SAFETY PROMPTER – PROJECT-LEVEL HAZARD INSIGHT

The Safety Prompter helps teams quickly identify project-level hazards and high-risk activities before work begins. It uses the Energy Spectrum and CAP (Critical Activities Pack) framework to highlight significant exposures, applicable Life-Saving Rules, and required baseline controls.

HOW TO USE

- Enter basic project information (company, project, role, and task focus).
- Select applicable CAPs and hazards from the Energy categories.
- Submit to generate a project-level hazard overview.

WHAT YOU RECEIVE

A concise **Project Hazard Summary Report** outlining:

- Selected Energy categories and associated hazards,
- CAP requirements and minimum compliance expectations,
- Key OSHA / Life-Saving Rule references.

*If any CAP requirement is marked **"No"**, work should stop until the gap is addressed.*

SAFETY PROMPTER

e-SafetyPro – Safety Innovation Hub

Experience × Technology = Safer Outcomes

Company (Code | Name)

ESP | e-SafetyPro

Division / Department (Code | Name)

CNST-04 | Construction

Project / Site (Code | Name)

ESP-PRJ-001 | Substation Expansion

Location (optional)

PHL

Assessor Email

ivensky@me.com

Assessor Name (optional)

Vladimir Ivensky

Declared Project Role (Company Project Role)

CMAR (5)

Task / Activity

Excavation

Date

Dec 8, 2025

STEP 1 – SELECT CRITICAL ACTIVITIES (CAPS)

- [ ] **CAP-01** – Confined Space Entry

Entry into permit-required or otherwise hazardous confined spaces where atmospheric and configuration risks can lead to serious injury or fatality.

- [ ] **CAP-02** – Hazardous Energy Control (LOTO / Isolation)

Servicing and maintenance where unexpected energization, startup, or release of stored energy could cause serious injury or fatality.

- [x] **CAP-03** – Excavation / Ground Disturbance / Drilling

Activities that penetrate or remove soil or pavement where collapse, utility strikes, or other ground-related hazards can cause serious injury or fatality.

- [ ] **CAP-04** – Work at Heights / Fall Protection / Dropped Objects

Any task where a person or material can fall to a lower level or strike people below, including work on scaffolds, roofs, structures, or near openings.

- [ ] **CAP-05** – MEWPs / Aerial Lifts

Use of mobile elevating work platforms and aerial lifts where falls, tip-over, crushing, or power line contact can cause serious injury or fatality.

- [ ] **CAP-06** – Cranes & Hoisting / Rigging / Suspended Loads

Lifting operations using cranes, hoists, or rigging systems where load drops, contact with structures, or crane failures can cause multiple serious injuries or fatalities.

- [ ] **CAP-07** – Hot Work / Welding / Cutting / Grinding

Hot work that can ignite combustible materials, produce sparks, slag, or heat sufficient to cause fire, explosion, or serious burns.

- [ ] **CAP-08** – Electrical Work (Energized + De-energized)

Installation, maintenance, or troubleshooting on electrical systems where shock, arc flash, or arc blast can cause serious injury or fatality.

- [ ] **CAP-09** – Hazardous Chemicals & HAZWOPER (Toxic, Flammable, Reactive)

Work with or around hazardous chemicals, including flammable, toxic, corrosive, and reactive substances, and hazardous waste operations.

- [ ] **CAP-10** – Biological / Sewage / Sanitation (SIF-level only)

Work with sewage, biological agents, or grossly contaminated environments where serious illness or infection can occur.

- [ ] **CAP-11** – Mobile Equipment, Traffic, Earthmoving

Operation of mobile equipment on sites or roadways where struck-by, run-over, rollover, or collision can cause serious injury or fatality.

☐ **CAP-12** – Pressure Systems (Hydraulic / Pneumatic / Testing)

Operation or testing of pressure systems where component failure, hose whip, or releases can cause serious injury or fatality.

☐ **CAP-13** – Mechanical Energy / Stored Energy / Line of Fire

Tasks where people can be caught in, struck by, or crushed by moving or stored-energy mechanical components or loads.

☐ **CAP-14** – Water-Related Work (Drowning, Submersion, Marine)

Work over, on, or near water where drowning or submersion is a credible serious or fatal risk.

☐ **CAP-15** – Demolition / Structural Alteration / Collapse

Demolition or structural modification work where uncontrolled collapse or release of elements can cause serious injury or fatality.

STEP 1A – CAP ASSURANCE (LIFE-SAVING CONTROLS VERIFICATION)

For each selected CAP, confirm that all life-saving conditions are in place.

EXCAVATION / GROUND DISTURBANCE / DRILLING

CAP-03-Q1 – Has the exact location, dimensions, and depth of the planned excavation, trench, boring, or ground disturbance been clearly defined in the field and on current drawings or sketches?

