

# Section: PS 818-F

## Indirect and Root Cause Reference Guide

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Public Service Commission

The guide below is intended as a reference guide for determining the indirect and root causes of incidents.

1. INDIRECT CAUSES		
<p><b>Substandard Actions:</b></p> <ul style="list-style-type: none"> <li>➤ Client behavior</li> <li>➤ Improper lifting</li> <li>➤ Improper loading or placement</li> <li>➤ Inadequately secured</li> <li>➤ Inadequate warning</li> <li>➤ Misbehavior/horseplay</li> <li>➤ Making safety devices inoperable or removing safety devices</li> <li>➤ Not using PPE or using it improperly</li> <li>➤ Operating at improper speed</li> <li>➤ Operating equipment without training</li> <li>➤ Safe Operating Procedure/Guideline or Safety Policy not followed</li> <li>➤ Servicing equipment in operation</li> <li>➤ Unnecessary haste</li> <li>➤ Using defective equipment</li> <li>➤ Using equipment improperly</li> </ul>	<p><b>Substandard Conditions:</b></p> <ul style="list-style-type: none"> <li>➤ Congested or restricted area</li> <li>➤ Defective tools, equipment or materials</li> <li>➤ Dust, smoke</li> <li>➤ Fire and explosion hazards</li> <li>➤ Gases, fumes, vapor</li> <li>➤ Hazardous substances (<i>WHMIS</i>)</li> <li>➤ High/low temperature</li> <li>➤ Improper storage</li> <li>➤ Inadequate guards or barriers</li> <li>➤ Inadequate ventilation</li> <li>➤ Inadequate warning system</li> <li>➤ Inadequate/excessive lighting</li> <li>➤ Infectious substances</li> <li>➤ Noise exposure</li> <li>➤ Poor housekeeping/disorder</li> <li>➤ Radiation exposure</li> <li>➤ Slippery, wet, icy</li> <li>➤ Weather</li> </ul>	<p><b>Substandard Vehicle, Machinery, Equipment and Tools, Material:</b></p> <ul style="list-style-type: none"> <li>➤ Improper or inadequate Personal Protective Equipment (PPE)</li> <li>➤ Inadequate fall protection</li> <li>➤ Inadequate guards or barriers</li> <li>➤ Inadequate maintenance</li> <li>➤ Inadequate tools or equipment</li> <li>➤ Not in good working condition</li> <li>➤ Not used according to operating instructions</li> <li>➤ Safety devices not operating</li> <li>➤ Wrong vehicle, machinery, equipment, tools or material used</li> </ul>
<p><b>Personal Factors:</b></p> <ul style="list-style-type: none"> <li>➤ Distractions</li> <li>➤ Fatigue</li> <li>➤ Improper motivation</li> <li>➤ Inadequate experience</li> <li>➤ Inadequate training</li> <li>➤ Medications/drugs/ alcohol</li> <li>➤ Physical limitations</li> <li>➤ Stress</li> </ul>	<p><b>Job Factors:</b></p> <ul style="list-style-type: none"> <li>➤ Abuse or misuse</li> <li>➤ Inadequate oversight/direction</li> <li>➤ Inadequate safe operating procedures/guidelines</li> <li>➤ Inadequate tools or equipment</li> <li>➤ Inadequate work standards</li> <li>➤ Inadequate maintenance</li> <li>➤ Inadequate resources</li> <li>➤ Inadequate supervision</li> <li>➤ Wear and tear</li> </ul>	
2. ROOT CAUSES	MANAGEMENT CONTROLS	INCIDENT CAUSATION MODELS (FISHBONE or 5 WHYS)
