improvement: Whether relevant HSE performance has improved (e.g., "reduction in equipment failure frequency", "decrease in complaints");

If verification is qualified, proceed to closure; if unqualified, re-analyze the cause and revise the CAPA plan.

5.6 Measure Standardization and Documentation (Newly Added, Integrated with New Content 4.7)

5.6.1 Document Revision

For verified effective CAPA measures, update relevant documents simultaneously to avoid "disconnection between measures and documents":

1. System Documents: e.g., "revise the *Warehouse Facility Maintenance System and Transportation Operation Procedures*" to ensure consistency between systems and measures;
2. Operational Procedures: e.g., "update crane operation steps" and "supplement hazardous chemical leakage disposal procedures";

3. Record Forms: e.g., "add shelf bolt inspection records" and "driver rest check-in forms";

Document revisions shall be implemented in accordance with the *HSE Document and Record Control Procedure* to ensure version control.

5.6.2 Experience Promotion

1. Internal Promotion: Incorporate typical effective measures (e.g., "hazardous chemical leakage prevention transformation", "new employee training optimization") into the *HSE Best Practice Library*, organize all departments to learn, and avoid repeated occurrence of similar problems in different departments;
2. Training Transformation: Incorporate CAPA cases (e.g., "bolt looseness rectification") into employee HSE training materials to improve overall risk awareness;
3. Continuous Optimization: Review the implementation effect of standardized measures quarterly and incorporate them into the next round of CAPA improvements.

5.7 Continuous Improvement (Retain Original, Supplemented with "Data Application")

The Quality, Safety and Environmental Protection Department conducts statistical analysis of CAPA data quarterly, focusing on:

- CAPA Completion Rate: $\geq 98\%$ for High Priority, $\geq 95\%$ for Medium Priority, $\geq 90\%$ for Low Priority;
- Reasons for Non-Closure: Shirking of responsibilities, insufficient resources, unreasonable measures;
- Root Cause Distribution: Proportion of "system loopholes", "insufficient training", "equipment aging", etc.;
- Experience Reuse Rate: Promotion and application of standardized measures in multiple departments;

Compile the *Annual CAPA Management Review Report* annually, use it as input for HSE management review, and promote continuous improvement of the system.

6 Related Documents (Supplemented with New Documents)

- *Law of the People's Republic of China on Work Safety*
- *HSE Management System Requirements*
- *HSE Accident and Incident Reporting, Investigation and Handling Management Procedure*
- *HSE Inspection and Audit Management Procedure*
- *HSE Document and Record Control Procedure*
- *HSE Training Management Procedure*

- *Contractor HSE Management Procedure*
- *HSE Internal Audit Management Procedure* (Newly Added, corresponding to audit sources)
- *HSE Management Review Control Procedure* (Newly Added, corresponding to management review sources)
- *HSE Performance Measurement and Monitoring Management Procedure* (Newly Added, corresponding to performance data sources)

7 Records (Supplemented with New Records)

- *HSE Non-Conformity Report Form* (Appendix A)
- *HSE Non-Conformity Root Cause Analysis Report* (Appendix C)
- *HSE Corrective and Preventive Actions (CAPA) Plan* (original Appendix C, adjusted to Appendix G)
- *HSE Non-Conformity and CAPA Ledger* (Appendix D)
- *CAPA Supervision Notice* (Appendix E)
- *HSE CAPA Verification and Closure Application Form* (original Appendix E, adjusted to Appendix H)
- *CAPA Measure Effect Verification Checklist* (Newly Added, Appendix F)
- *Annual CAPA Management Review Report* (original Appendix G, adjusted to Appendix I)

8 Appendices (Integrated with New Appendices, Adjusted Numbering)

Appendix A: HSE Non-Conformity Report Form (Newly Added, Integrated with Original Record Elements)