◉ Yes ○ No ○ N/A

CAP-03-Q2 – Have underground utilities and buried services been identified through one-call/811 notifications, records review, and coordination with utility owners before breaking ground?

○ Yes ◉ No ○ N/A

CAP-03-Q3 – Where utilities are present or suspected, have safe exposure methods—such as hand-digging or vacuum excavation—been used to daylight utilities before mechanical excavation approaches them?

◉ Yes ○ No ○ N/A

CAP-03-Q4 – Has a competent person inspected the excavation, classified soil conditions as required, and determined what type of cave-in protection system is needed for the planned depth and configuration?

◉ Yes ○ No ○ N/A

CAP-03-Q5 – Where required by depth or soil conditions, is an appropriate cave-in protection system (sloping, benching, shoring, or shielding/trench box) installed and maintained in accordance with OSHA Subpart P?

◉ Yes ○ No ○ N/A

CAP-03-Q6 – Are safe means of egress—such as ladders, ramps, or stairways—provided and spaced so that workers in the trench never need to travel more than 25 feet to exit?

◉ Yes ○ No ○ N/A

CAP-03-Q7 – Have controls been implemented to manage water accumulation, rainfall impacts, and instability risks from nearby structures or roadways that could cause trench wall failure or collapse?

◉ Yes ○ No ○ N/A

CAP-03-Q8 – Are spoil piles, materials, and heavy equipment kept back from the edge of the excavation at a sufficient distance to prevent surcharge loads or accidental entry into the trench?

○ Yes ◉ No ○ N/A

CAP-03-Q9 – Where there is potential for hazardous atmospheres in deeper or restricted excavations, has atmospheric testing been performed and controls implemented to protect workers?

(●) Yes ( ) No ( ) N/A

CAP-03-Q10 – Have clearances to overhead power lines and energized equipment been checked and confirmed safe for operation of excavators, dump trucks, cranes, and other equipment working near the excavation?

(●) Yes ( ) No ( ) N/A

STEP 2 – SELECT ADDITIONAL HAZARDS (ENERGY SPECTRUM)

GRAVITY (E01)

- [ ] E01-01 – Fall From Height – Scaffolds
- [ ] E01-02 – Fall From Height – Aerial Lifts / MEWPs
- [ ] E01-03 – Fall From Height – Ladders
- [ ] E01-04 – Fall From Height – Roofs / Leading Edges
- [x] E01-05 – Fall Into Excavation
- [ ] E01-06 – Fall Through Openings / Skylights
- [x] E01-07 – Slip / Trip – Same Level
- [x] E01-08 – Slip / Trip Leading to Lower-Level Fall
- [ ] E01-09 – Dropped Objects – Tools/Materials
- [ ] E01-10 – Dropped Objects – Suspended Loads
- [ ] E01-11 – Gravity Roll/Shift – Unsecured Objects
- [x] E01-12 – Structural Instability – Collapse
- [x] E01-13 – Ground/Wall Collapse – Excavation Cave-In
- [ ] E01-14 – Collapse of Stored Materials
- [ ] E01-15 – Formwork/Shoring Collapse

MOTION (E02)

- [x] E02-01 – Struck-By – Mobile Equipment
- [x] E02-02 – Caught-Between – Heavy Equipment & Structures
- [x] E02-03 – Line of Fire – Equipment Travel Paths
- [x] E02-04 – Vehicle Interface – Traffic / Work Zones
- [x] E02-05 – Blind Spots – Heavy Equipment / Spotting
- [ ] E02-06 – Rollover Hazards – ATVs / UTVs / Heavy Equipment
- [x] E02-07 – Powered Industrial Trucks (Forklifts)
- [ ] E02-08 – Crane Swing Radius & Load Path
- [ ] E02-09 – Conveyor Interface – Nip Points / Entrapment
- [ ] E02-10 – Rigging / Material Handling Motion Hazards
- [x] E02-11 – Mechanical Motion – Rotating/Moving Parts
- [ ] E02-12 – Stored Mechanical Energy – Springs / Counterweights
- [ ] E02-13 – Loading / Unloading Operations – Trucks & Trailers
- [ ] E02-14 – Yard / Warehouse Equipment Movement
- [ ] E02-15 – Marine / Barge / Vessel Movement Interfaces
- [x] E02-16 – Working in Proximity to Public Traffic

- [x] E02-17 – Work Zone Intrusion by Unauthorized Vehicles
- [x] E02-18 – Improper Flagger Operations
- [ ] E02-19 – Spotter/Equipment Communication Failure
- [ ] E02-20 – Failure to Establish Work Zone Traffic Control Devices

ELECTRICAL (E03)

