

CSRTA WHITE PAPER

Evidence-Based Confined Space Identification and Categorisation

A White Paper for Consistent, Defensible Industry Decision Making

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Executive Summary

A sound statutory framework governs confined space work in the United Kingdom: the Confined Spaces Regulations 1997 and the Health and Safety at Work etc. Act. The Management of Health and Safety at Work Regulations 1999, COSHH 2002, DSEAR 2002, PUWER 1998, and the Work at Height Regulations 2005 each impose clear and complementary duties.

These duties are supported by a strong body of HSE guidance, including L101, INDG258, L5, EH40/2005, L138, HSG53 and HSG250, and by sector-specific material such as the Water UK Occasional Guidance Note Edition 3.0.

The argument this paper makes is not that the law is wrong. The law is right. The argument is that the way the law and its supporting guidance are applied in practice is structurally inconsistent, and that this inconsistency is producing decisions that are neither defensible to scrutiny nor reliably safe.

The cause is structural. The source documents governing confined space work were written at different times by different bodies for different purposes, and they do not reference each other as a system. L101 answers the legal identification question. INDG258 summarises practical control. The Water UK OGN provides operational entry classifications for the water sector.

COSHH, EH40, DSEAR, HSG53 and HSG250 each address a different control problem. None of these documents was intended to be applied in isolation, yet in everyday UK practice, they are routinely applied as though they were independent. The result is a landscape in which competent duty holders, working in good faith with the materials they have, cannot reliably produce consistent classifications, consistent control packages, or consistent rescue arrangements.

Three themes appear repeatedly in UK practice and are documented in this paper.

1. First, the legal status of a space is conflated with the operational class of an entry, so that NC1 to NC4 and NCX, which are Water UK entry management classifications, are treated as though they answered the regulation 1(2) test.
2. Second, the atmospheric assessment is run as a single exercise, even though COSHH and DSEAR address different questions, and L138 paragraph 14 makes the boundary explicit.
3. Third, rescue arrangements are scaled to the type of asset rather than to the casualty state and operational complexity, so that the regulation 5 duty for suitable, sufficient and immediate arrangements is met in form but not always in substance.

The cost of these patterns is not theoretical. It shows up in classification records that cannot be defended on legal scrutiny, in permits issued before risk assessments are complete, in respiratory protective equipment selected on the wrong basis, in rescue plans that assume an asset name rather than an actual casualty scenario, and in training records that conflate legal identification with operational categorisation. None of these failures requires an incompetent duty holder. They follow from applying a fragmented set of source documents as though it were a single one.

This paper proposes a layered identification and categorisation method built around six stages.

- Stage 1 addresses the avoidance duty under regulation 4(1) of the Confined Spaces Regulations 1997.
- Stage 2 determines whether the place is legally a confined space under regulation 1(2).
- Stage 3 profiles the hazards using the specified risks as the backbone, and wider COSHH, DSEAR, HSG53, HSG250, and operational rescue evidence as modifiers.
- Stage 4 assigns the operational entry and rescue class.
- Stage 5 links the outcome to the actual control package: permit, atmosphere strategy, RPE selection, supervision, suitability, rescue capability and casualty care readiness.
- Stage 6 requires review and dynamic reclassification whenever the underlying evidence changes.

The paper also proposes that enclosed or difficult access work areas where no specified risk is reasonably foreseeable be recorded separately from statutory confined spaces. That distinction is operationally helpful and protects the integrity of the regulation 1(2) decision. It must be stated clearly that the absence of confined space status does not remove other legal duties. The Health and Safety at Work etc Act 1974, the Management of Health and Safety at Work Regulations 1999, and, where their own tests are met, COSHH 2002, DSEAR 2002, PUWER 1998, and the Work at Height Regulations 2005, all remain in force.

The contribution of this paper is therefore a structured discipline overlay on the existing UK confined space framework. It does not propose new statutory duties; it proposes a method for applying the existing duties consistently, defensibly and in a way that links the classification outcome to the controls, competence and rescue arrangements that the statute already requires. The framework is intended to be usable by clients, contractors, rescue providers, training centres, assessors, and internal quality systems, and to be capable of audit.

CSRTA's specific contribution to that overlay is twofold. First, the layered identification and categorisation method set out in this paper. Second, a structured competence pathway expressed through the four occupation profiles for Verified Rescue Team Operator I (VRTO1), Verified Rescue Team Operator II (VRTO2), Verified Rescue Team Leader (VRTL) and Verified Rescue Team Manager (VRTM). Both the method and the pathway are designed to sit alongside and reinforce the existing UK statutory framework, ACOP, HSE guidance, and sector guidance. They are not designed to replace them.

The case made in this paper is that the United Kingdom does not need a new confined space law. It needs a method for applying the law it already has. Without that method, the inconsistency that already exists in classification, control, rescue and training will continue. With it, the same statutory framework can deliver consistent, defensible and demonstrably safer outcomes across sectors, organisations and supply chains.

Finally, a sector-neutral operational classification for use at Stage 4. The Water UK Occasional Guidance Note Edition 3.0 sets out NC1, NC2, NC3, NC4 and NCX as operational entry classifications for the water sector. However, no equivalent national scheme operates outside the water and utilities sector, and duty holders in other sectors currently rely on local descriptors that vary between organisations.

To address that gap, CSRTA proposes the Access Profile Codes (APC1 to APC6) as an organisational classification expressing the physical access and egress characteristics of a confined space in a form usable across all sectors.

The APC scheme is determined by three factual questions about the access position, access size, and internal route, and produces six categorical types that drive rescue planning and equipment selection.

It is not a risk score and does not substitute for the regulation 1(2) legal status decision or for the suitable and sufficient risk assessment required by regulation 3(1) of the Management of Health and Safety at Work Regulations 1999.

Introduction and Purpose

The purpose of this white paper is to set out a clear, evidence based method for identifying and categorising confined spaces that is legally sound, operationally useful, and capable of being defended under scrutiny.

The paper is written for duty holders, health and safety specialists, confined space managers, entry controllers, trainers, assessors, rescue providers and organisations responsible for specifying, auditing or reviewing confined space work.

It is intended to improve consistency in decision-making and to reduce the common tendency to use confined space asset names, industry-standard terms, or inherited site labels as substitutes for evidence-based confirmation.

Evidence based, in this context, means that decisions are anchored to the combined effect of the legal definition in regulation 1(2) of the Confined Spaces Regulations 1997, the foreseeable hazards of the location, the hazards introduced by the work, the operational difficulty of access and rescue, and the control standards required by the supplied guidance.

Industry Problem and Current Gap

The case for change rests on patterns that recur consistently across UK confined space practice. Each pattern can be evidenced from the source documents themselves and from the way they are commonly applied. None of these patterns requires an incompetent duty holder. They follow from the way the source materials sit in relation to one another, and from the absence of a single method that draws them together. Five patterns are described below.

Pattern 1: Asset Names Used as Categories

In current UK practice, the type or name of an asset is routinely used as a substitute for the regulation 1(2) test, which defines the confined space as a place determined by virtue of its enclosed nature, where a reasonably foreseeable specified risk arises.

A site may treat all of its tanks as confined spaces, all of its sumps as restricted spaces, or all of its valve chambers as enclosed but non confined. The classification follows the asset name, not the evidence.

This is also contrary to L101 paragraph 12 (Guidance), which states two defining features of a confined space being

- (a) It must be a space which is substantially (though not always entirely) enclosed; and
- (b) One or more of the specified risks must be present or reasonably foreseeable.

L101 also explains that a place not usually considered a confined space may become one if conditions change or if the work itself introduces one of the specified risks. The statutory test is condition based and task based, not name based.

The practical consequence is that classifications are inherited rather than supported by evidence. A space carries the label assigned by its predecessor in the asset register, and that label is rarely retested when the work changes.

When a different task is introduced, for example, hot work in a previously inert tank, the existing classification continues to be relied on even though the task has introduced a new specified risk. The L101 requirement that introduced the risks must be considered, but it is frequently overlooked in practice.

Pattern 2: The Avoidance Duty Treated as a Formality

Regulation 4(1) of the Confined Spaces Regulations 1997 requires that no person enter a confined space to carry out work for any purpose unless it is not reasonably practicable to achieve that purpose without such entry. This is a primary statutory duty. It precedes the entry controls in regulation 4(2) and the emergency arrangements in regulation 5.

In current UK practice, avoidance is too often treated as a paragraph in the method statement rather than a live decision. A decision to enter has typically been taken before the avoidance question is formally addressed, and the avoidance section then justifies the decision after the fact. Documentation of the avoidance decision as significant findings under regulation 3(6) of the Management of Health and Safety at Work Regulations 1999 is rarely produced in the form required by the regulation.

This pattern matters because it inverts the regulatory sequence. INDG258 reinforces the same approach in practical terms: identify the hazards, decide whether entry is necessary, and only then plan a safe system of work. When avoidance is treated as a formality, the rest of the assessment proceeds on an untested foundation.

Pattern 3: Operational Entry Classes Used as Legal Categories

The Water UK Occasional Guidance Note Edition 3.0 introduced NC1, NC2, NC3, NC4, and NCX as operational entry classifications for managing complexity and rescue arrangements in the water sector. The OGN itself is explicit that these are entry classification types and that NC4, in particular, requires a detailed risk assessment and a task-specific safe system of work. The OGN does not present NC categories as substitutes for the regulation 1(2) test.

In UK training and procurement practice, however, the NC system is regularly used in two ways that the OGN does not support. First, NC categories are sometimes treated as if they answered the legal status question, so that a space is recorded as “NC2” rather than as a confined space.

Second, NC categories are sometimes treated as risk levels, with NC2 and NC3 commonly described as “medium risk” and NC4 as “high risk”, even though the Water UK OGN does not assign that gradient. CSRTA has heard both versions in training environments and from clients during procurement.

The cost of this pattern is twofold. The legal record is weakened because the regulation 1(2) decision is implicit rather than recorded. And the risk record is weakened because a label intended to convey operational complexity is being read as if it conveyed risk. Neither outcome is what the OGN intends, and neither is consistent with the duty under regulation 4(2) of the Confined Spaces Regulations 1997 to operate a safe system of work based on a suitable and sufficient risk assessment of the actual space and task.

Pattern 4: Atmospheric Assessment Run as a Single Exercise

Atmospheric assessment in current UK practice is often conducted as a single exercise around a multi-gas detector. Oxygen, lower explosive limit, hydrogen sulphide and carbon monoxide readings are taken; alarms are set; entry proceeds. The assessment is treated as a single question with a single set of readings.

