

Statutory basis: PUWER 1998 reg 19 requires suitable, identifiable means of isolating work equipment from every source of energy, with measures so that reconnection exposes no one to risk; HSE HSG253 (2nd edition, 2006) sets out the practice for isolating plant from mechanical, hydraulic, pneumatic and stored energy and from substances under pressure. Compressed air receivers and other pressure systems within the Pressure Systems Safety Regulations 2000 are operated within their safe operating limits and their written scheme of examination. Treated system water, glycol and inhibitors are controlled under COSHH 2002. This document is the recorded safe system of work required by HSWA 1974 s.2(2)(a) and MHSWR 1999 regs 3 and 5.

1 DOCUMENT AND PROJECT IDENTIFICATION

RAMS REFERENCE	PROJECT / SITE REF	SITE NAME AND ADDRESS	DATE PREPARED	NEXT REVIEW DATE
CLIENT / PRINCIPAL CONTRACTOR	PLANNED START	DURATION	OPERATIVES	SUPERVISING THE WORK

2 SCOPE OF WORKS

Isolating, locking off, draining, venting and proving at zero pressure the vessels and pressurised plant in heating, chilled water, domestic hot water and compressed air systems — calorifiers, buffer vessels, expansion vessels, pressurisation units and air receivers — so that joints can be broken and components replaced, and the controlled return to pressure afterwards.

This document does not cover: pressure testing of new work (KD-RAMS-ME-006), plant installation (KD-RAMS-ME-005), steam and high-temperature hot water systems, gas systems (KD-RAMS-GS-001), refrigerant circuits (KD-RA-MP-002), and statutory examination under a written scheme, which is the competent person's.

SITE-SPECIFIC SCOPE, LOCATIONS AND LIMITATIONS

3 RISK ASSESSMENT — SCORE EACH RISK FOR THIS SITE, THEN ADD WHAT IS MISSING

The hazards and controls below are the starting point for this activity, written by a working main contractor. They are not complete for your site until a competent person has scored each risk, added the site-specific hazards, and struck out anything that does not apply. Rate risks High / Medium / Low before and after controls.

1. Pressure trapped between closed valves released when a joint or fitting is broken

At risk: Fitters, anyone nearby

Controls: A vent or drain on the isolated section is opened, proved clear of scale and debris, and left open. The gauge relied on is known to work and is on the isolated section. No bolt or union is slackened until that gauge reads zero, the vent is open and nothing is still discharging. Joints are broken far side first, face turned away, bolts slackened, not removed.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

2. Isolation valves passing — the section re-pressurises while it is open

At risk: Fitters

Controls: Isolation proved by watching the gauge and the open vent after closure; where a valve is doubted, a second valve is closed with a vent between them. Valves locked shut and tagged; a section that keeps filling is not worked on.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

3. Expansion vessel and accumulator pre-charge still under pressure after draining

At risk: Fitters

Controls: The gas side stays charged when the system is drained, and water trapped in the vessel is still pressurised by it. To disconnect a vessel, drain the water side and break the connection slowly as for trapped pressure. The pre-charge is released, by the manufacturer's method, only when the vessel is to be dismantled, re-membraned or scrapped.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

4. Pressurisation units, pumps and heaters restarting and refilling the section

At risk: Fitters

Controls: Pressurisation units, pumps, immersion heaters and boilers serving the section are isolated and locked off by the electrician before draining; the fill valve to the unit is locked shut. Automatic fill is assumed to work until proved isolated.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

5. Compressed air receiver and line pressure

At risk: Fitters, anyone nearby

Controls: Compressor isolated and locked off; receiver outlet closed; receiver and line vented through the drain or vent valve until the gauge reads zero and flow stops; drain left open during work.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

6. Treated system water, glycol and inhibitors — skin and eye contact, release to drains

At risk: Fitters, the environment

Controls: Treatment chemicals identified from the water treatment record and their safety data sheets; gloves and eye protection when draining. Discharge to foul drainage only with the sewerage undertaker's consent the site holds; otherwise collected by a waste contractor. Never to surface water drains.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

7. Safety and relief valves gagged, removed or discharging towards people*At risk: Fitters, the building*

Controls: Protective devices never gagged, isolated or adjusted; relief discharges directed to a safe point. Any work affecting a vessel or its protective devices is referred to the competent person under the written scheme before return to service.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

8. Scalding from hot water and drain points; uncontrolled return to pressure*At risk: Fitters, the building*

Controls: Temperature checked before contact; drains piped to a safe point, never opened towards a person. After the work, joints checked, vents and drains closed in sequence, the section refilled slowly and vented, pressure raised gradually with everyone clear.