- [ ] E03-01 – Energized Circuits – Low Voltage Systems
- [ ] E03-02 – Energized Circuits – Medium and High Voltage
- [x] E03-03 – Overhead Power Lines – Equipment and Tools Contact
- [ ] E03-04 – Underground Electrical – Digging and Penetrations
- [ ] E03-05 – Temporary Power – Cords, Reels, and Power Strips
- [x] E03-06 – GFCI Protection – Wet and Outdoor Locations
- [ ] E03-07 – Electrical Panels, MCCs, and Switchgear – Access and Clearances
- [ ] E03-08 – Lockout/Tagout – Electrical Equipment
- [x] E03-09 – Portable Electrical Tools and Appliances
- [ ] E03-10 – Arc Flash – Switchgear, MCCs, and Large Panels
- [ ] E03-11 – Generator Use and Backfeed Hazards
- [ ] E03-12 – Hazardous (Classified) Locations – Electrical Equipment
- [ ] E03-13 – Static Electricity – Bonding and Grounding for Flammable Liquids
- [ ] E03-14 – Battery Systems – Charging, Ventilation, and DC Shock
- [ ] E03-15 – Temporary Lighting and String Lights

PRESSURE (E04)

- [ ] E04-01 – Hydraulic Line Failure / Injection Injury
- [ ] E04-02 – Burst Hose / Whip-Lash Hazard
- [ ] E04-03 – Pneumatic Tool Failure / Accidental Discharge
- [ ] E04-04 – High-Pressure Testing (Hydrostatic / Pneumatic)
- [ ] E04-05 – Compressed Gas Cylinders – Handling & Storage
- [ ] E04-06 – Pressure Relief System Failure / Blocked Vents
- [ ] E04-07 – Steam Lines / Condensate Release
- [ ] E04-08 – Pressure in Process Piping (Water, Air, Chemical)
- [ ] E04-09 – Valves, Regulators & Manifold Failures
- [ ] E04-10 – Pressurized Tanks / Vessels – Stored Energy
- [ ] E04-11 – Hydraulic Jack / Lift Failure
- [ ] E04-12 – Accumulators / Bladders – Unexpected Energy Release
- [ ] E04-13 – Compressor Operation – Start-up / Overpressure
- [ ] E04-14 – Pressure-Assisted Tools (Grease guns, pumps)
- [ ] E04-15 – Vacuum / Negative Pressure Implosion

THERMAL (E05)

- [ ] E05-01 – Hot Work – Welding/Cutting/Grinding (Sparks & Ignition)
- [ ] E05-02 – Open Flame Heating / Torches
- [ ] E05-03 – Hot Surfaces – Pipes, Equipment, Steam Traps
- [ ] E05-04 – Steam Release / Condensate Blowdown
- [ ] E05-05 – Heated Materials – Asphalt, Bitumen, Molten Metal

- [ ] E05-06 – Boilers / Furnaces – Burner Start-up
- [ ] E05-07 – Thermal Decomposition / Spontaneous Heating
- [ ] E05-08 – Radiant Heat Exposure – Process Equipment
- [ ] E05-09 – Outdoor Heat Stress (Environmental Heat)
- [ ] E05-10 – Cryogenic Materials – Liquid Nitrogen / CO2 / LNG
- [ ] E05-11 – Refrigeration Systems – Ammonia / Freon
- [ ] E05-12 – Temporary Heating – Salamanders / Heat Lamps
- [ ] E05-13 – Thermal Runaway – Batteries / Chemical Reactions
- [ ] E05-14 – Hot Work in Confined Spaces
- [ ] E05-15 – Firebox / Kiln / Heated Chamber Entry

CHEMICAL (E06)

RADIATION (E07)

BIOLOGICAL (E08)

- [ ] E08-01 – Bloodborne Pathogens – Needles, Sharps, First Aid
- [ ] E08-02 – Sewage / Wastewater Exposure – Bacteria, Viruses, Parasites
- [ ] E08-03 – Mold / Fungal Contamination – Buildings, HVAC, Flooding
- [ ] E08-04 – Animal Droppings – Histoplasmosis, Hantavirus, Other Diseases
- [ ] E08-05 – Insect / Tick-Borne Diseases – Lyme, West Nile, Other Vectors
- [ ] E08-06 – Bioaerosols – Cooling Towers, Waste Processing, Composting
- [ ] E08-07 – Standing Water – Legionella, Mosquito Breeding
- [ ] E08-08 – Confined Space Biological Hazards – Sewers, Tanks, Decaying Material
- [ ] E08-09 – Contaminated Soil – Pathogens, Biological Waste, Mixed Contamination
- [ ] E08-10 – Sharps / Biomedical Waste in Debris – Demolition / Cleanup
- [ ] E08-11 – Dead Animals / Carcasses – Zoonotic Pathogens
- [ ] E08-12 – Wildlife Encounters – Bites, Rabies Vector Species
- [ ] E08-13 – Waterborne Pathogens – Potable Water, Fixtures, Temporary Water
- [ ] E08-14 – Food Contamination – Field Kitchens, Outdoor Work, Poor Hygiene
- [ ] E08-15 – Human Contact Exposure – Influenza, COVID-Class Respiratory Illnesses