The source documents treat atmospheric control as two distinct questions. COSHH 2002, supported by L5 and EH40/2005, addresses the health effects of breathing air. It considers inhalation, skin absorption, ingestion, and puncture wounds, and uses workplace exposure limits expressed as time-weighted concentrations over an 8-hour reference period and a 15-minute short-term reference period.

DSEAR 2002, supported by L138, addresses the ignition and explosion hazards associated with atmospheric conditions. L138 paragraph 14 is explicit that health effects from substances and preparations are not within the scope of DSEAR and are covered by COSHH. L138 paragraphs 92 to 137 set out the DSEAR risk assessment in detail, including the likelihood and persistence of explosive atmospheres (L138 paragraphs 121 to 130) and ignition source control (L138 paragraphs 131 to 137).

HSG53 then addresses respirator selection, with paragraph 11 explicitly warning that respirators must not be used in oxygen-deficient atmospheres, paragraph 22 reinforcing that RPE is the last line of protection, and paragraphs 28 and 71-72 addressing fit testing for tight-fitting facepieces.

Running these as a single exercise loses the boundary. A multi-gas detector reading does not, on its own, answer either the COSHH or DSEAR question. It indicates whether immediate alarm thresholds are exceeded. That is not the same as a workplace exposure limit assessment, nor is it the same as an explosive atmosphere risk assessment.

The practical consequence is that RPE selection in particular is too often made on the wrong basis. A filtering device may be selected if the multi-gas detector readings are within the protection factor set by the filtering device and under the IDLH levels. However, it must never be selected if oxygen deficiency cannot be reliably excluded. HSG53 paragraph 11 prohibits this. L101 paragraph 173 reinforces it. The error arises because the atmospheric question has been collapsed into a single instrument reading.

Pattern 5: Rescue Arrangements Scaled to the Asset Rather Than the Casualty

Regulation 5 of the Confined Spaces Regulations 1997 requires that no person enter a confined space to carry out work for any purpose unless there have been prepared, in respect of that confined space, suitable and sufficient arrangements for the rescue of persons. L101 confirms that reliance on emergency services alone is insufficient to meet this duty.

In current UK practice, rescue arrangements are commonly scaled to the type of asset rather than to the casualty's condition or operational complexity. A standard tripod and winch arrangement is provided for a vertical chamber. An entry controller is provided for a horizontal entry. The arrangement is correct in form but does not always engage with the specific casualty scenario the entry could produce: an unconscious entrant requiring airway management, a casualty in trauma by suspension within a harness, an entrant in cardiac arrest in a low ventilation atmosphere, or a casualty engulfed by free-flowing solid.

The CSRTA occupation profiles describe what the regulation 5 duty means in practice when scaled to the casualty rather than the asset. The VRTO2 profile (Module 2) sets out confined space casualty care, including DRCABCDE primary survey, CPR and AED in restricted environments, atmospheric injury management, prolonged field care, and recovery of suspended casualties with explicit reference to HSE RR708 on suspension trauma. The VRTL profile outlines coordination with first responders using PHEM frameworks, triage models, and the ATMIST handover tool. The VRTM profile sets out resilience testing, command and control during confined space incidents, and integration of rescue capability with planning.

A rescue arrangement that meets the form of regulation 5 by providing a tripod and a watcher, but cannot engage with the casualty scenarios the entry can credibly produce, is not suitable, sufficient or immediate in the sense the statute requires. A categorisation method that does not link the classification outcome to the actual rescue and casualty care capability that the entry demands is not complete.

Common Cause

These five patterns share a common cause. The UK confined space framework comprises statutes, ACOPs, HSE guidance, sector guidance, and competence frameworks, developed at different times by different bodies for different purposes. Each document is internally coherent. The framework as a whole is not, because no single document sets out how the five sources are to be applied as a system.

- Pattern 1 follows from the absence of a clear statement that asset names are not categories.
- Pattern 2 follows from the absence of a clear statement that avoidance is sequenced before classification.
- Pattern 3 follows from the absence of a clear statement that operational entry classes are not legal categories.
- Pattern 4 follows from the absence of a clear statement that COSHH and DSEAR answer different questions and are not interchangeable.

- Pattern 5 follows from the absence of a clear statement that rescue arrangements must be scaled to the casualty scenarios that the entry can produce.

Each of these statements is implicit in the source documents. None of them is currently set out as a single, sequenced method that a duty holder can apply, audit and defend. That is the gap this paper is intended to close.

The Structural Origin of the Confusion

If the five patterns set out above are recognisable to anyone who works regularly with confined space entries in the United Kingdom, the natural question is why they persist. The answer is structural, not personal. The framework that governs confined space work in the UK has not been built; it has accumulated. Each layer was added for a sound reason, by a body acting within its remit, in response to the issues of its time. The layers were not designed, and have not been retrofitted, to function as a single system.

How the Layers Accumulated

The Health and Safety at Work etc Act sets the general duty of employers and self-employed persons to ensure, so far as is reasonably practicable, the health, safety and welfare of those at work and of other persons affected. The Act provides the foundation, but it does not specifically address confined spaces.

The Confined Spaces Regulations 1997 then provide the specific statutory test.

- Regulation 1(2) defines a confined space by reference to its enclosed nature and reasonably foreseeable specified risk.
- Regulation 3 concerns the duties of duty holders under the regulations.
- Regulation 4 imposes the avoidance duty and, where avoidance is not reasonably practicable, the duty to operate a safe system of work.
- Regulation 5 imposes the duty for suitable, sufficient and immediate rescue arrangements.
- The Regulations are designed to be short and intentionally non-prescriptive.

L101, in its current third edition (2014), is the Approved Code of Practice and guidance to the Regulations. L101 explains the statutory wording, sets out ACOP positions on supervision, suitability, atmospheric testing, RPE, and rescue, and provides guidance on practical control.

L101 is rightly cautious about prescribing numerical thresholds. It does not, for example, define enclosure in geometric terms or set a single oxygen percentage that triggers a particular control.

INDG258 (rev1, 2013) is HSE's brief guide for duty holders. It is shorter than L101 and is written for non specialists. It summarises the statutory duties and the practical controls that follow from them.

The Water UK Occasional Guidance Note Edition 3.0 (December 2019) is sector guidance for the water industry. It introduces NC1, NC2, NC3, NC4, and NCX as operational entry classifications, and the term 'restricted spaces' for substantially enclosed places without a reasonably foreseeable

specified risk. The OGN is clear internally that these are sector-specific operational management tools.

COSHH 2002 and L5 (sixth edition, 2013), supported by EH40/2005 (fourth edition, 2020), provide the framework for health based control of hazardous substances. DSEAR 2002 and L138 (second edition, 2013) provide the framework for fire and explosion control.

HSG53 (fourth edition, 2013) addresses respiratory protective equipment. HSG250 (first edition, 2005) addresses permit-to-work systems. The Management of Health and Safety at Work Regulations 1999 provide the underlying duty to assess risk and to record significant findings.

Each of these documents is internally coherent and well written. None of them was written to be read in conjunction with the others as a single confined space method. L101 does not direct the reader to L138 paragraph 14 for the COSHH and DSEAR boundary. L138 does not cite L101 paragraph 173 on the prohibition of filtering devices in oxygen deficient atmospheres.

The Water UK OGN does not include a worked example showing how an NC4 entry interacts with the HSG250 permit discipline.

INDG258 does not explain how its summary points sit alongside the more detailed positions in L101. The cross references that would let a duty holder see the framework as a system are not present in the source documents.

Why the Layers Do Not Combine in Practice

The lack of cross referencing has practical consequences. A duty holder who consults L101 will produce a correct but isolated decision on confined space identification. A duty holder who consults the Water UK OGN will produce an entry class that is correct in sector terms but does not, on its face, link back to the regulation 1(2) decision.

A duty holder who consults HSG250 will produce a permit that is correct under HSG250 but may have been issued before the underlying risk assessment is complete. None of these duty holders is acting outside their source. All of them are acting within their source. The system effect, however, is fragmented.

The fragmentation is amplified by the way confined space competence is currently delivered in the UK. Awarding organisations' qualifications, aligned to UK National Occupational Standards (NOS), are mapped to specific sectors and roles. They are well aligned to L101 and to INDG258 within those sectors. However, they are not always aligned with one another, and the relationship between operator level competence, supervisor level competence, and rescue capability is not consistently expressed across the available qualifications.

A duty holder purchasing training for a confined space team and a rescue capability for that team can therefore receive two competence statements that do not, on their face, integrate.

The Effect on Decisions

The combined effect is that confined space decisions in the UK are made against a fragmented evidence base. Different duty holders, working in good faith, can reach different classifications for similar spaces, select different controls, and procure different rescue arrangements, all while remaining consistent with the source documents they have consulted. The variation is not a sign that any of them is wrong. It is a sign that the source documents do not, on their own, produce a single consistent answer.

This matters because confined space work involves consequences that the variation cannot absorb. A misclassification at Stage 1 or Stage 2 cascades into the wrong control package at Stage 5. A control package that was correct under one source but did not engage with another source can fail in operation. A rescue arrangement that was correct in form can be inadequate when the casualty scenario is the one the assessment did not test for.

The Constructive Conclusion

This paper takes the position that the United Kingdom does not need new confined space legislation, new ACOP material, new HSE guidance or new sector guidance. The existing framework is, in substance, sound. What it lacks is a single method for combining its components. That is a gap that a competent industry body is in a position to fill, provided the method is anchored in the existing sources, does not create new duties, and is open to validation against current practice.

CSRTA's contribution to closing the gap takes two forms.

The first is the layered identification and categorisation method set out in this paper.

The second is the structured competence pathway expressed in the four CSRTA occupation profiles. Both are designed to sit alongside and reinforce the existing UK framework. Neither is intended as a replacement for any existing source.

Scope, Sources and Evidence Base

The evidence base used for this white paper includes the following documents. These are treated as the primary source set.

- **L101.** Safe work in confined spaces: Confined Spaces Regulations 1997 Approved Code of Practice and guidance (third edition, 2014).
- **INDG258.** Confined spaces: A brief guide to working safely (rev1, 2013). INDG258 is a separate HSE document used as a confined space source in this paper and provides practical controls that follow from it.
- **Water UK Occasional Guidance Note.** The Classification and Management of Confined Space Entries, Edition 3.0, December 2019.
- **HSG53.** Respiratory protective equipment at work (fourth edition, 2013).
- **L5.** Control of substances hazardous to health: Approved Code of Practice and guidance (sixth edition, 2013).
- **EH40/2005.** Workplace exposure limits (fourth edition, 2020).

