



OUTPUT 05 — PERMITS & ISOLATIONS CHECKLIST

● PRE-SHUTDOWN · 3 PERMITS PENDING

BAI-PMT-APX-CLR-001 · REV 01

Permits & Isolations

Twelve permits to be in place. Ten isolations to be applied and tagged. **No work proceeds until every permit is active and every isolation is locked off and proven.**

CLIENT	SITE	WORK TYPE	OUTAGE
Apex Pharma Manufacturing site · UK	Cleanroom HVAC Class C / Grade C suite · AHU-03	Planned service Filter change, coil clean, fan inspection	Sun 17 May 02:00 – 12:00 · 10-hour shutdown

AI-ASSISTED This checklist was generated against the Output 02 Task Sequence and Output 03 Hazard-Risk-Control Matrix using Built AI's permit-engine library. Each permit has been mapped to specific tasks. Validity windows align with the planned outage. **Three permits remain in PENDING status — these gate the start of associated tasks.**

12 PERMITS REQUIRED	8 ACTIVE / AUTHORISED	3 PENDING — GATING	5 CRITICAL TO SAFETY	10 ISOLATIONS TO APPLY
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Permit register

P01 Cleanroom Entry Permit Class C / Grade C cleanroom — gowning, gowning verification, particle count ● ACTIVE	
VALIDITY	Sun 17 May 03:00 → 11:00 (8 hrs)
SIGNATORY	Apex Pharma Production Manager
CONDITIONS	Pre-shift gowning verification. Particle counter test pre/post. No personal items. No cosmetics. Site contractor PIN access only.
TRAINING	Cleanroom gowning competency · Apex Pharma induction · in-date
WITNESS	Apex Pharma QA

P02 Lockout-Tagout Permit (HVAC) AHU-03 supply, return, exhaust fans · VSD inverters · associated dampers ● ACTIVE	
VALIDITY	Sun 17 May 02:30 → handback
SIGNATORY	Built AI Authorised Person (electrical)
CONDITIONS	Multi-padlock hasp. Numbered tags. Energy isolated and proven dead before any mechanical work. Hot-bond removal logged.
TRAINING	BS 7671 18th Edition · LOTO competency
WITNESS	Apex Pharma Engineering

P03**Hot Works Permit**

Localised brazing on chilled water sub-circuit copper tails · 2 × short joints

PENDING

VALIDITY	TBC — pending fire system isolation confirmation
SIGNATORY	Built AI site supervisor
CONDITIONS	60-minute fire-watch post completion. Smoke detector isolation in zone confirmed by Apex Pharma. CO2 extinguisher at point. Spark-arrester drape.
TRAINING	Hot works competency · BS 9999 awareness
WITNESS	Apex Pharma Fire Officer

P04**Confined Space Entry Permit**

Within AHU plenum — depth >1.5m · restricted egress · fan area

ACTIVE

VALIDITY	Sun 17 May 04:00 → 09:00
SIGNATORY	Confined Space top-man (Built AI)
CONDITIONS	Atmospheric monitoring (O2, LEL, CO, H2S). Tripod and rescue harness. Continuous comms. Top-man logged. Maximum 30 mins continuous.
TRAINING	Confined Space CAT B (City & Guilds 6160-04) · in-date
WITNESS	Built AI top-man

P05**Working at Height Permit**

Roof-mounted AHU plant · 8m height · access via permanent ladder + cage

ACTIVE

VALIDITY	Sun 17 May 03:00 → handback
SIGNATORY	Built AI site supervisor
CONDITIONS	PFP harness · twin lanyard · fall arrest anchor verified · permit-to-roof from Apex Pharma facilities
TRAINING	WAH-trained · IPAF/PASMA where applicable
WITNESS	Apex Pharma Facilities

P06**Lifting Operations Permit**

Replacement HEPA filter set delivered to roof · ~85kg per filter pack × 4

● PENDING

VALIDITY	TBC — pending crane timeslot confirmation
SIGNATORY	CPCS-qualified slinger
CONDITIONS	Lift plan reviewed. Exclusion zone. Tag lines. Banksman. No public access during lift window.
TRAINING	CPCS Slinger/Signaller · in-date · CPCS Crane Operator (sub-contracted)
WITNESS	Built AI lift supervisor

P07**Fire System Isolation Permit**

Smoke detection in HVAC plant room — isolated during hot works (P03)

● PENDING

VALIDITY	TBC — only when P03 confirmed
SIGNATORY	Apex Pharma Fire Officer
CONDITIONS	Single zone only. Site fire patrols restored. 60-min watch on isolation cleared. Re-test on energise. No hot works without P03 also active.
TRAINING	Fire system competency
WITNESS	Apex Pharma Fire Officer

P08**Controlled Substances Permit**

Hot-side cleaning product (alkali-based descaler) · COSHH Schedule 1

● ACTIVE

VALIDITY	For duration of cleaning task only
SIGNATORY	Built AI Senior Technician
CONDITIONS	COSHH SDS attached. No mixing on cleanroom side. Decanted at LV stand only. Dedicated bunded container. Spill kit at point of use.
TRAINING	COSHH-trained · cleanroom-handling competency
WITNESS	Apex Pharma EHS

