

Incident Analysis Matrix for Systematically Identifying Causal Factors & Corrective Actions;  
Contributing incident factors: Equipment, Environment, People, and Management.

**1) EQUIPMENT**

**WAS A HAZARDOUS CONDITION[S] A CONTRIBUTING FACTORS**

Y	N	Causal Factors	Comment	Possible Corrective Actions	Comment
		1.1 Did any defect(s) in equipment/tool(s)/material contribute to hazardous condition(s)?		Review procedure for inspecting, reporting, maintaining, repairing, replacing, or recalling defective equipment/tool (s) material used.	
		1.2 Was the hazardous condition(s) recognized?  If yes, answer A and B. If no, proceed to 1.3.  Was the hazardous conditions(s) reported?  Was employee(s) informed of the hazardous condition(s) and the job procedures for dealing with it as an interim measure?		Perform job safety analysis. Improve employee ability to recognize existing or potential hazardous conditions. Provide test equipment, as required, to detect hazard. Review any change or modification of equipment/tool(s)/material.  Train employees in reporting procedures. Stress individual acceptance of responsibility.  Review job procedures for hazard avoidance. Review supervisory responsibility. Improve supervisor/employee communications. Take action to remove or minimize hazard.	
		1.3 Was there an equipment inspection procedure(s) to detect the hazardous condition(s)?		Develop and adopt procedures (for example, an inspection system) to detect hazardous conditions. Conduct test.	
		1.4 Did the existing equipment inspection procedure(s) detect the hazardous condition(s)?		Review procedures. Change frequency or comprehensiveness. Provide test equipment as required. Improve employee ability to detect detects and hazardous conditions. Change job procedures as required.	
		1.5 Was the correct equipment tool(s)/material used?		Specify correct equipment tool(s)/material in job procedures.	
		1.6 Was the correct equipment/tool(s) material readily available?		Provide correct equipment/tool(s)/material. Review purchasing specifications and procedures. Anticipate future requirements.	

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		1.7 Did employee(s) know where to obtain equipment/ tool(s)/material required for the job?		Review procedures for storage, access, delivery, or distribution. Review job procedures for obtaining equipment/tool(s)/material.	
		1.8 Was substitute equipment/ tool(s)/material used in place of correct one?		Provide correct equipment/tool(s)/material. Warn against use of substitutes in job procedures and in job instruction.	
		1.9 Did the design of the equipment/tool(s) create operator stress or encourage operator error?		Review human factors engineering principles. Alter equipment tool(s) to make it more compatible with human capability and limitations. Review purchasing procedures and specifications. Check out new equipment and job procedures involving new equipment before putting into service. Encourage employees to report potential hazardous conditions created by equipment design	
		1.10 Did the general design or Quality of the equipment/ tool(s) contribute to a hazardous condition?		Review criteria in codes, standards, specifications, and regulations. Establish new criteria as required	
		1.11 List other causal factors in "Comment" column.			

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**2) ENVIRONMENT**

**WAS THE LOCATION OF EQUIPMENT/ MATERIALS/EMPLOYEE(S) A CONTRIBUTING FACTOR?**

Y	N	Causal Factors	Comment	Possible Corrective Actions	Comment
		2.1 Did the location /position of equipment/ material/ employee(s) contribute to a hazardous condition?		Perform job safety analysis. Review job procedures. Change the location, position, or layout of the equipment. Change position of employee(s). Provide guardrails, barricades, barriers, warning lights, signs, or signals.	
		2.2 Was the hazardous condition recognized?  If yes, answer A and B. If no, proceed to 2.3.  A Was the hazardous condition reported?  B. Was employee(s) informed of the job procedures for dealing with the hazardous condition as an interim action?		Perform job safety analysis. Improve employee ability to recognize existing or potential hazardous conditions. Provide test equipment, as required, to detect hazard. Review any change or modification of equipment/tools/materials.  Train employees in reporting procedures. Stress individual acceptance of responsibility.  Review job procedures for hazard avoidance. Review supervisory responsibility. Improve employee/supervisor communications. Take action to remove or minimize hazard.	
		2.3 Was employee(s) supposed to be in the vicinity of the equipment/material?		Review job procedures and instruction. Provide guardrails, barricades, barriers, warning lights, signs, or signals.	
		2.4 Was the hazardous condition created by the location/position of equipment/material visible to employee(s)?		Change lighting or layout to increase visibility of equipment. Provide guardrails, barricades, barriers, warning lights, signs or signals, floor stripes, etc.	
		2.5 Was there sufficient workspace?		Review workspace requirements and modify as required.	