- **L138.** Dangerous substances and explosive atmospheres: Approved Code of Practice and guidance (second edition, 2013).
- **HSG250.** Guidance on permit to work systems (first edition, 2005).
- **MHSWR 1999.** Management of Health and Safety at Work Regulations 1999, in particular regulation 3 on risk assessment, which provides the statutory anchor for the assessment method used in this paper.
- **CSRTA occupation profiles.** Verified Rescue Team Operator I (VRTO1) Version 3.5 (2026), Verified Rescue Team Operator II (VRTO2) Version 3.2 (2025), Verified Rescue Team Leader (VRTL) Version 3.1 (2025), and Verified Rescue Team Manager (VRTM) Version 3.1 (2025).

These sources cover the legal threshold for confined space status, the statutory risk assessment duty, the national water industry entry classifications, atmospheric health control, fire and explosion control, respiratory protection, permit-to-work systems, and CSRTA operational expectations for rescue, casualty care, and incident management.

Methodology

The methodology used to develop this paper followed a structured process. Each of the scope documents was reviewed against the same headings:

- Confined space definition;
- Scope;
- Threshold tests;
- Hazard mechanisms;
- Atmospheric issues;
- Fire and explosion considerations;
- Access and egress factors;
- Staff competence requirements;
- Expectations for control measures;
- Respiratory protection;
- Permit arrangements;
- Emergency rescue;
- Casualty implications;
- Review triggers.

The source materials were then separated into three systematic layers.

- **The first layer** captured legal identification criteria.
- **The second layer** captured hazard evidence.
- **The third layer** captured operational and rescue consequences.

This separation was essential because the source documents themselves use the same method.

Each candidate category was then tested against a single question:

Does the proposed category change what an organisation must do?

Categories that did not change what a duty holder must do were discarded. For that reason, every category in the final model is linked to real consequences.

Table 1: Evidence Hierarchy Used in This White Paper

Layer	Primary function	Main source documents	Why it matters
1	Legal threshold and duties	Confined Spaces Regulations 1997 / L101 / INDG258	Determines whether the Regulations apply and what minimum duties arise, including the duty to avoid entry under regulation 4(1).
2	Health, atmosphere and fire or explosion controls	COSHH (L5) / EH40 / DSEAR (L138) / HSG53	Distinguishes health exposure to waterborne and other contaminants, explosive atmospheres, ignition risk, and RPE capabilities.
3	Operational entry and rescue management	Water UK OGN / HSG250 / CSRTA manuals and rescue guidance	Considers entry controls, permit discipline, rescue capabilities and First Responder readiness.

Status of Sources

Statutory law. Acts and Regulations are binding legal requirements. In this paper, examples include the Health and Safety at Work etc. Act 1974, the Confined Spaces Regulations 1997, the Management of Health and Safety at Work Regulations 1999, COSHH 2002, DSEAR 2002, PUWER 1998, LOLER 1998 and the Work at Height Regulations 2005.

Approved Codes of Practice. ACOPs are approved under section 16 of the Health and Safety at Work etc. Act 1974 and have evidential status under section 17. They are not law in themselves, but may be relied on in criminal proceedings as evidence of what should have been done unless an equally effective alternative approach is demonstrated.

HSE guidance. HSG and INDG publications are guidance only. They are not statutory requirements, but they describe recognised ways of complying with legal duties and should not be dismissed as optional background reading.

Sector guidance. The Water UK OGN classifications are sector operational guidance. They support the management of entry complexity and rescue planning, but they do not define the legal status of confined spaces.

Organisational policy and author inference. CSRTA terms, decision tools and operational models are organisational aids. They may support consistency, but they do not replace statutory tests, ACOP expectations, HSE guidance, or site-specific risk assessments.

Terms Used in This Paper

- **By virtue of its enclosed nature**, the statutory wording in regulation 1(2) of the Confined Spaces Regulations 1997.
- **Substantially enclosed**: the L101 paragraph 12 (Guidance) explanation of the statutory enclosure limb. It is not a separate statutory phrase.
- **Specified risk**: one of the risks listed in regulation 1(2) of the Confined Spaces Regulations 1997.
- **Confined space**: a place meeting the regulation 1(2) statutory test.
- **Restricted space**: a Water UK sector term for substantially enclosed places without a reasonably foreseeable specified risk, as set out in the Water UK OGN Edition 3.0.
- ***Controlled space**: a CSRTA organisational label for managing enclosed work areas that do not meet the statutory confined space test. It has no legal status and does not serve as a substitute for regulation 1(2) of the Confined Spaces Regulations 1997.
- **NC1 to NC4 and NCX**: Water UK operational entry classifications. They manage operational complexity and rescue planning. They are not statutory definitions.
- **Attendant or entry controller**: a competent person outside the space, where required by the risk assessment, to supervise, communicate, monitor and initiate emergency arrangements.
- **Permit to work**: a formal, recorded control process. It is an extension of the safe system of work, not a replacement for the risk assessment or method statement.
- **Safe system of work**: the planned and controlled way of carrying out the work, including suitable equipment in good working order.

* CSRTA Controlled Space DEFINITION:

Controlled Space

A substantially enclosed or access-restricted work area that does not contain, and is not reasonably foreseeable to contain, any of the specified risks that would make it a confined space under the Confined Spaces Regulations 1997.

Regulatory and Guidance Considerations

Legal Identification under the Confined Spaces Regulations 1997 and L101

The starting point remains the statutory definition. Regulation 1(2) of the Confined Spaces Regulations 1997 defines a confined space as any place, including any chamber, tank, vat, silo, pit, trench, pipe, sewer, flue, well or other similar space, in which, by virtue of its enclosed nature, there arises a reasonably foreseeable specified risk.

The statutory definition, therefore, has two limbs. First, the place must be one in which, by virtue of its enclosed nature, a specified risk can arise. Second, that specified risk must be reasonably foreseeable. L101 paragraph 12 (Guidance) explains the enclosure limb using the phrase “substantially (though not always entirely) enclosed”.

The specified risks listed in regulation 1(2) of the Confined Spaces Regulations 1997 are:

- Serious injury to any person at work arising from a fire or explosion;
- Without prejudice to paragraph (a), the loss of consciousness of any person at work arising from an increase in body temperature;
- The loss of consciousness or asphyxiation of any person at work arising from gas, fume, vapour or the lack of oxygen;
- The drowning of any person at work arising from an increase in the level of liquid;
- The asphyxiation of any person at work arising from a free-flowing solid or the inability of any person at work to reach a respirable environment due to entrapment by a free-flowing solid.

L101 also explains that a place not usually considered a confined space may become one if conditions change or if the work itself introduces one of the specified risks.

This is one of the most important evidence points in the source set. It means the classification decision must account for both intrinsic hazards and hazards introduced by the proposed work.

The classification decision must therefore test the statutory definition directly. It must not replace that test with an asset name, an operational class or a training label.

Reasonable foreseeability should be applied to the evidence available to the duty holder. Where case law is referenced, it should be limited to authorities directly relevant to health and safety foreseeability, such as:

R v Chargot Ltd [2008] UKHL 73;— Robb v Salamis (M&I) Ltd [2006] UKHL 56.

However, the terminology, by virtue of its enclosed nature, is not as straightforward as one might expect, given the mix of documents considered together.

Neither the Confined Spaces Regulations 1997 nor L101 contain any quantitative threshold to determine enclosure.

There is no percentage of openings, no volume-to-opening ratio, no ventilation rate, no air change calculation, and no geometric test that determines the outcome.

L101 does not define enclosure in measurable terms.

L101 provides dimensional guidance for access and egress openings. Those figures are ergonomic and rescue thresholds, not a definition of enclosure or enclosed space.

Because the Confined Spaces Regulations 1997 do not define “enclosed nature” by a numerical formula, the decision must be made as a question of fact on the evidence available for the particular space and task.

Where entry involves work at height, which many entries do, the Work at Height Regulations 2005 (Regulation 2) applies in parallel with the Confined Spaces Regulations 1997, not as a fallback. Vertical entry chambers, shafts and tanks may engage both sets of duties simultaneously, where a person could fall a distance, above or below ground, liable to cause personal injury.

The Avoidance Duty under Regulation 4(1)

Regulation 4(1) of the Confined Spaces Regulations 1997 requires the duty holder to consider whether the work can be undertaken without entry. Only where entry cannot reasonably be avoided do the subsequent entry controls under regulations 4(2) and 5 apply in their full extent. These controls include:

- A safe system of work;
- Worker competence;
- Emergency arrangements.

A classification record that begins with an entry plan but fails to address avoidance is legally incomplete. Practical avoidance measures can include, but are not limited to:

- Remote inspection technologies;
- Robotic survey systems;
- Extendable pole tools;
- Modifications to external access;
- Process redesign.

Where these options are investigated and discounted, the reasons should be documented as part of the significant findings of the risk assessment under regulation 3(6) of the Management of Health and Safety at Work Regulations 1999, and retained for review under regulation 3(3) where conditions change.

Practical Control Requirements under INDG258 and MHSWR 1999

INDG258 reinforces the same approach in practical terms. It requires risk assessment, consideration of whether entry can be avoided, and the development of a safe system of work where entry is unavoidable.

INDG258 specifically points to:

- Supervision;
- Suitability of persons;
- Isolations;
- Cleaning before entry;
- Size of the entry opening;
- Ventilation;
- Gas testing;
- Special tools and lighting;
- Breathing apparatus;
- Emergency arrangements;
- Rescue harnesses;
- Communications;
- Permit to work, where required.

The wider risk assessment method that underpins this paper is the duty in regulation 3 of the Management of Health and Safety at Work Regulations 1999 to make a suitable and sufficient assessment of the risks, recorded under regulation 3(6) where five or more persons are employed, and reviewed where there is reason to suspect that it is no longer valid or where there has been a significant change in the matters to which it relates.

The five-step structure INDG163 (rev4 2014), used by HSE, remains a workable expression of that duty:

- Identify hazards.
- Decide who may be harmed and how.
- Evaluate the risks and decide on precautions.
- Record the findings and implement them.
- Review and update.

For this paper, that structure underpins the decision record proposed in Appendix B.