ERGONOMIC / HUMAN FACTORS (E09)

- [x] E09-01 – Manual Material Handling – Lifting/Lowering
- [x] E09-02 – Carrying Loads – Distance, Asymmetrical Loads
- [x] E09-03 – Pushing/Pulling – Carts, Equipment, Tools
- [x] E09-04 – Repetitive Motion – Hands/Wrists/Arms
- [x] E09-05 – Awkward Postures – Bending, Kneeling, Overhead Work
- [x] E09-06 – Static Postures – Prolonged Standing or Driving
- [ ] E09-07 – Hand-Arm Vibration – Grinders, Breakers, Saws
- [ ] E09-08 – Whole Body Vibration – Heavy Equipment Operation
- [ ] E09-09 – Tool Ergonomics – Forceful Grip, Trigger Time
- [ ] E09-10 – High-Frequency, High-Force Tasks – Impact Tools
- [ ] E09-11 – Heat Stress – Ergonomic Fatigue Interaction
- [ ] E09-12 – Cold Stress – Grip Reduction, Dexterity Loss

- [ ] E09-13 – Fatigue – Work/Rest Cycles, Long Shifts
- [x] E09-14 – Human Factors – Line-of-Fire Positioning Errors
- [ ] E09-15 – Fit-for-Duty – Physical Limitations & Impairment

ENVIRONMENT / NATURAL FORCES (E10)

- [x] E10-01 – Uneven / Unstable Ground – Slopes, Ruts, Loose Soil
- [ ] E10-02 – Mud, Snow, Ice – Seasonal and Weather-Driven Surfaces
- [ ] E10-03 – High Winds – Crane, Lift, and Elevated Work Impact
- [ ] E10-04 – Lightning / Electrical Storm Exposure
- [x] E10-05 – Extreme Heat – Environmental and Physical Stressors
- [ ] E10-06 – Extreme Cold – Frostbite, Hypothermia, Dexterity Loss
- [ ] E10-07 – Poor Visibility – Fog, Night Work, Low Light
- [ ] E10-08 – Remote / Isolated Work – Delayed Emergency Response
- [ ] E10-09 – Wildfire Smoke / Poor Air Quality
- [ ] E10-10 – Flooding / Water Intrusion / Swift Water Hazards
- [ ] E10-11 – Landslide / Soil Collapse – Natural Terrain Hazards
- [ ] E10-12 – Tides, Currents, and Marine Conditions
- [ ] E10-13 – Air Pollution / Environmental Exposure (Non-Smoky)
- [ ] E10-14 – Noise – Environmental Ambient Sources
- [ ] E10-15 – Sun / UV Exposure – Outdoor Work
- [ ] E10-16 – Night Work – Insufficient Lighting
- [ ] E10-17 – Reduced Visibility Due to Weather

AMPLIFIER – HUMAN FACTORS (HF)

- [x] HF-01 – Fatigue
- [x] HF-02 – Stress / Emotional Pressure
- [x] HF-03 – Distraction / Loss of Attention
- [ ] HF-04 – Skill or Experience Mismatch
- [ ] HF-05 – Complacency / Over-Familiarity
- [ ] HF-06 – Health or Fitness Limitation

AMPLIFIER – ORGANIZATIONAL FACTORS (OF)

- [x] OF-01 – Training / Competency Gaps
- [ ] OF-02 – Supervision Not Adequate for Risk
- [ ] OF-03 – Roles and Responsibilities Unclear
- [ ] OF-04 – Poor Communication Systems or Channels
- [ ] OF-05 – Staffing Mismatch to Workload
- [ ] OF-06 – Procedures Not Updated or Not Practical

AMPLIFIER – SUPERVISION & LEADERSHIP (SL)

- [ ] SL-01 – Inadequate Field Supervision
- [ ] SL-02 – Conflicting Priorities (Production vs Safety)
- [ ] SL-03 – Leadership Roles and Authority Not Clear
- [ ] SL-04 – Inconsistent Enforcement of Rules
- [ ] SL-05 – Inadequate Support for New or Inexperienced Workers

AMPLIFIER – TASK DEMANDS (TD)

AMPLIFIER – WORK PLANNING & ORGANIZATION (WP)

AMPLIFIER – COMMUNICATION FACTORS (YCF)

Generate Report | Clear Selections | Print Report

Disclaimer:
This Safety Prompter is an informational tool...

SAFETY PROMPTER – CAP & ENERGY SCREENING REPORT

Company: ESP – e-SafetyPro

Division: CNST-04 – Construction

Project / Site: ESP-PRJ-001 – Substation Expansion

Location: PHL

Assessor Email: ivensky@me.com

Assessor Name: Vladimir Ivensky

Declared Project Role: Prime / Controlling Employer (5)

Task / Activity: Excavation

Date: 2025-12-08

1. CRITICAL ACTIVITIES (CAP NARRATIVES)

1.1 CAP: CAP-03 – EXCAVATION / GROUND DISTURBANCE / DRILLING

Activities that penetrate or remove soil or pavement where collapse, utility strikes, or other ground-related hazards can cause serious injury or fatality.