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		2.6 Were environmental conditions a contributing factor (for example, illumination, noise levels, air contaminant, temperature extremes, ventilation, vibration, radiation)?		Monitor, or periodically check, environmental conditions as required. Check results against acceptable levels. Initiate action for those found unacceptable	
		2.7 List other causal factors in Comment column.			

**3) PEOPLE**

**WAS THE JOB PROCEDURE(S) USED A CONTRIBUTING FACTOR?**

Y	N	Causal Factors	Comment	Possible Corrective Actions	Comment
		<p>3.1 Was there a written or known procedure (rules) for this job?</p> <p>If yes, answer A, B, and C. If no, proceed to 3.2.</p> <p>A. Did job procedures anticipate the factors that contributed to the accident? B. Did employee(s) know job procedure? C. Did employee(s) deviate from the known job procedure?</p>		<p>Perform job safety analysis and develop safe job procedures.</p> <p>Perform job safety analysis and change job procedures.</p> <p>Improve job instruction. Train employees in correct job procedures</p> <p>Determine why. Encourage all employees to report problems with an established procedure to supervisor. Review job procedure and modify if necessary. Counsel or discipline employee. Provide closer supervision.</p>	
		3.2 Was employee(s) mentally and physically capable of performing the job?		Review employee requirements for the job. Improve employee selection. Remove or transfer employees who are temporarily, either mentally or physically, incapable of performing the job.	
		3.3 Were any tasks in the job		Change job design and procedures.	

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		too difficult to perform (for example, excessive concentration or physical demands)?			
		3.4 Is the job structured to encourage or require deviation from job procedures (for example, incentive, piecework, work pace)?		Change job design and procedures.	
		3.5 List other causal factors in 'Comment' column			
		3.6 Was lack of personal protective equipment or emergency equipment a contributing factor in the injury?  If yes, answer the following If no, proceed to Part 4.  <b>The following causal factors relate to the injury</b>			
		3.7 Was appropriate personal protective equipment (PPE) specified for the task or job?  If yes, answer A, B, and C. If no, proceed to 3.8.  A. Was appropriate PPE available?  B. Did employee(s) know that wearing specified PPE was required?		Review methods to specify PPE requirements.  Provide appropriate PPE. Review purchasing and distribution procedures.  Review job procedures, Improve job instruction.  Improve job instruction.	
		C Did employee(s) know how to use and maintain the PPE?			

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		3.8 Was the PPE used properly when the injury occurred?		Determine why and take appropriate action. Implement procedures to monitor and enforce use of PPE.	
		3.9 Was the PPE adequate?		Review PPE requirements. Check standards, specifications, and certification of the PPE	
		3.10 Was emergency equipment specified for this job (for example, emergency showers, eyewash fountains)?  If yes, answer A, B, and C. If no, proceed to Part 4.  A. Was emergency equipment readily available?  B. Was emergency equipment properly used?  C. Did emergency equipment function properly?		Provide emergency equipment as required  Install emergency equipment at appropriate locations.  Incorporate use of emergency equipment in job procedures.  Establish inspection/monitoring system for emergency equipment. Provide for immediate repair of defects.	
		3.11 List other causal factors in Comment column.			

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**4) MANAGEMENT**

**WAS A MANAGEMENT SYSTEM DEFECT A CONTRIBUTING FACTOR?**

Y	N	Causal Factors	Comment	Possible Corrective Actions	Comment
		4.1 Was there a failure by supervision to detect, anticipate, or report a hazardous condition?		Improve supervisor capability in hazard recognition and reporting procedures.	
		4.2 Was there a failure by supervision to detect or correct deviations from job procedure?		Review job safety analysis and job procedures. Increase supervisor monitoring. Correct deviations.	
		4.3 Was there a supervisor/employee review of hazards and job procedures for tasks performed infrequently? (Not applicable to all accidents.)		Establish a procedure that requires a review of hazards and job procedures (preventive actions) for tasks performed infrequently.	
		4.4 Was supervisor responsibility and accountability adequately defined and understood?		Define and communicate supervisor responsibility and accountability. Test for understandability and acceptance.	
		4.5 Was supervisor adequately trained to fulfill assigned responsibility in accident prevention?		Train supervisors in accident prevention fundamentals.	
		4.6 Was there a failure to initiate corrective action for a known hazardous condition that contributed to this accident?		Review management safety policy and level of risk acceptance. Establish priorities based on potential severity and probability of recurrence. Review procedure and responsibility to initiate and carry out corrective actions. Monitor progress.	
		4.7 List other causal factors in Comment column.			