In confined space work, step 3 requires particular rigour. The evaluation must address specified risks, hazards introduced by the work, dynamic conditions and the suitability of the proposed rescue arrangements.

A generic evaluation of common workplace risks is a known practice, but it is not sufficient.

Supervision, Lone Working and Attendant Duties

L101 makes clear that supervision is a required part of the safe system of work. The level of supervision must be based on the findings of a suitable and sufficient risk assessment, which may also require the appointment of a competent person to supervise the work and to remain present while it is being undertaken.

In addition, communication between those inside and those outside the confined space must be maintained to allow those outside to raise the alarm and initiate emergency rescue procedures, as required by Regulation 5 of the Confined Spaces Regulations 1997 and reflected in L101.

Taken together, these provisions support the need for a competent person outside the confined space, where the risk assessment identifies that level of control as necessary, to supervise the work, maintain communications and initiate the emergency response without delay.

The Confined Spaces Regulations 1997 do not prohibit lone working in a confined space. The operative test is whether the emergency arrangements required by regulation 5 of the Confined Spaces Regulations 1997 are suitable, sufficient and immediate in the circumstances.

For most person entry confined space tasks, the risk assessment will conclude that an attendant or entry controller posted outside the space is necessary to discharge Regulation 5(3). Where a lone entry scenario is proposed, the risk assessment must evidence how the full extent of Regulation 5 will be met without an attendant. In the authors' view, this represents a demanding evidential burden for any non-trivial entry.

A classification framework must therefore specify, for each operational class, the attendant and communication arrangements required and the evidential basis for varying them.

Medical Fitness and Suitability of Persons

There is no general statutory requirement under the Confined Spaces Regulations 1997 for routine medical screening of all confined space entrants. Suitability, including physical and, where relevant, medical suitability, is a risk based ACOP expectation under L101.

Where the task involves RPE or breathing apparatus, fitness to wear the selected equipment is required by L101 (ACOP) and by HSG53, and must be treated as a safety critical control.

For operational teams and entrants, the duty holder must ensure that persons are trained and suitable for the roles assigned to them, as set out in L101 ACOP paragraph 84, L101 ACOP 5 paragraph 151 and Guidance 5 paragraph 158 et al. Any medical input must be proportionate to the hazard profile and task demands.

A classification framework should therefore flag when task specific suitability assessment or proportionate medical input is required, particularly for RPE or BA use, heat stress, physical constraints or prolonged entry scenarios.

Water UK OGN and the National Entry Classifications

Water UK provides an important but different contribution. It does not redefine a confined space. Instead, it provides a framework for managing entries in the water sector through NC1, NC2, NC3, NC4 and NCX, as set out in the Water UK OGN Edition 3.0.

The OGN explicitly states that its classifications should be used alongside risk assessments. NC1 to NC3 are generic entry classification types, and that NC4 requires a detailed risk assessment and a task specific safe system of work.

It is worth noting that within the UK training industry, risk values are sometimes attached to NC categories. For example, NC2 is described as medium risk, NC3 as medium risk, and NC4 as high risk.

This approach carries a significant danger. If an NC category is treated as a pre-assigned risk level, it can suggest that the risk assessment has already been done and that entry can proceed on the basis of the label alone. That is not what the Water UK OGN intends, and it is not consistent with the duty under regulation 4(2) of the Confined Spaces Regulations 1997 to operate a safe system of work based on a suitable and sufficient risk assessment of the actual space and task.

The NC classification describes operational complexity and rescue management. It does not substitute for risk assessment.

Critically, NC4 entries under the Water UK OGN require not only enhanced documentation but also additional specialist competence beyond that required for standard NC1-NC3 entries. This distinction between the documentation standard and the competence standard is significant. A permit and a risk assessment alone do not meet the NC4 requirement if the team lacks the specialist competence the space demands.

The Water UK OGN introduces the concept of restricted spaces: substantially enclosed areas which may not present the specified risks that would make them confined spaces under the Regulations.

CSRTA uses the term controlled space as an organisational management label for this operational concept. However, it has no legal status and must not be used as a substitute for the regulation 1(2) confined space test.

COSHH, EH40 and the Control of Atmospheric Health Risk

COSHH 2002 applies to a wide range of hazardous substances, including asphyxiants, dusts, vapours, gases, fumes and biological agents. As reflected in L5, COSHH 2002 requires suitable and sufficient assessment, adequate control of exposure, monitoring where required, and arrangements for accidents, incidents, and emergencies. The assessment must consider all relevant exposure routes:

- Inhalation;
- Skin absorption;
- Ingestion;
- Puncture wounds.

EH40/2005 and the supporting COSHH ACOP (L5) explain that workplace exposure limits are time-weighted concentrations, normally expressed over an 8-hour reference period and a 15-minute short term reference period. They are not a simple safe versus unsafe line, and they are not, on their own, a confined-space classification tool.

The absence of a workplace exposure limit (WEL) does not mean a substance is safe. In the authors' view, consistent with confined space monitoring practice, reliance on a single static WEL reading is not an adequate control in a low ventilation enclosed space, because concentrations can escalate rapidly and unpredictably.

DSEAR and the Control of Dangerous Substances and Explosive Atmospheres

DSEAR 2002 adds a second atmospheric view. It concerns dangerous substances, explosive atmospheres, ignition sources and the physical effects of fire and explosion. L138 paragraph 14 is explicit that health effects from substances and preparations are not within the scope of DSEAR and are covered by other legislation, in particular COSHH 2002. The COSHH and DSEAR questions are linked but distinct, and a defensible classification framework must address them separately.

As reflected in L138 (regulation 5(2), expanded at L138 paragraphs 92 to 137), the DSEAR risk assessment must consider the hazardous properties of the substance, information from the supplier, including any safety data sheet, and the circumstances of the work. This includes:

- The work processes and substances used, including their possible interactions;
- The amount of dangerous substance involved;
- Non-routine activities such as cleaning, repair and maintenance, which L138 paragraphs 111 to 115 identify as carrying a heightened potential for fire and explosion;
- The temperatures and pressures at which substances are handled;
- Containment, and the possibility of explosive atmospheres within enclosed plant or storage vessels;

- Ventilation arrangements;
- The likelihood that an explosive atmosphere will occur and how long it will persist, as set out in I138 paragraphs 121 to 130;
- The likelihood that ignition sources, including electrostatic discharges, will be present and become active and effective, as set out in I138 paragraphs 131 to 137.

This is particularly important in confined spaces, where relatively small gas releases can become serious when ignition risk is increased, and emergency escape is difficult. The implication for this white paper is that atmospheric categorisation requires two linked but separate questions:

- What is the health effect of breathing the atmosphere?
- What is the ignition or explosion effect of being in that atmosphere?

These questions require different assessment tools and drive different controls.

HSG53 and Respiratory Protective Equipment

Terminology used in this paper.

Respiratory Protective Equipment (RPE) is used as the umbrella term in this paper. Two distinct types are recognised, consistent with HSG53. Filtering devices, also called respirators, only work when the surrounding atmosphere is breathable. These devices use filters to remove specific contaminants.

Some filtering devices include filtering facepieces (FFP1–3, EN 149), half masks, and full face masks for particles or gas and vapours (EN 140 and EN 136).

Powered air purifying respirators (PAPR) are also available and use turbo hoods (TH1–3) or turbo masks (TM1–3). These filtering devices may be non-powered, thus relying on the wearer's breathing, or powered, using a motor to deliver the filtered air.

Breathing apparatus provides respirable air that meets the purity requirements of BS EN 12021. It uses an independent source: a fresh-air hose, a compressed-air line, or a self-contained cylinder.

Filtering devices and breathing apparatus are not interchangeable. Filtering devices work only where the atmosphere is breathable, and the contaminant is known, measurable, and within the filter's protection range. When the atmosphere is oxygen-deficient, unknown, not breathable, or immediately dangerous to life or health, a breathing apparatus is required. In confined space work, where the atmosphere can become IDLH, breathing apparatus must be supported by an escape provision, such as an escape set or escape cylinder. This ensures safety if the primary air supply is compromised.

HSG53 paragraph 11 explicitly warns that respirators must not be used in oxygen-deficient atmospheres and refers the reader to L101 for further information. L101 paragraph 173 reinforces the same point in the confined space context.

A filter can remove selected contaminants from air, but it cannot make an oxygen deficient or irrespirable atmosphere safe to breathe. Where oxygen deficiency, an unknown atmosphere, an immediately dangerous atmosphere or life threatening concentrations of airborne contaminants cannot be reliably excluded, selection should move away from filtering devices and toward suitable breathing apparatus, such as self contained breathing apparatus or another supplied air system justified by the risk assessment, in line with HSG53 and L101.

HSG53, paragraph 22, also states that, under the law, RPE is the last line of protection. RPE must be adequate for the hazard and suitable for the wearer, task, and environment. Where tight fitting facepieces are used, HSG53 paragraph 28 requires the initial selection to include a face fit test, and HSG53 paragraphs 71 to 72 explain the fit testing process. RPE selection must be supported by competent training, supervision, maintenance, cleaning, examination, storage and records, all in accordance with HSG53. RPE selection must therefore be part of the risk assessment, the safe system of work, the emergency arrangements and the rescue plan. It should not be treated as a late procurement decision.

For confined space work, any category of work that can credibly generate oxygen deficiency, an irrespirable atmosphere, unknown atmospheric conditions or high contaminant concentrations should immediately trigger a higher level of planning. That includes atmospheric testing, control measures, emergency arrangements, competent supervision, rescue capability and suitable breathing apparatus, in line with HSG53 paragraph 11 and L101 paragraph 173. It should not be approached on the assumption that a filtering device will be adequate.

Permit to Work Requirements under L101 and HSG250

L101 requires a permit to work in defined circumstances, including where inert gas purging is used to remove a flammable or explosive hazard and the work cannot be carried out safely from outside the confined space.

In other cases, whether a permit to work is used is determined by the risk assessment and the safe system of work required by regulation 4(2) of the Confined Spaces Regulations 1997.

HSG250 describes how a competent permit to work system should function when one is adopted. It does not create a blanket permit requirement for every confined space entry.

Both sources support the same essential point: the permit is an extension of the safe system of work, not a replacement for it.

A permit records that the following are in place:

- Risk assessment;
- Isolations;
- Controls;
- Communication;
- Authorisation;
- Suspension;
- Handover arrangements.

Issuing a permit without completing those prior steps provides no legal protection and creates a false impression of control.