Report No.	CAPA-REC-2026001	Date of Completion	X month X day, 2025
Non-Conformity Information	Occurrence Time	X hour X minute, X month X day, 2025	Occurrence Location
	Identification Channel	Equipment Calibration (New Source)	Classification Determination
	Description	The height of the leakage prevention	Associated Business

		weir in the hazardous chemical warehouse is only 10cm (standard ≥ 30 cm), posing a risk of leakage diffusion	
Record of Immediate Measures	1. Temporarily heighten the weir (using sandbags); 2. Restrict the storage volume of hazardous chemicals in this area; 3. Set up warning signs	Implementer	Zhang San (Warehousing Center)
Preliminary Impact Analysis	Impact Level: High (leakage may pollute soil); Occurrence Probability: Medium (hazardous chemicals stored daily); Priority: High		
Attachment List	On-site photos (No. ZP-2025001), equipment calibration report (No. JL-2025001)		
Reporter's Signature	Zhang San	Receiver's Signature	Li Si (Quality, Safety and Environmental Protection Department)
Receipt Date	X month X day, 2025		

Appendix B: Root Cause Analysis Method Guide (Newly Added)

B1 5Why Analysis Example

Problem: Insufficient height of the leakage prevention weir in the hazardous chemical warehouse

1. Why1: Why is the weir height insufficient? → Constructed without following standards;
2. Why2: Why not constructed following standards? → Construction drawings did not mark the standard weir height;
3. Why3: Why not marked on the drawings? → Designers did not reference the national standard for hazardous chemical storage (GB 15562.2);
4. Why4: Why not reference the national standard? → The design review process did not require verification of relevant national standards;
5. Why5: Why no requirement in the review process? → The *Design Management System* did not specify clauses for verifying national standards;

Root Cause: The *Design Management System* failed to specify that design reviews must verify national standards related to hazardous chemical storage.

B2 Fishbone Diagram Analysis (Man/Machine/Material/Method/Environment/Measurement)

Problem: Transportation vehicle rear-end collision accident

- Man: Driver fatigue driving, failure to maintain a safe distance;
- Machine: Vehicle brake system not inspected regularly;
- Material: None (no material-related causes);
- Method: The *Transportation Operation Procedure* did not specify a 4-hour rest requirement;
- Environment: Poor visibility during night driving;
- Measurement: No driver fatigue monitoring equipment;

Root Cause: Lack of rest clauses in the *Transportation Operation Procedure* and no fatigue monitoring measures.

Appendix C: HSE Non-Conformity Root Cause Analysis Report (Adjusted, Clarified Cause Levels)

Report No.	CAPA-ANA-2025001	Analysis Date	X month X day, 2025
Non-Conformity Information	Report No.	CAPA-REC-2025001	Classification

	Description	Insufficient height of the leakage prevention weir in the hazardous chemical warehouse (10cm < standard 30cm)	
Analysis Team	Team Leader: Li Si (Quality, Safety and Environmental Protection Department)	Members: Zhang San (Warehousing Center), Wang Wu (Design Department)	
Analysis Process	Methods: 5Why Analysis + Brainstorming 1. Direct Cause: Construction not in accordance with standards (weir height 10cm); 2. Indirect Cause: Design drawings did not mark the standard height, and the review failed to identify this; 3. Root Cause: The <i>Design Management System</i> did not require verification of national standards for hazardous chemical storage (GB 15562.2) during design/review.		
Supporting Evidence	1. Construction drawings (no weir height marking); 2. <i>Design Management System</i> (2024 version, Chapter 6		

	has no clauses for national standard verification); 3. GB 15562.2-2019 <i>Environmental Protection Graphical Marks - Solid Waste Storage (Disposal) Sites</i> requiring weir height $\geq 30\text{cm}$.		
Analysis Conclusion	Root Cause: The <i>Design Management System</i> has loopholes and fails to cover national standard verification requirements for hazardous chemical storage facilities.		
Signature	Li Si, Zhang San, Wang Wu	Review Opinion	Quality, Safety and Environmental Protection Department: Agree with the cause determination. Signature: Zhao Liu Date: X month X day, 2025