INITIAL (H/M/L)	RESIDUAL (H/M/L)	SITE-SPECIFIC ADDITIONAL CONTROLS, OR N/A	ACTION OWNER	BY WHEN

Site-specific hazards not listed above — every site has at least one:

HAZARD	WHO IS AT RISK	CONTROLS	INITIAL H/...	RESIDUAL...	ACTION OWNER	BY WHEN

4 METHOD — SEQUENCE OF WORK

- Identify the vessels, valves, vents, drains, pumps and electrical supplies for the section from the schematic and a walk-round; mark the isolation points.
- Agree the isolation with the person in control of the system and the occupier — what loses heating, hot water or air, and for how long.
- Raise the mechanical isolation certificate; have the electrician isolate and lock off pumps, pressurisation units, heaters and compressors.
- Close and lock the isolation valves; tag each one with the certificate number.
- Open vents and drains to a safe point; discharge treated water only as consented, or collect it for the waste contractor.
- Prove zero pressure — working gauge on the isolated section at zero, vent proved clear, nothing still discharging — and watch for a passing valve. STOP if pressure returns.
- To disconnect an expansion vessel, drain the water side and break the connection slowly; release the pre-charge only if the vessel is to be dismantled, re-membraned or scrapped.
- Break joints far side first with the face turned away; carry out the work; keep the vent open throughout.
- Remake joints; close vents and drains in sequence; refill slowly from the low point, venting air; raise pressure gradually with everyone clear and inspect the joints.
- Restore pre-charge and pressurisation unit settings to the design values; remove locks and tags in agreement with the person in control; clear the certificates and record the work.

SITE-SPECIFIC AMENDMENTS TO THE SEQUENCE**5 PLANT, EQUIPMENT AND MATERIALS**

- | | |
|------------------------------------|--|
| Valve lock-outs, padlocks and tags | Pre-charge gauge and inflator for expansion vessels |
| Calibrated pressure gauges | Drums for treated water where discharge is not consented |
| Hoses to a safe discharge point | Wet-vac and spill kit |

INSPECTION / THOROUGH EXAMINATION REFS**COSHH ASSESSMENT REFS****6 PPE — THE LAST LINE OF CONTROL, NOT THE FIRST**

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|-----------------|---------------------|--|
| Head protection | Gloves — task-rated | Face shield when breaking joints on hot or pressurised systems |
| Safety footwear | Eye protection | Chemical-resistant gloves when draining treated systems |
| High visibility | Hearing protection | |

RPE TYPE, FACE-FIT STATUS, AND ANY OTHER PPE REQUIRED**7 PERMITS REQUIRED BEFORE THIS WORK STARTS**

A permit authorises this work in that place, on that day. It extends the safe system of work in this document — it does not replace it (HSE HSG250). The site issues the permit; record its number before work starts.

KD-PTW-MI-029 — Mechanical Isolation and Lock-Off Certificate
For every valve, vent and stored-energy source isolated.

PERMIT NUMBER

KD-PTW-EI-011 — Electrical Isolation Certificate
For pumps, pressurisation units, heaters and compressors serving the section.

PERMIT NUMBER

8 EMERGENCY ARRANGEMENTS — COMPLETE FOR THIS SITE

FIRST AIDER AND LOCATION	NEAREST A&E	ASSEMBLY POINT
HOW THE ALARM IS RAISED	EMERGENCY ACCESS FOR THIS WORK AREA	SPILL / ENVIRONMENTAL RESPONSE

9 BRIEFING RECORD — EVERYONE WORKING UNDER THIS RAMS SIGNS BEFORE STARTING

By signing you confirm the contents of this RAMS have been explained to you, you understand the hazards and controls, and you will work to the sequence stated. Tell the supervisor if the work or the site does not match this document — work stops until it does.

NAME	COMPANY	SIGNATURE	DATE

10 PREPARED AND ACCEPTED

Prepared / adapted for this site by — I confirm I have adapted this document to the site, scored the risks, and that it describes how the work will actually be done.

PRINTED NAME	ROLE / COMPETENCE	COMPANY	SIGNATURE	DATE	TIME

Accepted for the site by — principal contractor or site manager review.

PRINTED NAME	ROLE	COMPANY	SIGNATURE	DATE	TIME

Review this RAMS if the work, the site or the law changes, and at least before each new phase of the works. Flatten the completed PDF before filing so the record cannot be silently edited.

R REVISION HISTORY

Every revision of this document, and every review that found nothing to change. The revision on the front of this sheet is the one you are holding — check kubitdocs.com for the current one before use.

Rev	Date	Class	What changed	Authorised by
D0	2026-09-11	first-issue	First issue.	— not yet approved —
A0	2026-09-11	review	Approved for issue by the author. Content unchanged from the reviewed draft; the draft status strip is removed. No independent third-party review has been carried out.	Author — director, UK principal contractor, SMSTS. Not an independent review.

Class: first-issue · material (the law, a control, a field or the scope changed — past buyers are notified) · editorial (wording or layout only) · review (checked, nothing changed) · withdrawal. Revision prefix D = draft, not approved and not for sale; A = approved for issue by the person named, on the date shown.