HSG250 requires that interaction, simultaneous activities, suspension, handover, and handback be managed through the permit system. These are not administrative details. They are the mechanisms by which the permit prevents unintended entry, loss of control and system failure.

CSRTA Operational Rescue Evidence

Under regulation 5 of the Confined Spaces Regulations 1997, suitable, sufficient and immediate rescue arrangements must be in place before any person enters a confined space. L101 confirms that reliance on emergency services alone is insufficient to comply with regulation 5.

CSRTA Critical Incident Decision Model.

CSRTA publishes the Critical Incident Decision Model (CIDM), Version 1.5, dated 19 January 2026, as a structured decision-making aid for confined space emergencies. The CIDM is organisational guidance, not statutory instruction. It supports rescue organisations and on-scene rescue teams in exercising informed professional judgement during a live incident, in a manner consistent with the regulation 5 duty to provide suitable, sufficient and immediate emergency arrangements.

The CIDM sets out two decision pathways: one for time-critical scenarios where indicators of imminent danger to the rescuer or casualty are present, and a rapid rescue response is required, and one for stable scenes where the environment is controlled. The casualty's clinical needs take priority over the speed of extraction. Both pathways operate within a dynamic risk assessment, in line with the casualty-centred principle reflected in the VRTO2 occupation profile (Module 2). The operational thresholds and hazard indicators that drive each pathway are set out in the full document.

The CIDM is distinct from, and complementary to, the six-stage classification method set out in this paper. The six-stage method addresses how a confined space and its associated work are classified and controlled before entry. The CIDM addresses how decisions are made during a live emergency, once a rescue is in progress. A defensible regulation 5 arrangement requires both classification at the planning stage and structured decision-making at the operational stage.

The full CIDM is held by CSRTA and is made available to verified rescue providers, member organisations and approved training providers through the CSRTA secretariat.

It is not reproduced in this paper. The operational thresholds within the CIDM are intended for controlled distribution to organisations whose rescue competence has been verified through the CSRTA occupation profile pathway.

The CSRTA pathway adds a structured operational layer that is largely absent from generic confined space guidance. CSRTA publishes occupation profiles for each role in the rescue pathway. These are drawn on directly in this paper:

- Verified Rescue Team Operator I (VRTO1) Version 3.5, dated 25 January 2026, the entry level qualification covering core safety critical competence, including pre-entry atmospheric monitoring, harness selection, basic rope work, ATEX equipment marking, RPE inspection and awareness of chemical rebreather systems and underpinned by the N.O.S.
- Verified Rescue Team Operator II (VRTO2) Version 3.2, dated 21 October 2025, which adds advanced rope rescue, anchor and powered rope systems, work positioning and fall arrest, edge protection, suspended casualty recovery (with explicit reference to HSE RR708 on suspension trauma), and an integrated confined space casualty care module

covering primary and secondary survey, CPR and AED in restricted environments, atmospheric injury management, and prolonged field care;

- Verified Rescue Team Leader (VRTL) Version 3.1, dated 1 December 2025, which addresses verification of rescue arrangements, dynamic and point of work risk assessment, supervision of entry and standby teams, multi-agency coordination using JESIP principles, structured medical handover using the ATMIST tool, casualty triage and prioritisation, and incident response and investigation;
- Verified Rescue Team Manager (VRTM) Version 3.1, dated 16 November 2025, which sets out strategic responsibility for risk assessments and method statements, resilience testing and capability assurance, equipment and asset management, permits to work and isolation systems, command and control during confined space incidents, competence and performance management, site response planning, and environmental impact assessment.

Taken together, the VRTO1 and VRTO2 profiles describe operator-level rescue competence, including atmospheric monitoring, RPE and/or SCBA, advanced rope systems, suspended casualty recovery, and confined space casualty care. The VRTL and VRTM profiles describe the leadership and management competence required to plan, direct, verify and review rescue operations.

The VRTL profile (Task 4) anchors multi-agency coordination in the JESIP principles, and the VRTL profile (Task 6) and the VRTM profile (Task 7) draw on PHEM frameworks, triage models, and the ATMIST handover tool for clinical communication.

CSRTA uses three structured training aids to support, but not replace, the statutory risk assessment.

FA₁TA₂L maps the statutorily specified risks under regulation 1(2).

ESCAPE maps non-specified hazards introduced by the work, the equipment or the environment.

Access Profile Code (APC) maps the physical access and egress geometry that drives rescue planning. These aids inform the Stage 1 to Stage 5 logic at distinct points and are not used as substitutes for the regulation 1(2) test, the wider risk assessment, or the operational class decision.

Core Findings

- The avoidance duty under regulation 4(1) of the Confined Spaces Regulations 1997 is a primary legal obligation. It must be addressed and documented before any entry decision is made or an entry class is assigned.
- Legal confined space status and operational entry class are separate decisions and should not be presented as though they are the same.
- A space can become a confined space because of the work itself, even if it is not usually treated as one, as recognised in L101.
- Enclosed or difficult to access work areas with no reasonably foreseeable specified risk should be kept distinct from a statutory confined space status. Other duties under the Health and Safety at Work etc. The Act 1974, the Management of Health and Safety at Work Regulations 1999, and, where applicable, the Work at Height Regulations 2005, COSHH 2002 and PUWER 1998, continue to apply where their own tests are met.

- Atmospheric assessment must separate health exposure, oxygen adequacy, and fire or explosion potential. These are different regulatory questions answered by different instruments, as reflected in COSHH (L5), EH40, DSEAR (L138) and HSG53.
- Workplace exposure limits are necessary but not sufficient. They do not replace dynamic risk assessment, emergency thresholds or explosion assessment, as explained in L138.
- RPE selection is an outcome of categorisation, not a substitute for it. Oxygen-deficient or potentially irrespirable conditions require breathing apparatus, not filtering devices, in line with HSG53.
- Supervision and attendant arrangements are risk controls, not administrative preferences. Lone working is not prohibited by the Confined Spaces Regulations 1997, but any lone entry scenario must evidence how suitable and sufficient regulation 5 emergency arrangements will be achieved without an attendant.
- Task specific suitability, including medical or physical suitability where relevant, is a risk control. It must be linked to the space's hazard profile, operational class and the equipment to be used.
- Operational complexity, including access geometry, egress, distance from entry, attachment status and rescue method, materially changes the control standard required.
- A defensible framework must link categories to permit requirements, rescue capability, casualty care readiness and review triggers.

Proposed Evidence Based Model

The proposed model is intentionally layered for ease of understanding. Each stage answers a different question and should be recorded separately. This prevents the common error of using a single label to address multiple problems.

The sequence must not be reversed. Avoidance must be considered first, legal status must then be determined, and only after those steps can hazard profile, operational class and control consequences be confirmed.

Stage 1: Avoidance

The first question the duty holder must answer is whether the need to enter the confined space can be eliminated or avoided so far as is reasonably practicable.

This is not a preliminary consideration; it is a statutory duty under regulation 4(1) of the Confined Spaces Regulations 1997.

The avoidance assessment must be active, specific and documented. It must consider whether the work or inspection objective can be achieved by:

- Remote means;
- Modifying external access;
- Process redesign;
- Alternative methodology.

Where avoidance is not reasonably practicable, the reasons must be recorded as part of the significant findings of the risk assessment under regulation 3(6) of the Management of Health and Safety at Work Regulations 1999.

Only then does the duty holder proceed to the legal status decision.

Stage 2: Determine Legal Status

This stage asks a simple but decisive question: is the location a confined space under regulation 1(2) of the Confined Spaces Regulations 1997? The outcome must be one of the following categories.

Status	Definition	Typical evidence trigger	Consequence
Not enclosed or not sufficiently enclosed	The space does not meet the statutory enclosed nature limb of regulation 1(2), and no comparable enclosure effect exists.	An open work area with no enclosure effect.	The Confined Spaces Regulations 1997 do not apply. HSWA 1974 s.2, MHSWR 1999 reg 3, and as applicable COSHH 2002, WAHR 2005, PUWER 1998 and other duties continue to apply where their own tests are met.
Enclosed restricted work area	The location is substantially enclosed, but no specified risk is present or reasonably foreseeable, whether intrinsic or introduced by the work.	Substantially enclosed chamber or room with no foreseeable specified risk.	The Confined Spaces Regulations 1997 do not apply. Other duties remain in force where their own tests are met, including HSWA 1974 s.2, MHSWR 1999 reg 3, WAHR 2005, COSHH 2002 and PUWER 1998. Risk assessment, access control, competence, supervision, communication and recovery planning remain required. Any introduced specified risk triggers a legal status review.
Statutory confined space	The place is one in which, by virtue of its enclosed nature, a reasonably foreseeable specified risk arises, whether intrinsic or introduced by the work.	Gas, oxygen deficiency, hot work, rising liquid, free-flowing solid, increased body temperature or fire and explosion risk.	The Confined Spaces Regulations 1997 apply in full. Proceed through Stages 3 to 6.

This legal status stage must always be completed before any operational entry or rescue class is applied.

If Stage 2 is skipped, the organisation risks using an entry management label to answer a legal question it was never designed to answer.

Stage 3: Build the Hazard Profile

Once legal status is confirmed, the next step is to profile the hazards. The paper proposes using the specified risk lens as the backbone of hazard identification, then adding wider consequence modifiers required by COSHH, DSEAR and operational rescue practice.

The CSRTA training FA₁TA₂L hazard framework is a training aid that maps to the five specified risk categories in regulation 1(2) of the Confined Spaces Regulations 1997. Each letter corresponds to a hazard family reflected in the codes below.

Code	Hazard family	Evidence questions	Typical control implications	Reg 1(2) ref
F	Fire and explosion	Is there a dangerous substance, flammable atmosphere, oxygen enrichment, ignition source or hot work that introduces fire or explosion risk?	Explosion-protected equipment, ignition control, hot work permit, ventilation, hazardous area classification and fire response.	reg 1(2)(a)
A1	Atmospheric health risk	Is there oxygen deficiency, simple asphyxiant risk, toxic gas, fume, vapour, mist or dust, or contaminant generation from the task? Oxygen enrichment sits in F (fire and explosion).	Pre-entry and continuous testing, ventilation, BA selection, COSHH controls and medical readiness.	reg 1(2)(b)(ii)
T	Temperature	Can the space or task cause increased body temperature, heat stress, steam-cleaning exposure, or thermal extremes?	Exposure time limits, cooling controls, additional supervision, thermal monitoring and extraction planning.	reg 1(2)(b)(i)
A2	Airway obstruction or engulfment	Could free-flowing solids, slurry, or particulate material engulf, entrap or obstruct respiration?	Mechanical isolation, stop-work triggers, trench shoring, rapid rescue planning, and specialist recovery arrangements.	reg 1(2)(d)
L	Liquids	Could the level of liquid increase and create a drowning risk?	Isolation, weather and level monitoring, stop work triggers, evacuation and rescue planning.	reg 1(2)(c)

The hazard profile should not be used to replace the legal test. It describes what makes the space dangerous, how quickly conditions could deteriorate, and which controls must be followed.