Principal Energy Families: Gravity / Collapse; Struck-By / Mobile Equipment; Underground Utilities / Electrical / Gas / Pressure

Associated Critical Risk Areas (LSR): Ground Disturbance; Line of Fire

Key OSHA / Regulatory References: 29 CFR 1926 Subpart P; 29 CFR 1926.651–652; 811 One-Call requirements as applicable.

Core Controls / Field Practices: Competent person oversight, utility locating and daylighting, soil classification, appropriate protective systems, access/egress, spoil pile and equipment set-back, water control, and atmospheric testing where indicated.

1.X CAP LIFE-SAVING ASSURANCE CHECK

🔴 STOP WORK REQUIRED

One or more life-saving conditions are **NOT** in place. Work related to the affected CAP(s) must not proceed until the issues below are resolved.

- **CAP-03 – CAP-03-Q2**: Have underground utilities and buried services been identified through one-call/811 notifications, records review, and coordination with utility owners before breaking ground?
- **CAP-03 – CAP-03-Q8**: Are spoil piles, materials, and heavy equipment kept back from the edge of the excavation at a sufficient distance to prevent surcharge loads or accidental entry into the trench?

DETAILED ASSURANCE RESPONSES

CAP	Question ID	Answer	Status	Question
CAP-03	CAP-03-Q1	YES	✔ OK	Has the exact location, dimensions, and depth of the planned excavation, trench, boring, or ground disturbance been clearly defined in the field and on current drawings or sketches?
CAP-03	CAP-03-Q2	NO	🔴 Failed	Have underground utilities and buried services been identified through one-call/811 notifications, records review, and coordination with utility owners before breaking ground?
CAP-03	CAP-03-Q3	YES	✔ OK	Where utilities are present or suspected, have safe exposure methods—such as hand-digging or vacuum excavation—been used to daylight utilities before mechanical excavation approaches them?
				Has a competent person inspected the excavation,

CAP-03	CAP-03-Q4	YES	✔️ OK	classified soil conditions as required, and determined what type of cave-in protection system is needed for the planned depth and configuration?
CAP-03	CAP-03-Q5	YES	✔️ OK	Where required by depth or soil conditions, is an appropriate cave-in protection system (sloping, benching, shoring, or shielding/trench box) installed and maintained in accordance with OSHA Subpart P?
CAP-03	CAP-03-Q6	YES	✔️ OK	Are safe means of egress—such as ladders, ramps, or stairways—provided and spaced so that workers in the trench never need to travel more than 25 feet to exit?
CAP-03	CAP-03-Q7	YES	✔️ OK	Have controls been implemented to manage water accumulation, rainfall impacts, and instability risks from nearby structures or roadways that could cause trench wall failure or collapse?
CAP-03	CAP-03-Q8	NO	🔴 Failed	Are spoil piles, materials, and heavy equipment kept back from the edge of the excavation at a sufficient distance to prevent surcharge loads or accidental entry into the trench?
CAP-03	CAP-03-Q9	YES	✔️ OK	Where there is potential for hazardous atmospheres in deeper or restricted excavations, has atmospheric testing been performed and controls implemented to protect workers?
CAP-03	CAP-03-Q10	YES	✔️ OK	Have clearances to overhead power lines and energized equipment been checked and confirmed safe for operation of excavators, dump trucks, cranes, and other equipment working near the excavation?

2. ADDITIONAL HAZARDS (ENERGY SPECTRUM SELECTION)

ID	Hazard / Energy	Hazard Summary	Key Controls (Field-Ready)	OSHA Reference(s)	LSR / Critical Risk
			Barricades,		

E01-05	**Fall Into Excavation** E01 – Gravity	Prevent unauthorized or accidental entry into open excavations.	guardrails, trench covers, lighting, signage. ▸ Show detailed OSHA-aligned controls	29 CFR 1926.651	LSR-01
E01-07	**Slip / Trip – Same Level** E01 – Gravity	Maintain clean, dry, well-organized walking surfaces.	Housekeeping, traction flooring, lighting, cable management. ▸ Show detailed OSHA-aligned controls	29 CFR 1910.22	
E01-08	**Slip / Trip Leading to Lower-Level Fall** E01 – Gravity	Prevent minor slips from becoming major falls over edges.	Guardrails, fall protection, surface maintenance. ▸ Show detailed OSHA-aligned controls	29 CFR 1910.28	LSR-01
E01-12	**Structural Instability – Collapse** E01 – Gravity	Prevent collapse of structures, platforms, or temporary works.	Engineering review, temporary shoring, load limits. ▸ Show detailed OSHA-aligned controls	29 CFR 1926 Subpart Q	LSR-02
E01-13	**Ground/Wall Collapse – Excavation Cave-In** E01 – Gravity	Prevent gravity-driven collapse of trench or excavation walls.	Sloping, shoring, shielding per soil classification. ▸ Show detailed OSHA-aligned controls	29 CFR 1926.652	LSR-02
		Control	Equipment inspection and maintenance; designated		