P09**Process Isolation Permit (chilled water)**

Site chilled water loop · isolated for AHU coil cleaning

● ACTIVE

VALIDITY	Sun 17 May 02:00 → 12:00
SIGNATORY	Apex Pharma Authorised Person (process)
CONDITIONS	Loop isolated upstream/downstream of AHU. Drained to drain valve. Re-filled from header on completion. PMS pressure prove before re-energise.
TRAINING	Process isolation competency · Apex Pharma authorisation
WITNESS	Built AI Authorised Person

P10**Roof Access Permit**

Permission to access plant roof (not working at height — separate permit)

● ACTIVE

VALIDITY	Sun 17 May 03:00 → handback
SIGNATORY	Apex Pharma facilities manager
CONDITIONS	Daily sign-on with security. PIN-controlled. No materials storage on roof outside work zone.
TRAINING	Site induction · roof competency
WITNESS	Apex Pharma security

P11**Environmental Discharge Permit**

Chilled water drain-down water discharge to interceptor

● ACTIVE

VALIDITY	Sun 17 May 03:00 → 06:00
SIGNATORY	Apex Pharma EHS
CONDITIONS	Discharge metered. No glycol — water-only loop confirmed. Interceptor pre-checked. Sample retained for 7 days.
TRAINING	EHS sign-off
WITNESS	Apex Pharma EHS

P12**Hot Aseptic Area Override**

Not required — works are in technical area only · cleanroom envelope intact

● NOT REQUIRED

VALIDITY	Not applicable
SIGNATORY	—
CONDITIONS	—
TRAINING	—
WITNESS	—

Isolation register

Every isolation logged, tagged, applied by named competent person and removed by the same. The register is live during the shutdown and signed off only when every isolation has been removed in reverse sequence.

ID	SERVICE / SYSTEM	ISOLATION POINT	LOCKOFF #	APPLIED BY	APPLIED
L01	AHU-03 supply fan motor	MCC-3 / Slot 12 · 415V VSD inverter incoming	BAI-001	BAI Authorised Person	02:35
L02	AHU-03 return fan motor	MCC-3 / Slot 13 · 415V VSD inverter incoming	BAI-002	BAI Authorised Person	02:36
L03	AHU-03 exhaust fan motor	MCC-3 / Slot 14 · 415V VSD inverter incoming	BAI-003	BAI Authorised Person	02:37
L04	Modulating dampers (motorised)	MCC-3 / Slot 8 · 24V control supply	BAI-004	BAI Authorised Person	02:38

L05	Site chilled water loop — AHU side	Cooling tower house · valve V-CW-12, V-CW-13	APX-001	Apex Authorised Person (process)	02:00
L06	Process chilled water — coil tails	AHU-03 plenum · ball valves V-AHU-CW-A & V-AHU-CW-B	APX-002	Apex Authorised Person (process)	02:10
L07	Steam supply to humidifier	Steam manifold valve V-ST-06	APX-003	Apex Authorised Person (process)	02:15
L08	Condensate return	Condensate trap valve V-CD-04	APX-004	Apex Authorised Person (process)	02:20
L09	Smoke detection — AHU plant room	Apex Pharma fire panel · zone Z-12 isolated	APX-005	Apex Pharma Fire Officer	TBC
L10	Building Management System (AHU-03)	BMS frontend · AHU-03 in maintenance mode	APX-006	Apex Pharma BMS engineer	02:40

CRITICAL SEQUENCE — PENDING PERMITS

Three permits remain in pending status and gate the start of associated tasks. The shutdown cannot commence until all three are signed off:

■ **P03 Hot Works Permit**

—
gates
copper
tail
brazing.
Cannot
proceed
until
P07

(Fire
System
Isolation)
is
also
confirmed.

■ **P06 Lifting Operations Permit**

—
gates
HEPA
filter
delivery
to
roof.
Crane
timeslot
pending
Apex
Pharma
facilities.

■ **P07 Fire System Isolation Permit**

—
gates
P03
hot
works.
Apex
Pharma
Fire
Officer
to
confirm
zone
isolation
arrangements.

Action: all three to be cleared by Fri 15 May at the latest. No mobilisation if any remain pending at the cut-off.

BUILT AI · AUTHORISED PERSON

Permit set authoriser

I confirm the permit set is appropriate for the planned scope of works. All active permits are authorised. Pending items are tracked through to closure before the shutdown commences.

BUILT AI AUTHORISED PERSON

SIGNATURE + DATE

APEX PHARMA · SITE AUTHORITY

Site authority sign-off

As nominated site authority I confirm the permits, isolations and overall cleanroom shutdown arrangements are agreed. Process isolation will be applied by Apex Pharma Authorised Person. No re-energise of services until handback signed.

APEX PHARMA AUTHORISER

SIGNATURE + DATE

ABOUT THIS DOCUMENT

RAMS Factory™ Output 05 — Permits & Isolations Checklist. Prepared by Built AI for the cleanroom HVAC planned service at Apex Pharma Manufacturing.
Demonstration document — all client and site details fictionalised.

OUTPUT 05 OF 11

01-04 Earlier outputs

→ **05 Permits & Isolations**

06-11 Compliance & QA

DOCUMENT CONTROL

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Author · Built AI

Status · 3 permits pending