



The **Line of Fire (LoF)** LSR occurs in conjunction with other activities, so key to managing LoF hazards is to build controls for LoF hazards into the planning and risk assessment processes for other activities- lifting, Working at Height, Energy Isolation, Driving and mobile equipment, moving heavy equipment/cargo and tools.





The purpose of this table is to:


- Clearly articulate Line of Fire related activities and associated hazards, which have the potential to cause personal or process safety incidents.
- Identify existing controls used to manage these activities with relevant SMS/other reference to support embedding LSR into existing SMS processes.

Activities	Hazards	Controls	Consequences
Lifting Operations 	<ul style="list-style-type: none"> • Moving objects • Loads falling from vehicles • Suspended load • Loose / dropped objects • Contact with overhead electrical cables • Falling objects • Collapsing structures, e.g. cranes falling 	<ul style="list-style-type: none"> • Barriers & exclusion zones • Instruction & training • Hierarchy of control, TRA & Toolbox talk (TBT) during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe. 	<ul style="list-style-type: none"> • hit by or caught under falling equipment • Hit/struck/crushed by moving lifting equipment or suspended objects • Electrocution from damaged electrical overhead cables.

Activities	Hazards	Controls	Consequences
<p>Working at Height</p> 	<ul style="list-style-type: none"> • Created openings • Unguarded holes, e.g. hatchways, inspection holes & pits • Falling objects • Working platform collapse or overturn 	<ul style="list-style-type: none"> • Selection & use of work equipment, e.g. edge protection, safety netting or air mats • Use of PPE: fall arrest systems • Barriers & exclusion zones • Means of escape in an emergency • Instruction & training • Hierarchy of control, TRA & TBT during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe. 	<ul style="list-style-type: none"> • Fall from height • Hit/struck/crushed by falling equipment or objects

Activities	Hazards	Controls	Consequences
<p>Energy Isolation / Breaking Containment</p> 	<ul style="list-style-type: none"> • Systems under pressure • Stored energy • Electrical Systems 	<ul style="list-style-type: none"> • Barriers & exclusion zones • Use of PPE: • Instruction & training • Hierarchy of control, TRA & TBT during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe. 	<ul style="list-style-type: none"> • Struck when pressure is unexpectedly released. • Sprayed or engulfed with unexpectedly released product (Chemicals) • Freeze burns from unexpectedly released product • Electrocution/Electrical burns/Arc flash

Activities	Hazards	Controls	Consequences
<p>Moving Equipment, Shifting Cargo</p> 	<ul style="list-style-type: none"> • Moving objects • Loads falling from vehicles • Crushing, shearing, entangling, trapping, hitting or abrading • Uncontrolled release of energy • Lines under tension 	<ul style="list-style-type: none"> • Barriers & exclusion zones • Instruction & training • Hierarchy of control, TRA & TBT during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe 	<ul style="list-style-type: none"> • struck by and/or caught in-between or under a moving object or energy source. • struck by moving machinery or vehicles. • struck by hydraulic fluid, steam or air. • struck by an object, either a controlled moving machine component or uncontrolled ejected material from a machine. • Struck by lashing equipment or snapping lines

Activities	Hazards	Controls	Consequences
<p>Driving</p> 	<ul style="list-style-type: none"> • Driving • Moving mobile equipment • Fatigue • Speeding • Weather • Road conditions 	<ul style="list-style-type: none"> • Instruction & training • Proximity & reversing alarms • Barriers/segregation • JRM • Hierarchy of control, TRA & TBT during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe 	<ul style="list-style-type: none"> • Struck/crushed by moving machinery mobile equipment or vehicles.

Activities	Hazards	Controls	Consequences
Use of Tools and Equipment (not a LSR, but source of LOF incidents)	<ul style="list-style-type: none"> • Electric shock, fire and explosion • Pieces flying off • Stored energy - tools under tension • Hazardous substances leak • Dropped tools & equipment • Damaged or faulty equipment 	<ul style="list-style-type: none"> • Barriers & exclusion zones • Guards • Instruction & training • Hierarchy of control, TRA & TBT during job planning & preparation. • Situational awareness & continual monitoring of surroundings. • Dynamic risk assessment • LSR during task execution. • Speak up and stop if unsafe 	<ul style="list-style-type: none"> • hands getting trapped. • Cuts & lacerations • Chemical or electrical burns (arc) • Electrocution