E02-01	**Struck-By – Mobile Equipment** E02 – Motion	interactions between people and moving equipment through separation, planning, and clear rules of movement.	travel routes; physical barriers and spotters; speed limits and traffic plans; high-visibility PPE for pedestrians ▸ Show detailed OSHA-aligned controls	29 CFR 1926.600; 29 CFR 1926.601; 29 CFR 1926.602	LSR-02
E02-02	**Caught-Between – Heavy Equipment & Structures** E02 – Motion	Prevent workers from entering crush zones and pinch points created by moving equipment and fixed structures.	Exclusion zones around pinch points; blocking and cribbing; lockout of articulation and swing; use of signal persons; strict no-entry policies between equipment and fixed objects ▸ Show detailed OSHA-aligned controls	29 CFR 1926.600; 29 CFR 1926.21(b)(2)	LSR-02
E02-03	**Line of Fire – Equipment Travel Paths** E02 – Motion	Keep people out of the line of fire of moving equipment, loads, and vehicles.	Mark and control travel lanes; one-way systems where possible; barricades at swing and backing zones; alarms and lights; pre-job walkdowns to identify line-of-fire hazards ▸ Show detailed	29 CFR 1926.601; 29 CFR 1926.959	LSR-02

			OSHA-aligned controls		
E02-04	**Vehicle Interface – Traffic / Work Zones** E02 – Motion	Protect workers from public and site traffic through engineered work-zone layouts and clear traffic control devices.	Temporary traffic control plans; flagging procedures; barriers and buffer zones; advance warning signs; coordination with authorities ▸ Show detailed OSHA-aligned controls	29 CFR 1926.200; 29 CFR 1926.201; MUTCD guidance	LSR-02
E02-05	**Blind Spots – Heavy Equipment / Spotting** E02 – Motion	Manage blind-spot hazards by controlling how equipment moves whenever the operator's view is restricted.	Use of trained spotters; standardized hand signals or radios; mirrors and cameras; no-go zones directly behind and beside equipment; horn use before movement ▸ Show detailed OSHA-aligned controls	29 CFR 1926.600(a); 29 CFR 1926.602	LSR-02
E02-07	**Powered Industrial Trucks (Forklifts)** E02 – Motion	Operate forklifts only by trained operators under a site-specific traffic and load-handling program.	Operator training and evaluation; pre-use inspections; load limits and proper stacking; defined pedestrian routes; speed and cornering controls	29 CFR 1910.178; 29 CFR 1926.602(d)	LSR-02

			▸ Show detailed OSHA-aligned controls		
E02-11	**Mechanical Motion – Rotating/Moving Parts** E02 – Motion	Guard moving parts and control energy so workers cannot contact rotating or reciprocating components.	Machine guards; interlocks and emergency stops; lockout/tagout; safe distance tools; training on guard use and tampering prohibition ▸ Show detailed OSHA-aligned controls	29 CFR 1910.212; 29 CFR 1910.147	
E02-16	**Working in Proximity to Public Traffic** E02 – Motion	Separate workers from live traffic using engineered controls and trained personnel.	Temporary traffic control plan, high-visibility PPE, barriers, spotters. ▸ Show detailed OSHA-aligned controls	29 CFR 1926.200; MUTCD	LSR-07
E02-17	**Work Zone Intrusion by Unauthorized Vehicles** E02 – Motion	Prevent public vehicles from entering the work zone.	Physical barriers, crash attenuators, police assistance, warning devices. ▸ Show detailed OSHA-aligned controls	29 CFR 1926.200; MUTCD	LSR-07
E02-18	**Improper Flagger Operations** E02 – Motion	Ensure trained flaggers control traffic safely.	Certified flaggers, proper spacing, radios, visibility, MUTCD compliance. ▸ Show detailed	29 CFR 1926.201; MUTCD	LSR-07