The CSRTA training ESCAPE hazard framework is a training aid that maps non-specified hazards introduced by the work, the equipment or the environment.

Code	Hazard family	Evidence questions	Typical control implications	Source basis
E1	Electrical: fixed supply, portable tools, static discharge, ATEX requirements, stored energy	Is there live equipment, stored energy, water ingress on electrics, or a risk of static ignition where a flammable atmosphere could be present?	Isolation and lockout/tagout; intrinsically safe or ATEX-rated equipment; RCD protection; bonding and earthing; control of re-energisation.	L101 and relevant regulations and guidance
S	Structural collapse, subsidence, loss of integrity, corrosion, loss of rigidity on draining, unstable ground	Is there any doubt about structural integrity, corrosion, loss of rigidity when drained, or surrounding ground stability?	Engineering review, shoring, propping, condition survey, drain-down controls, stop-work triggers, and specialist rescue system.	L101 and relevant regulations and guidance
C	Contamination: introduced substances, previous contents, residues, migration from adjoining plant, biological agents	Are cleaning chemicals, solvents, adhesives, hot work consumables, biohazards or substances from adjoining plant being introduced or disturbed?	COSHH assessment, decontamination, hygiene regime, PPE, immunisation where indicated, retest of FA ₁ TA ₂ L on introduction, isolation of adjoining systems.	COSHH (L5), L101
A	Access and egress: size, number and position of openings, route changes, rescue practicability, side or upward entry	Can a casualty be removed using the chosen rescue system? Are the opening size and route adequate for a fully equipped rescue operative, a stretcher, a recovery stretcher or a tripod line?	Verification against L101 dimensional guidance, rescue system selection, temporary openings, entry point selection (bottom or low preferred over top) and regulation 5 arrangements.	L101, regulation 5 of the Confined Spaces Regulations 1997
P	Physical conditions: lighting, visibility, noise, restricted dimensions, ergonomic and MSD risk, surface conditions	Are lighting and visibility adequate? Is the noise level compatible with communication and evacuation? Do the physical dimensions restrict movement or rescue?	Intrinsically safe lighting, a communication method suited to noise, posture and task planning, limited working time and supervisor controls.	L101 and relevant regulations and guidance
E2	Equipment: mechanical plant, moving parts, stored pressure, lifting equipment, ropes and harnesses, BA condition	Is a mechanical plant present or accessible? Is the lifting and rescue equipment fit, examined, certified and compatible with the task?	PUWER 1998 and LOLER 1998 compliance, isolation and locking off, thorough examination, compatibility checks for rope, anchor and harness, and pre-use inspection.	PUWER 1998, LOLER 1998, L101

Stage 4: Assign the Operational Entry and Rescue Class

Access Profile Codes (APC)

Once the legal status decision and the hazard profile are complete, the organisation assigns an operational entry and rescue class. The class describes the practical complexities of access, attachment, distance from entry, geometry, rescue progression and task interaction. It is not used to answer the legal confined space question.

The Water UK Occasional Guidance Note Edition 3.0 sets out NC1-NC4 and NCX as operational entry classifications for the water sector. No known equivalent national scheme exists for confined space work outside the water and utilities sectors, and duty holders in construction, manufacturing, marine, agriculture, transport, food and beverage, pharmaceutical and other sectors currently rely on local descriptors that vary between organisations.

CSRTA proposes the Access Profile Codes (APC1-APC6) as a sector-neutral operational classification of the physical access and egress characteristics of a confined space.

The APC describes how people enter, move within, and leave the space in a structured form that drives rescue planning and equipment selection. Where the water or utilities sectors apply, the Water UK NC classification currently remains the authoritative sector tool.

The APC scheme has no statutory or ACOP status and is recorded under the "Status of Sources" framework set out earlier in this paper. The APC does not describe risk, hazard, atmosphere, control package or competence requirements.

Those are addressed separately at Stages 1 to 4 and combine with the APC at Stage 5 to determine the operational class and control package.

Three ordered questions decide the APC.

First, is rope access the only viable means of entry or egress? If yes, the type is APC-6.

Second, does reaching the working position require travel involving a change of direction, a change of level, or branching between connected spaces? If yes, the type is APC-5.

Third, for all other cases, the type is determined by access position (side or top) and access size (≥ 600 mm or < 600 mm).

The 600 mm threshold corresponds to the size at which standard backpack SCBA will reliably pass through with a wearer, and is testable in the field with a tape measure.

The value of 600 mm is 25 mm greater than the 575 mm diameter determined within L101 ACOP, "Size of openings to enable safe access to and egress from confined spaces", Plant and equipment guidance paragraph 164. The 600mm value is also referenced in L101 ACOP "Appendix 3 Standards relevant to manholes and other access to confined spaces".

The six types are categorical and parallel, not ordered.

APC1 is not safer than APC6. The numeric label is an identifier, not a risk grade.

A short walk-in entry (APC1) into an atmosphere with a serious H₂S history attracts a more demanding control package than a complex internal route (APC-5) into a space with a clean atmospheric history.

Access Profile Code	Access position	Access size	Internal configuration	Operational meaning
APC1	Side Entry	≥ (More Than) 600 mm Access.	Work at the access point or a short straight route.	Walk-in side entry; the worker reaches the work without changes of direction or level.
APC2	Side Entry	<(less than) 600 mm Access.	Work at the access point or a short straight route.	Side entry through a limited access that constrains casualty packaging and rescuer equipment.
APC3	Top Entry	≥ (More Than) 600 mm Access.	Vertical descent to a fixed working position.	Vertical entry from above to a working position directly below; standard tripod and winch geometry.
APC4	Top Entry	<(Less Than) 600 mm Access.	Vertical descent to a fixed working position.	Vertical entry from above through a limited access that constrains rescue equipment from passing through.
APC5	Any access type	Any size Access	Internal travel away from the entry A change of direction, level or branching	Team progression entry where rescue mechanics depend on both the internal route and the access.
APC6	Rope or elevated access	Not applicable	Suspended work, rope traverse, rope-to-internal travel or elevated access.	Industrial rope access, or specialist work at height, is the only viable means of access to, entering, or leaving the space.

Combining the Stage 3 hazard profile (built using FA₁TA₂L and ESCAPE) with the Stage 4 access profile (the APC) produces a structured record of the entry.

For example, an organisation should be able to record that a space is a confined space, with a hazard profile of A₁/A₂/L.

A₁ = Atmospheric health risk.

A₂ = Airway obstruction/Free-flowing solids.

L = liquids.

An access profile of APC3 (top entry, ≥ (More than) 600 mm access, vertical descent to a fixed working position).

This results in an APC3 – A₁/A₂/L Entry.

That format is far more defensible than using a single label to carry hazard, access and risk meanings together, and far more defensible than using a single label to carry all three meanings.

Stage 5: Link the Outcome to Control Consequences

A category only adds value if it changes what the duty holder must do. The model requires that legal status, hazard profile and operational class drive the control package.

Supervision arrangements, suitability assessment requirements and permit thresholds are integral to each control consequence.

Decision outcome	Permit and authorisation	Atmosphere and RPE	Supervision, rescue and casualty care	Review trigger
Enclosed restricted work area. * (Controlled Space) Potential confined space due to the introduced specified risks.	Permit only where the task or interacting activities justify it. General risk assessment and task controls required.	Atmosphere testing, where the task warrants it. RPE only where residual risk justifies it.	Supervision and recovery arrangements are proportionate to the level of access constraints. Task-specific suitability assessment is required where a foreseeable hazard warrants it.	Any introduced specified risk triggers a legal status review.
Statutory confined space: simple or direct entry	L101 requires a permit to work where the risk assessment and safe system of work indicate that one is necessary.	Pre-entry testing; monitoring as required; BA where the atmosphere cannot be made safe or oxygen may be deficient.	An attendant or entry controller is posted outside where the risk assessment identifies this as necessary. Communication system established. Retrieval method and immediate emergency arrangements confirmed. Suitability assessed against hazard profile.	Loss of ventilation; alarm activation; access change; work scope change; isolation failure.
Statutory confined space: remote or team progression entry	Permit with coordination, communication and handover arrangements. Simultaneous operations are actively managed.	Continuous or staged monitoring strategy with clear retest points. BA according to risk assessment.	Team-based rescue progression, staged extraction, casualty packaging, and medical handover planning. Enhanced supervision at the entry point.	Distance from entry, communication breakdown, unexpected atmospheric trend, and RPE depletion.
Statutory confined space: complex or non-standard entry	Detailed site-specific risk assessment, task-specific safe system of work, supporting certificates and stronger authorisation thresholds.	Health exposure, explosive atmosphere and oxygen adequacy are assessed separately. Specialist filtering device or breathing apparatus decision justified and recorded. Where conditions are, or may credibly become, IDLH, a breathing apparatus is provided with appropriate escape provisions.	Enhanced rescue system, specialist equipment, suitability assessment proportionate to likely consequences, and casualty care capability scaled to the worst case scenario.	Any deterioration, new hazard, structural concern, doubt about isolation, or unfamiliar condition triggers a stop and reassessment.

Stage 6: Review and Dynamic Reclassification

Confined space decisions must never become a one-time administrative act.

L101 requires the continued effectiveness of controls. The Water UK OGN requires reassessment if local conditions differ from those expected.

COSHH 2002 requires a full review where the assessment is no longer valid, in line with regulation 6 of COSHH 2002 and L5 ACOP.

HSG250 requires the control of suspension, change, handover and interaction.

The CSRTA rescue pathway requires dynamic reassessment in response to changing risk during the operation itself, as set out in the VRTL occupation profile (Task 2) and reinforced in the VRTM occupation profile (Module 1, Task 3).