Appendix D: HSE Non-Conformity and CAPA Ledger (Adjusted, Supplemented with Classification Column)

Serial No.	Report No.	Classification	Priority	Root Cause	CAPA Plan No.	Responsible Department	Planned Completion Date	Actual Completion Date	Verification Result	Status
1	202500	Serious Non-	High	Design	CAPA-	Design Department	2025.05.30	2025.05.28	Qualified	Closed

	1	Conformity		system failed to verify national standards	Plan-001	ment				
2	2025002	General Non-Conformity	Medium	Lack of driver rest clauses	CAPA-Plan-002	Transportation Department	2025.06.15	-	-	In Implementation
3	2025003	Observation	Low	Insufficient cases in training materials	CAPA-Plan-003	Human Resources Department	2025.07.20	-	-	In Implementation

Appendix E: CAPA Supervision Notice (Retain Original, Supplemented with Classification Reference)

Notice No.	CAPA-SP-2025001	Issuance Date	X month X day, 2025
Supervised Object	Design Department (Responsible Person: Wang Wu)	Associated Plan	CAPA-Plan-001
Supervision Reason	This plan corresponds to a "Serious Non-Conformity" (High Priority), with the original planned		

	completion date of 2025.05.30, now overdue for 2 days, and no extension application submitted.		
Non-Completion Status	The measure "Revise Chapter 6 of the <i>Design Management System</i> to add national standard verification clauses" has not submitted the revised draft.		
Supervision Requirements	1. Submit the revised draft before X month X day, 2025; 2. Report progress before 17:00 daily; 3. Overdue will result in a 5-point deduction from the Design Department's HSE performance.		
Issuer's Signature	Zhao Liu (Quality, Safety and Environmental Protection Department)	Receiver's Signature	Wang Wu

Appendix F: CAPA Measure Effect Verification Checklist (Newly Added)

Verification No.	CAPA-VAL-2025001	Associated Plan	CAPA-Plan-001	Verification Date	X month X day, 2025
Verification Item	Verification Content	Verification Method	Verification Standard	Result	Remarks

1	Completion of system revision	Review system text	Chapter 6 adds "national standard verification clauses"	Qualified	
2	Designers' awareness of new requirements	Interview (3 persons)	100% can describe the verification process	Qualified	
3	Implementation of verification in new drawings	Spot-check 2 new drawings	Both have national standard verification records	Qualified	
4	Recurrence of similar non-conformities	Review reports in the past 1 month	No similar "non-compliance with national standards in construction" issues	Qualified	
Overall Conclusion	Measures are effective, the root cause of non-conformities has been eliminated, and closure is approved.				
Verifier's Signature	Li Si (Quality, Safety and Environmental Protection Department)	Responsible Department Confirmation	Wang Wu (Design Department)		

Appendix G: HSE Corrective and Preventive Actions (CAPA) Plan (Retain Original, Supplemented with Principle Reference)

Plan No.	CAPA-Plan-001	Associated Report No.	2025001	Classification	Serious Non-Conformity
Basic Information	Measure Type	Corrective Action	Priority	High	Responsible Department
	Planned Completion Date	2025.05.30	Verification Standard	1. Revised system version issued, Chapter 6 includes national standard verification clauses; 2. 100% awareness of designers; 3. 100% verification rate of new drawings	
Measure Content	Serial No.	Specific Measures	Implementation Steps	Completion Time Limit	Cooperating Department
	1	Revise the <i>Design Management System</i>	1. Collect relevant national standards such as GB 15562.2; 2. Revise Chapter 6 clauses; 3. Organize	2025.05.25	Quality, Safety and Environmental Protection Department

			review and issuance		
	2	Special training for designers	1. Develop training materials; 2. Organize training for 10 persons; 3. Conduct assessment and acceptance	2025.05.30	Human Resources Department
Approval Opinion	Quality, Safety and Environmental Protection Department: Measures comply with the "targeted and feasible" principles and can be implemented. Signature: Zhao Liu Date: 2025.05.05				
	Company Top Management : Approved, prioritize resource guarantee. Signature: Liu Qi Date: 2025.05.06				