			OSHA-aligned controls		
E03-03	**Overhead Power Lines – Equipment and Tools Contact** E03 – Electrical	Prevent equipment, tools, and materials from encroaching on overhead line clearance distances.	Identify and mark power lines; maintain minimum clearance distances; de-energize or relocate lines where possible; use dedicated spotters; restrict boom and mast heights ▸ Show detailed OSHA-aligned controls	29 CFR 1926.1408; 29 CFR 1926.416(a)(1)	LSR-03
E03-06	**GFCI Protection – Wet and Outdoor Locations** E03 – Electrical	Use and maintain GFCI protection wherever portable electric equipment is used in damp, wet, or outdoor locations.	GFCI-protected receptacles or breakers; regular testing with built-in buttons; use of weather-resistant devices; covers in place during use ▸ Show detailed OSHA-aligned controls	29 CFR 1926.404(b)(1); 29 CFR 1910.304(b)(3)	
E03-09	**Portable Electrical Tools and Appliances** E03 – Electrical	Use properly rated, well-maintained portable tools with GFCI protection to minimize shock	Use of double-insulated or grounded tools; inspection of cords and casings; GFCI protection; dry-hand and dry-surface	29 CFR 1926.302(a); 29 CFR 1910.243(a)	

		risk.	requirements where feasible ▸ Show detailed OSHA-aligned controls		
E09-01	**Manual Material Handling – Lifting/Lowering** E09 – Ergonomic / Human Factors	Reduce strain from lifting by limiting load weight, improving body mechanics, and using mechanical assistance.	Use mechanical aids; team lifts; weight limits; keep loads close to body; training on proper lifting techniques ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Ergonomics Guidelines for Manual Material Handling (reference)	
E09-02	**Carrying Loads – Distance, Asymmetrical Loads** E09 – Ergonomic / Human Factors	Limit the distance and imbalance of carried loads by using transport aids and better material staging.	Use carts or mechanical transport; balance loads; shorten carry distances; provide staging points; job rotation ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Construction Ergonomics Guidelines (reference)	
E09-03	**Pushing/Pulling – Carts, Equipment, Tools** E09 – Ergonomic / Human Factors	Reduce pushing and pulling forces through equipment design, maintenance, and better path planning.	Use well-maintained wheels; push rather than pull when possible; keep hands at waist height; reduce grades and obstacles ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); NIOSH Ergonomic Solutions for Manual Material Handling (reference)	
			Task rotation; work/rest		

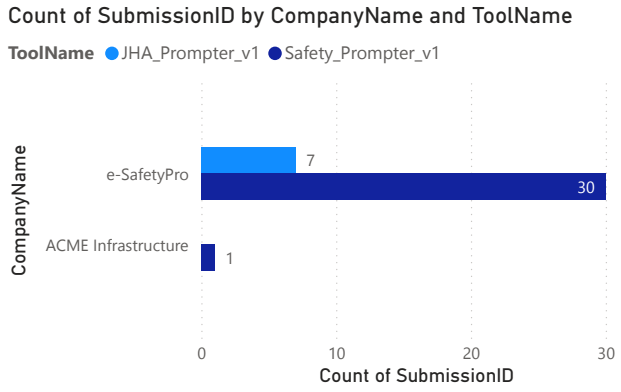
E09-04	**Repetitive Motion – Hands/Wrists/Arms** E09 – Ergonomic / Human Factors	Limit highly repetitive hand and arm tasks by redesigning work and providing variation and recovery time.	cycles; redesign of tasks to reduce repetition; adjustable fixtures and jigs; ergonomic tools ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Computer Workstations and Repetitive Tasks guidance (reference)	
E09-05	**Awkward Postures – Bending, Kneeling, Overhead Work** E09 – Ergonomic / Human Factors	Minimize time spent in awkward postures by adjusting work height and providing better access to work areas.	Raise work to waist height; use platforms or stools; use knee pads or creepers; rotate out of overhead tasks; design-in access ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Ergonomics for the Prevention of Musculoskeletal Disorders (reference)	
E09-06	**Static Postures – Prolonged Standing or Driving** E09 – Ergonomic / Human Factors	Reduce strain from static postures by enabling position changes and incorporating movement into the workday.	Sit/stand options; anti-fatigue mats; adjustable seats and controls; regular movement breaks; task variation ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA guidelines on prolonged standing and vehicle operation (reference)	
	Human Factors – Line-of-Fire	Reduce line-of-fire incidents by improving planning,	Planning and pre-task briefs; 3-way communication; clear exclusion zones; visual	29 CFR 1926.20(b) (safety programs);	

E09-14	**Positioning Errors** E09 – Ergonomic / Human Factors	communication, and worker positioning around hazards.	cues and markings; coaching on situational awareness ▸ Show detailed OSHA-aligned controls	OSHA Leading Indicators and Human Factors guidance (reference)	
E10-01	**Uneven / Unstable Ground – Slopes, Ruts, Loose Soil** E10 – Environment / Natural Forces	Control terrain instability to prevent slips, trips, tip-overs, and loss of footing.	Stabilize ground; mark hazards; limit equipment travel; improve drainage; use mats or fill. ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Weather, Heat, Cold, and Outdoor Work Guidance (reference)	
E10-05	**Extreme Heat – Environmental and Physical Stressors** E10 – Environment / Natural Forces	Control heat exposure to prevent heat exhaustion, heat stroke, and cognitive decline.	Hydration; shade; work/rest cycles; acclimatization; heat monitoring. ▸ Show detailed OSHA-aligned controls	OSHA General Duty Clause Section 5(a)(1); OSHA Weather, Heat, Cold, and Outdoor Work Guidance (reference)	
HF-01	**Fatigue** HF – Amplifier – Human Factors	Reduced alertness, slower reaction time, and impaired decision-making due to insufficient rest.	Rest cycles; task rotation; hydration; supervisor fit-for-duty checks; ▸ Show detailed OSHA-aligned controls		
		Emotional strain or	Clarify priorities; adjust workload; provide		