The model, therefore, requires reclassification whenever one or more of the following occur:

- Work scope changes;
- Atmospheric trends deteriorate;
- Isolation integrity is doubtful.
- Rescue route changes;
- Geometry or structural condition differs from the plan.
- Entry attachment status changes;
- Ventilation is interrupted.
- Monitoring indicates a different hazard pattern.

During a rescue, a change in the casualty's condition is a dynamic reassessment trigger for the rescue plan and operational priorities. It should not be treated as a routine entry reclassification trigger.

Worked Examples

The four worked examples below have been chosen to demonstrate how the proposed model produces a different, more defensible outcome than current UK practice.

Each example is set out in the same structure: the situation, the outcome that common current practice would typically produce, and the outcome the proposed model produces, with the reasoning anchored in the source documents. The intention is not to suggest that current practice is always wrong.

On the contrary, it is to show, by direct comparison, where the proposed method adds defensibility.

Example 1: Valve Chamber Reclassified Mid Task

Situation. A shallow valve chamber on a clean water site is substantially enclosed but presents no foreseeable specified risk under regulation 1(2) of the Confined Spaces Regulations 1997 in its normal state. The chamber has been entered for routine valve inspection for several years on that

basis. The current task introduces solvent based cleaning of a valve seat using a chemical that is volatile at ambient temperature.

Common current practice. The chamber is recorded on the asset register as a non-confined space. The work is planned, and the existing entry procedure is used. Despite being classed as a non-confined space (Controlled Space), Atmospheric monitoring is performed, but it is based on the standard multi-gas detector configuration for that site, with alarm thresholds set for oxygen, hydrogen sulphide, carbon monoxide, and the lower explosive limit. The COSHH assessment for the cleaning chemical is filed separately. RPE selection is made against the COSHH assessment. The DSEAR question is not separately asked because the asset is not classified as a confined space.

Outcome under the proposed model.

Stage 2 reopens the legal status decision because the work introduces a foreseeable specified risk under regulation 1(2)(a) (fire and explosion arising from a flammable atmosphere). L101 is explicit that a place not usually considered a confined space may become one if the work itself introduces a specified risk. The chamber is therefore recorded as a confined space for the duration of the cleaning task.

Stage 3 records hazard profile codes F and A1.

Stage 5 then drives the control package: a permit to work in line with L101, atmosphere monitoring suited to volatile organic compounds rather than the default fixed gas list, ventilation strategy, ignition source control under L138 paragraphs 131 to 137, and rescue arrangements scaled to the casualty scenario the task could produce.

Stage 6 records that on completion of the cleaning task, the chamber returns to its previous classification, provided no residual risk remains.

Why this matters. Under current practice, the chamber's legal status is inherited from the asset register and is not retested when the task changes. The introduced specified risk is real but is not formally recognised. Under the proposed model, the introduced risk triggers a status review, the COSHH and DSEAR questions are asked separately, and the control package is rebuilt for the actual task rather than carried over from the standard inspection. The L101 requirement that introduced risks must be considered is met in substance, not only in form.

Example 2: NC2 Sewer Entry With An Atmospheric History

Situation. A planned person entry into a foul sewer is to be carried out by a water sector operations team. The space has been classified by the asset owner as NC2 under the Water UK OGN Edition 3.0. The team have been instructed that any NC2 is always medium risk.

The asset history shows three previous entries over the past two years in which elevated hydrogen sulphide was detected, and the entry was aborted. The current entry is for cleaning. Avoidance has been considered: a CCTV survey has been conducted, but cleaning cannot be reasonably achieved remotely.

Common current practice. The NC2 classification is treated as the operative answer. Entry proceeds against the standard NC2 procedure for that operator. Atmospheric monitoring uses the standard multi-gas detector configuration. Evidence Based selection is made against the operator's standard NC2 RPE matrix, which, on occasions, may not include breathing apparatus for NC2. The

atmospheric history is acknowledged in the briefing, but does not change the controls. Rescue arrangements are the operator's standard NC2 arrangement: an entry controller, a tripod, a fall arrest/rescue system, and a contracted specialist rescue provider on call, who will further call the emergency services if needed.

Outcome under the proposed model.

1. Stage 1 confirms that avoidance has been considered and is not reasonably practicable, with reasons documented under regulation 3(6) of the Management of Health and Safety at Work Regulations 1999.
2. Stage 2 records the space as a statutory confined space under regulation 1(2), independently of its NC classification.
3. Stage 3 records hazard profile A1 (atmospheric health) and L (liquids), with F (fire and explosion) added if the discharge history supports it. The atmospheric history is treated as evidence that A1 is not theoretical.
4. Stage 4 records the operational entry class as either remote or team progression, along with the access type and size.
5. Stage 5 drives the control consequences: continuous monitoring, breathing apparatus available and justified by risk assessment in line with HSG53 paragraph 11 and L101 paragraph 173, enhanced supervision, and rescue arrangements scaled to the casualty scenarios the atmospheric history makes credible, including atmospheric injury and prolonged casualty care as set out in the VRT02 occupation profile (Module 2).

Why this matters. Under current practice, the NC label has been carried by the asset, which has been taught as medium risk, thereby determining the controls. The atmospheric history, which is the strongest available evidence of the actual hazard, has not changed the classification. Under the proposed model, the legal status decision is made first and independently. The Stage 4 operational class is then assigned using the evidence rather than the inherited label. The result is a control package that reflects the actual atmospheric risk, an RPE selection consistent with HSG53 paragraph 11, and a rescue arrangement that engages with the casualty scenarios supported by the evidence. The NC label is preserved as a sector management tool but is not relied upon as a substitute for the decisions under regulation 1(2) and regulation 4(2).

Example 3: Permit Issued Before Risk Assessment Is Complete

Situation. A contractor is engaged to perform welding within a steel storage tank that previously contained a flammable residual substance. The tank has been emptied and ventilated. A permit to work has been issued by the site permit office in line with the site permit standard. The permit references the COSHH assessment and the welding method statement. The DSEAR risk assessment for introducing an ignition source into a previously flammable atmosphere has not yet been completed, but is expected to be completed before work starts.

Common current practice. The permit is treated as the operative authorisation document. The contractor's site induction confirms receipt of the permit, and the welding work is mobilised. The DSEAR assessment may or may not be completed during the day and added to the permit file. No event has occurred. The permit was later closed without incident. The interaction between the

permit, the COSHH assessment, the DSEAR assessment and the rescue arrangement has not been documented as a single decision.

Outcome under the proposed model.

Stage 5 prevents this sequence. The model treats the permit as an extension of the safe system of work, in line with HSG250 and L101, not as a substitute for it. A permit cannot be issued before the underlying risk assessments are complete, because the permit records that the risk assessment, isolations, controls, communication, authorisation, suspension and handover arrangements are in place.

With the DSEAR assessment incomplete, the permit could not, under the proposed model, have been issued.

Stage 3 hazard profile coding (F and A1, potentially T) makes the missing DSEAR question visible when the hazard profile is built, before the permit is requested.

Why this matters. The current practice in this example is not unsafe by accident. It is unsafe because the permit was treated as the operative document despite an incomplete underlying risk assessment. HSG250 is explicit that the permit is part of, not a replacement for, the safe system of work. The proposed model enforces the sequence: hazard profile, then control package, then permit. The permit becomes the record that the underlying work has been done, not the means by which it is bypassed.

Example 4: Rescue Arrangement Sized to the Asset, Not the Casualty

Situation. A reinforced concrete dry well is entered for inspection of a submersible pump. The well is approximately six metres deep with vertical access. The atmospheric profile is good. The work is straightforward and is expected to take less than thirty minutes. An entry controller is provided at the surface, with a tripod and a recovery winch. A first aid kit and a basic AED are on the surface. The site's emergency procedure relies on calling the local fire and rescue service in the event of a casualty.

Common current practice. The arrangement is considered to meet regulation 5 because rescue equipment is in place and an entry controller is posted. The arrangement has been used for similar entries on this site for several years without incident. The casualty scenarios that the entry could produce, in particular sudden cardiac arrest or a fall onto the pump assembly, are not separately tested against the rescue arrangement.

Outcome under the proposed model.

Stage 4 records the operational class as direct vertical entry with assisted retrieval.

Stage 5 then asks the regulation 5 question against the casualty scenarios that the entry can credibly produce. A vertical recovery winch will retrieve a casualty to the surface, but it does not address airway management on the way up, it does not provide for CPR in the well or at the surface in the way the VRTO2 casualty care module describes, and it does not provide for handover to the ambulance service using a structured tool such as ATMIST. L101 confirms that reliance on emergency services alone is insufficient.

The proposed model therefore requires that the rescue arrangement engage with the casualty scenarios the entry can produce, including immediate post-retrieval casualty care, meaning a

person trained to a level consistent with the VRTO2 occupation profile is part of the on-site arrangement, not the contracted external service. The tripod and winch remain. The arrangement now has the casualty care capability required by regulation 5.

Why this matters. The current practice in this example meets the form of regulation 5 but does not engage with the casualty state the entry could produce. The proposed model makes the casualty state the design driver for the rescue arrangement. The result is that the arrangement is no longer scaled to the asset (a six metre dry well) but to the casualty scenarios the asset and task can credibly produce. That is what suitable, sufficient and immediate means in substance, and it is what the VRTO2 and VRTL occupation profiles describe as competent rescue capability.

What These Four Examples Show

Each example contrasts a common current practice with the proposed model. In each case, the current practice is consistent with at least one source document read in isolation, and is not the action of an incompetent duty holder. In each case, however, the current practice produces a less defensible outcome than the proposed model. The pattern is consistent: when the source documents are applied as a system rather than in isolation, the classification is more defensible, the control package is better matched to the actual task, and the rescue arrangement engages with the casualty scenarios the entry can produce.

These examples are not exhaustive. They are a representative sample of the patterns described in the Industry Problem section. The same comparative method should be applied during validation against an organisation's own historical classifications, permit records and post incident or post exercise debriefs.

Validation, Governance and Adoption Pathway

A method that does not propose new statutory duties still requires a credible adoption pathway if it is to influence practice. This section sets out how the proposed framework would move from a position paper to a working method, and how that move would be governed. It is structured around three audiences:

- Duty holders and clients, who decide whether to adopt the method;
- Rescue providers and training centres, who deliver the operational and competence elements, and
- Regulators and awarding organisations need confidence that the method does not conflict with the existing UK framework.

Validation

Validation is the test of whether the proposed method produces better outcomes than common current practice. It is not a presentational exercise. Validation should be designed to fail recognisably if the method does not deliver.

CSRTA proposes that validation be conducted in four parts.