Appendix H: HSE CAPA Verification and Closure Application Form (Retain Original, Supplemented with Checklist Reference)

Application No.	CAPA-Close-2025001	Application Date	X month X day, 2025
Associated Information	Plan No.	CAPA-Plan-001	Responsible Department
CAPA Implementation Status	1. The <i>Design Management System</i> has been revised (No. ZD-2025001), with Chapter 6 adding national standard verification clauses; 2. Training for 10 persons organized, with 100% assessment pass rate; 3. 2 new drawings spot-checked, both with verification records.		
Verification Evidence	1. Revised system version; 2. Training attendance + assessment papers; 3. <i>CAPA Measure Effect Verification Checklist</i> (No. CAPA-VAL-2025001)		
Department Self-Inspection Opinion	Measures completed, meeting verification standards, apply for closure. Signature: Wang Wu Date: X month X day, 2025		

Verification Department Opinion	Verified as qualified based on the checklist, approve closure. Quality, Safety and Environmental Protection Department: Li Si Date: X month X day, 2025		
Approval Opinion	Management Representative: Approve closure. Signature: Sun Ba Date: X month X day, 2025		

Appendix I: Annual CAPA Management Review Report (Retain Original, Supplemented with Classification Statistics)

Report No.	CAPA-REV-2025	Review Period	January-December 2025
I. Overview	1. Non-Conformity Statistics: A total of 45 items (5 Serious, 25 General, 15 Observations); 2. CAPA Completion Rate: 100% for High Priority, 96% for Medium Priority, 92% for Low Priority; 3. Root Cause Distribution: 35% system loopholes, 25% insufficient training, 20% equipment issues, 20% others.		

II. Improvement Suggestions	1. For "system loopholes", conduct a system review in Q1 2026; 2. For "observations", establish a lightweight improvement process to reduce resource investment.		
Approval Opinion	Company Top Management: Approved, incorporate into the 2026 HSE plan. Signature: Liu Qi Date: 2025.12.30		

Appendix J: CAPA Level Determination Standards (Newly Added, Integrated with New Content E1/E2)

J1 Severity Level (Corresponding to Classification)

Level	Judgment Criteria	Resource Requirement
Level A (Major)	Serious Non-Conformity, requiring company-level coordination, involving system changes/major funds (≥RMB 500,000)	Company-coordinated resources
Level B (Medium)	General Non-Conformity, solvable at the department level, requiring special funds (RMB 100,000-500,000)	Department-applied special resources
Level C (General)	Observations/General Non-Conformities, solvable at the	Department's daily resources

	team/individual level, funds ≤RMB 100,000	
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J2 Urgency Level

Urgency Level	Judgment Criteria	Response Time Limit
Urgent	Serious Non-Conformity, which may cause immediate accidents (e.g., "no leakage prevention facilities for hazardous chemicals")	Formulate plan within 24 hours
Important	General Non-Conformity, which may expand in the short term (e.g., "unrepaired equipment failures")	Formulate plan within 7 days
Routine	Observations/Low-Risk Non-Conformities, no immediate risks (e.g., "training material optimization")	Formulate plan within 15 days

9 Supplementary Provisions

9.1 This procedure shall be interpreted by the Company's Quality, Safety and Environmental Protection Department.

9.2 This procedure shall come into force on the date of issuance. In case of any inconsistency between the existing HSE corrective and preventive action-related regulations and this procedure, this procedure shall prevail.

9.3 This procedure shall be reviewed once a year, or revised in a timely manner according to updates to national laws and regulations, changes in the Company's business (e.g., new

hazardous chemical categories, overseas project expansion), and rectification requirements for major HSE incidents.

9.4 For matters not covered in this procedure, refer to the *HSE Management System Requirements* and relevant laws and regulations.