<p><b>System Design:</b></p> <ul style="list-style-type: none"> <li>➤ Inadequate hazard and risk identification process</li> <li>➤ Inadequate or lack of safe operating procedures, guidelines or safety policy</li> <li>➤ Lack of a training program</li> </ul> <p><b>System Implementation:</b></p> <ul style="list-style-type: none"> <li>➤ Allowing unsafe behaviours</li> <li>➤ Failure to report incident</li> <li>➤ Inadequate processes</li> <li>➤ Inadequate supervision</li> <li>➤ Inadequate workplace inspections</li> <li>➤ Insufficient supervisor training</li> <li>➤ Insufficient worker orientation</li> <li>➤ Insufficient worker training</li> <li>➤ Lack of accountability for safety infractions</li> <li>➤ Lack of an Incident analysis process</li> <li>➤ Lack of communication plan</li> <li>➤ Lack of emergency response plan</li> <li>➤ Lack of tool box/safety meetings</li> <li>➤ No action taken on recommended corrective actions</li> <li>➤ Safe operating procedures not enforced</li> </ul>	<ul style="list-style-type: none"> <li>➤ Emergency preparedness</li> <li>➤ General promotion</li> <li>➤ Health control</li> <li>➤ Hiring and job placement</li> <li>➤ Incident analysis</li> <li>➤ Incident investigations</li> <li>➤ Leadership and administration</li> <li>➤ Management training</li> <li>➤ Organizational rules</li> <li>➤ Personal communications</li> <li>➤ Planned inspections</li> <li>➤ Personal Protective Equipment (PPE)</li> <li>➤ Program evaluation systems/audits</li> <li>➤ Safety/Toolbox meeting(s)</li> <li>➤ Task analysis and procedures</li> <li>➤ Task observation</li> <li>➤ Worker orientation</li> <li>➤ Worker training</li> </ul>	<p><b>FISHBONE INCIDENT CAUSATION MODEL</b></p> <p>The diagram illustrates the Fishbone Incident Causation Model. A central horizontal line points to a yellow starburst labeled 'Incident'. Above the line, 'TASK/PROCEDURE' and 'MATERIALS/EQUIP' are connected to the main line by diagonal lines. From 'TASK/PROCEDURE', three lines branch out to 'Ergonomics', 'Procedures', and 'Nature of task'. From 'MATERIALS/EQUIP', three lines branch out to 'Tools', 'Equipment', and 'Nature of task'. Below the main line, 'ENVIRONMENT', 'PEOPLE', and 'ADMINISTRATIVE' are connected to the main line by diagonal lines. From 'ENVIRONMENT', three lines branch out to 'Weather', 'Lighting', and 'Obstacles'. From 'PEOPLE', three lines branch out to 'Skills', 'Ability', and 'Health'. From 'ADMINISTRATIVE', three lines branch out to 'Policy', 'Training', and 'Supervision'. Each of these three main categories (Environment, People, Administrative) has a 'Why?' label above it.</p> <p><b>Tasks/Procedure</b></p> <ul style="list-style-type: none"> <li>▪ Ergonomics</li> <li>▪ Safe work procedures</li> <li>▪ Condition changes</li> </ul> <p><b>Materials/Equipment</b></p> <ul style="list-style-type: none"> <li>▪ Appropriate tools/materials</li> <li>▪ Safety devices</li> <li>▪ Equipment failure</li> <li>▪ Machinery design/guarding</li> <li>▪ Hazardous substances</li> <li>▪ Substandard material</li> <li>▪ Personal Protective Equipment (PPE)</li> </ul> <p><b>Environment</b></p> <ul style="list-style-type: none"> <li>▪ Weather conditions</li> <li>▪ Housekeeping/clutter</li> <li>▪ Temperature</li> <li>▪ Lighting, Noise</li> <li>▪ Air contaminants</li> </ul> <p><b>People</b></p> <ul style="list-style-type: none"> <li>▪ Level of experience</li> <li>▪ Level of training</li> <li>▪ Physical capability</li> <li>▪ Health</li> <li>▪ Fatigue</li> <li>▪ Stress</li> </ul> <p><b>Administrative</b></p> <ul style="list-style-type: none"> <li>▪ Visible active management for support for safety</li> <li>▪ Safety policies</li> <li>▪ Enforcement of safety policies</li> <li>▪ Adequate supervision</li> <li>▪ Knowledge of hazards</li> <li>▪ Hazard corrective action</li> <li>▪ Preventive Maintenance</li> <li>▪ Regular audits</li> <li>▪ Communication</li> </ul>