HF-02	**Stress / Emotional Pressure** HF – Amplifier – Human Factors	cognitive overload that reduces focus and performance.	supervisor support; remove conflicting instructions; ▸ Show detailed OSHA-aligned controls		
HF-03	**Distraction / Loss of Attention** HF – Amplifier – Human Factors	Reduced focus caused by internal thoughts, noise, interruptions, or environmental distractions.	Minimize interruptions; reduce noise sources; pause-and-focus moment; maintain clean workspace; ▸ Show detailed OSHA-aligned controls		
OF-01	**Training / Competency Gaps** OF – Amplifier – Organizational Factors	Workers lack necessary training or experience for safe task execution.	Verify training matrix; provide refresher; offer coaching; demonstrate skills; ▸ Show detailed OSHA-aligned controls		

Safety Prompter – short presentation.

270
Count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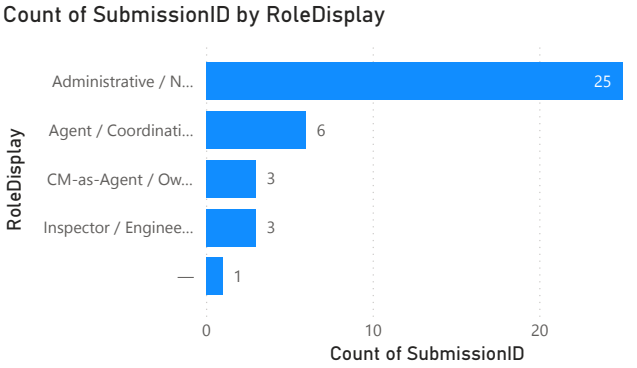
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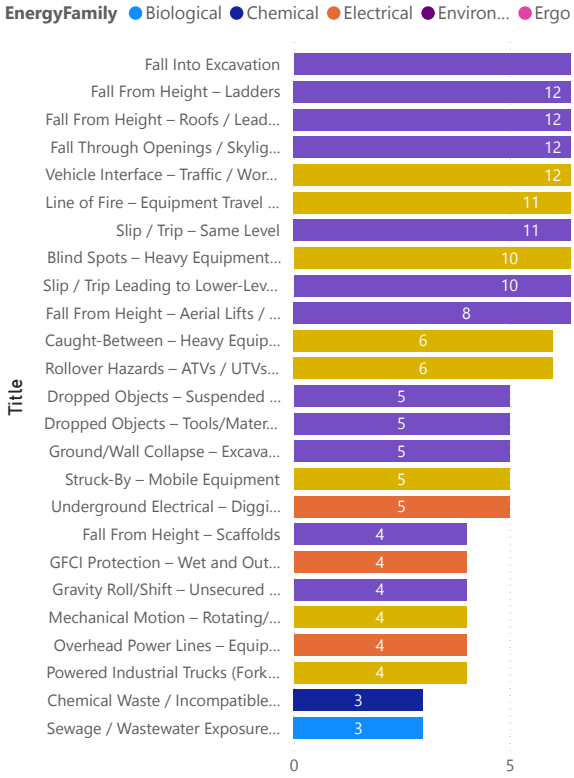
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Title
Fall Into Excavation
Fall From Height – Ladders 12
Fall From Height – Roofs / Lead... 12
Fall Through Openings / Skylig... 12
Vehicle Interface – Traffic / Wor... 12
Line of Fire – Equipment Travel ... 11
Slip / Trip – Same Level 11
Blind Spots – Heavy Equipment... 10
Slip / Trip Leading to Lower-Lev... 10
Fall From Height – Aerial Lifts / ... 8
Caught-Between – Heavy Equip... 6
Rollover Hazards – ATVs / UTVs... 6
Dropped Objects – Suspended ... 5
Dropped Objects – Tools/Mater... 5
Ground/Wall Collapse – Excava... 5
Struck-By – Mobile Equipment 5
Underground Electrical – Diggi... 5
Fall From Height – Scaffolds 4
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Gravity Roll/Shift – Unsecured ... 4
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Overhead Power Lines – Equip... 4
Powered Industrial Trucks (Fork... 4
Chemical Waste / Incompatible... 3
Sewage / Wastewater Exposure... 3
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5