

High-risk work guide

Review hazards and checks for each example, then prepare an assessment and work documents for your actual site.

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01 Local documents and scope

Use the Risk Assessment (RA) to identify hazards and controls, then describe the work sequence in a Safe Work Procedure (SWP). Communicate the plan at the Toolbox Meeting. Select a Permit to Work (PTW) after checking the activity, workplace and applicable rules; it is not automatically required for every task. Keep the RA, SWP and current site checks consistent.

Risk Assessment (RA)

Safe Work Procedure (SWP)

Permit to Work (PTW)

Toolbox Meeting

Safety Inspection Checklist

This is a planning reference. Verify numerical limits, permits and qualifications for the jurisdiction, sector and equipment. Record fresh site measurements, people and signatures for each job.

02 From example to site use

1 Define the job

Identify equipment, location, sequence, people, nearby activities and access. Separate preparation, execution and close-out, and record hazards observed at the site.

2 Match controls to each step

Consider elimination, substitution and engineering controls first, then procedures and PPE. Assign an owner, a verification method and stop-work conditions for each control.

3 Connect documents and site checks

Choose the local assessment, procedure and applicable permits, then brief the crew. Add drawings and checklists, reassess changes and retain the output for this job.

HR-01

Aging Pipe Replacement and Flange Welding Repair

Potential hazards

Residual flammable gas explosion, fire from welding sparks

Checks to verify and specify on site

- Combustible removal/shielding; opposite faces, lower areas and openings; Fire watch, extinguishing equipment, post-work watch duration and completion time; Gas, vapour, fume and dust assessment, testing and ventilation; Vessel/pipe residues, cylinders, hoses, flashback protection and equipment checks.
- Isolate, release and verify pressure and contents before opening. Use the design code and approved procedure for test pressure, medium and sequence; define exclusion and stop criteria.

HR-02

Substation High-Voltage Switchgear Inspection and Cable Replacement

Potential hazards

Electric shock from switch misoperation, arc flash from residual charge

Checks to verify and specify on site

- Equipment, circuits, supplies, backfeed, induced voltage and stored energy; Disconnection, prevention of re-energisation, locks and tags; Voltage detector, functional check, absence-of-voltage result and tester; Earthing/short-circuiting where required; adjacent live-part protection and boundaries; Completion, personnel clearance, lock removal and re-energisation authority.

HR-03

Excavation and Shoring Installation for Piping Burial

Potential hazards

Explosion from underground utility damage, burial due to slope failure

Checks to verify and specify on site

- Survey utilities, soil and adjacent structures. Plan support or slopes for depth and ground conditions; check access, drainage, plant separation and inspections after changes.

HR-04

Radiographic Testing (RT) for New Pipe Weld Quality Inspection

Potential hazards

Radiation exposure, unauthorized entry into controlled areas during night work

Checks to verify and specify on site

- Verify task-specific training, qualifications and procedures. Record process and equipment protections, exposure controls, emergency arrangements and the responsible person's checks in the work plan.

HR-05

Internal Precision Inspection and Residue Removal of Nitrogen-Purged Tanks

Potential hazards

Asphyxiation due to residual nitrogen, isolation in confined spaces

Checks to verify and specify on site

- Space identification, need for entry, access and escape routes; Entrants, outside attendant, person in charge and communication; Atmospheric test targets, acceptance criteria and repeat/continuous monitoring; Isolation of incoming substances and energy; locks and stored-energy checks; Ventilation, respiratory protection, contaminant controls and failure response; Site rescue method, people, equipment, communication and readiness.

HR-06

Crane Lifting and Moving for Heavy Equipment Installation

Potential hazards

Equipment tip-over due to ground bearing failure, crushing by falling cargo

Checks to verify and specify on site

- Verify weight, centre of gravity, lifting points, rated capacity and sling angles. Define ground conditions, route, exclusion zone and signals; follow the lift plan.

Factory Roof Panel Repair and MEWP (Rental) Operation

Potential hazards

Fall from damaged corroded roof panels, electric shock from high-voltage lines

Checks to verify and specify on site

- Avoiding height work; platforms and collective fall protection; Fall restraint/arrest equipment, anchors and required clearance; Access, fragile surfaces, openings and falling-object controls; Weather, work conditions, equipment inspection and stop criteria; Site rescue method, people, equipment, communication and readiness.
- Equipment, circuits, supplies, backfeed, induced voltage and stored energy; Disconnection, prevention of re-energisation, locks and tags; Voltage detector, functional check, absence-of-voltage result and tester; Earthing/short-circuiting where required; adjacent live-part protection and boundaries; Completion, personnel clearance, lock removal and re-energisation authority.

04 Fresh site records

Record date, location, equipment ID, responsible people, crew, permit references, measurements, times, testers, inspections and changes. Do not reuse previous signatures or readings.

05 Official references

These sources support local terminology and scope. The examples are editorial planning prompts from Smart JSA Bridge, not official forms.

- MOM · Risk management ↗
- MOM · Safety and health management systems ↗
- Singapore Statutes Online · Risk Management Regulations, regulation 5 ↗
- MOM · When to review risk assessments ↗
- WSH Council · Code of Practice on Risk Management ↗
- MOM · Permit-to-Work systems (OPEC guidance) ↗

<https://smartjsabridge.com/en-SG/guideline/high-risk>