- **Retrospective record review.** A representative sample of historical confined space classification records, permits and post-incident or post-exercise reports is reviewed

against the proposed method. The review records, for each case, whether the method would have produced a different and more defensible outcome, and if so, why.

- **Prospective pilot.** A small number of sites or contractors apply the proposed method in parallel with their current process for an agreed period. The two sets of decision records are compared at the end of the pilot. The pilot records the time taken to produce a record under each method, the consistency of records across teams, and the rescue arrangement that would result from each.
- **Rescue exercise validation.** A scenario-based exercise tests whether the rescue arrangement that follows from the proposed method engages with the casualty scenarios the entry can produce, including atmospheric injury, suspension trauma in line with HSE RR708, prolonged casualty care and structured handover using ATMIST, all of which are described in the VRT02 and VRTL occupation profiles.
- **External review.** A review by independent professionals not involved in the development of the method, drawn from confined space operations, occupational hygiene, occupational medicine, rescue, and health and safety law, with findings published in summary form.

Governance

Governance of the proposed method should not sit with a single party. CSRTA proposes a competent review group with the following composition:

- Confined space operations representation;
- Occupational hygiene representation;
- Rescue capability representation;
- Awarding organisation observer status; and, where relevant,
- Occupational medicine or human factors representation.

The review group should publish its terms of reference, its membership and the basis on which it has reached its decisions. Reviews should be on a defined cycle, with interim review triggered by changes to the underlying source documents, by significant incidents reviewed under the validation process, or by the publication of new HSE or sector guidance.

CSRTA's role in this governance is as the proposing body and as the holder of the competence pathway expressed in the four occupation profiles. CSRTA does not propose to act as an awarding organisation. The method and the competence pathway are intended to sit alongside, not to replace, recognised qualifications such as those aligned to any current awarding organisation qualifications and the National Occupational Standards.

Adoption Pathway for Duty Holders and Clients

Duty holders and clients are the audience that determines whether the method is adopted in practice. For this audience, adoption is a procurement and assurance question rather than a regulatory one.

CSRTA proposes a four-phase adoption pathway.

- **Phase one: Familiarisation.** Awareness sessions for confined space duty holders, contract managers and procurement leads. Familiarisation focuses on the structural origins of the confusion, the five patterns identified in this paper, and how the proposed method addresses them.
- **Phase two: Pilot.** The method is applied to a defined set of sites or contracts in parallel with current practice. Output is captured in decision records aligned to Appendix B. The pilot is reviewed at the end of the agreed period, and the results are documented.
- **Phase three: Embedding.** Where the pilot supports adoption, the method is embedded in risk assessments, permits, rescue arrangements and contract specifications. Procurement language is updated to reference the method and the CSRTA competence pathway where rescue capability is required.
- **Phase four: Assurance.** Periodic assurance against decision records, monitoring trends, exercise outcomes and incident data. Findings feed back to the governance review group.

Adoption Pathway for Rescue Providers and Training Centres

Rescue providers and training centres are the audience that deliver the operational and competence elements of the method. For this audience, adoption is an operational and curriculum question.

Rescue providers are asked to scale arrangements to the casualty scenarios the entry can produce, in line with the regulation 5 duty for suitable, sufficient and immediate arrangements, the L101 position that reliance on the emergency services alone is not sufficient, and the first responder content of the VRTO2 and VRTL occupation profiles. The Stage 5 control consequences in this paper provide a working specification of what that means in practice for a given operational class.

Training centres are asked to align operator and supervisor curricula to the layered method. The Stage 1 to Stage 6 sequence, the F-A1-T-A2-L hazard profile, the E-S-C-A-P-E hazard profile and the Stage 4 operational class can each be mapped to existing training content. The CSRTA occupation profiles describe the competence outcomes the training is expected to produce.

Adoption Pathway for Regulators and Awarding Organisations

Regulators and awarding organisations are the audience whose confidence the method needs to retain to be adopted at scale. For this audience, adoption is a question of compatibility with the existing UK framework.

CSRTA's position on this is explicit. The proposed method does not create new statutory duties. It does not propose any departure from the Confined Spaces Regulations 1997, the Health and Safety at Work etc. Act 1974, COSHH 2002, DSEAR 2002, the Management of Health and Safety at Work Regulations 1999, PUWER 1998 or the Work at Height Regulations 2005. It does not depart from L101, INDG258, L5, EH40/2005, L138, HSG53, HSG250 or the Water UK OGN Edition 3.0. It does not propose CSRTA as an awarding organisation. It does not propose any term in the method, including “enclosed restricted work area” and “controlled space”, as a legal category. These terms are organisational labels for record consistency.

The compatibility position is therefore as follows. The method is a structured discipline overlay on the existing UK confined space framework. The competence pathway expressed in the four CSRTA occupation profiles is a structured occupational description that sits alongside and complements recognised qualifications, such as those aligned to City and Guilds 6160 and the EUSCS01 to EUSCS08 National Occupational Standards. A duty holder, a contractor, a rescue provider, or a training centre, without conflict with the existing UK framework, can adopt the method and the pathway. Where the framework changes, the method must be reviewed.

Recommendations

1. Address and document the avoidance duty under regulation 4(1) of the Confined Spaces Regulations 1997 before any classification or entry planning begins. Record why the entry cannot reasonably be avoided.
2. Adopt a layered decision method that records legal status, hazard profile and operational class separately and in sequence.
3. Record enclosed work areas with no reasonably foreseeable specified risk separately from statutory confined spaces, but document which other duties continue to apply to those spaces.
4. Stop using asset names alone (such as wet well, utility hole or silo) as category labels. Names may inform judgment, but must not replace evidence.
5. Require every classification record to state whether risks are intrinsic, introduced by the task, or both.
6. Assess the atmosphere in two linked but separate parts: health exposure and oxygen adequacy under COSHH 2002 (L5) and EH40, and fire or explosion potential under DSEAR 2002 (L138).
7. Require BA-capable planning whenever oxygen deficiency or potentially irrespirable conditions cannot be excluded. Prevent the inappropriate use of filtering respirators in those circumstances, consistent with HSG53.
8. Do not use entry management labels such as NC1-NC4 or NCX to determine legal confined space status.
9. Use a permit to work where required by L101 or where the risk assessment and safe system of work under regulation 4(2) of the Confined Spaces Regulations 1997 show that a permit is necessary. Do not issue permits before risk assessments, isolations and controls are completed.
10. Specify supervision and attendant arrangements for each operational class. Address lone working scenarios explicitly and document how Regulation 5 emergency arrangements remain suitable, sufficient and immediate if an attendant is not posted.
11. Link task-specific suitability assessment, including medical or physical suitability where relevant, to the hazard profile, operational class, and equipment to be used. Require proportionate medical input for RPE or BA use, heat stress, physical constraints or prolonged entry scenarios.

12. Scale rescue arrangements to the operational class and likely casualty state, including communication, extraction route, casualty packaging, medical intervention and rapid extraction triggers, as required by regulation 5 of the Confined Spaces Regulations 1997.
13. Build review triggers into the classification record so that reclassification is driven by evidence under regulation 3(3) of the Management of Health and Safety at Work Regulations 1999 and relevant L101 review expectations.

Conclusion

This paper has set out the case that confined space identification and categorisation in the United Kingdom is, at present, structurally inconsistent. It has done so without arguing that the law is wrong, that HSE guidance is inadequate, or that current duty holders are incompetent. The evidence does not support any of those positions.

The evidence supports the more precise position that the existing source documents, sound in themselves, are not yet applied as a system, and that the absence of a single method for applying them as a system produces predictable patterns of inconsistency in classification, control and rescue.

The five patterns described in the Industry Problem section are not exceptional cases. They are recurring features of UK practice. The structural origin of those patterns is set out in the Structural Origin section: the source documents were developed at different times, by different bodies, for different purposes, and they do not cross-reference one another as a system.

The four worked examples show, by direct comparison, that applying the source documents as a system produces a different, more defensible outcome than common current practice.

The proposed method is a structured discipline overlay on the existing UK confined space framework. It does not propose new statutory duties. It proposes a single, sequenced, and recordable method for applying the existing duties, anchored at every stage to the source documents. The CSRTA competence pathway, expressed in the four occupation profiles, complements the method by setting out, role by role, the operator and supervisor competences it requires in operation. Together, the method and the pathway are intended to make consistent, defensible and demonstrably safer outcomes achievable across sectors, organisations and supply chains, without amending the underlying law or guidance.

The case for adoption is not that the proposed method is the only possible answer. The case is that the status quo is producing the inconsistency described in this paper, that the cost of the status quo is real, and that an industry body is in a position to propose a method, validate it openly, and govern it transparently. If the validation process described in this paper does not support the method, the method should not be adopted. If it does, the case for adoption rests on the same evidence that produced this paper.

The United Kingdom does not need a new confined space law. It needs a method for applying the law it already has. This paper is CSRTA's proposal for that method.

Appendix A: Mapping of Source Requirements to the Proposed Model

The table below maps the principal definitions, requirements and safety elements in the supplied source set to the proposed model.

Source	Requirement or safety element	Mapped model element	Decision consequence	Section
Confined Spaces Regulations 1997 / L101	Regulation 1(2): By virtue of its enclosed nature, a reasonably foreseeable specified risk arises. L101 paragraph 12 (Guidance) explains substantially enclosed.	Stage 2 legal status	Defines the statutory confined space threshold.	Stage 2
Confined Spaces Regulations 1997 / L101	Avoidance of entry so far as is reasonably practicable, regulation 4(1).	Stage 1 avoidance	Primary legal duty before any classification or entry planning.	Stage 1
Confined Spaces Regulations 1997, regulation 1(2)	Specified risks: fire and explosion, increased body temperature, gas, fume, vapour or lack of oxygen, liquid, free-flowing solid.	Stage 3 hazard profile (F, A ₁ , T, A ₂ , L)	Backbone of hazard identification.	Stage 3
L101	A space may become confined because the work introduces the risk.	Stage 2 and Stage 3	Introduced hazards must be recorded and trigger a review.	Stages 2 and 6
L101 / HSG250	A permit to work is required in defined circumstances and otherwise determined by risk assessment and a safe system of work.	Stage 5 permit logic	Corrects blanket permit assumptions.	Stage 5
L101	Supervision and communication requirements, including attendant or entry controller arrangements where the risk assessment requires them.	Stage 5 supervision	Links category to attendant requirements. Lone working is addressed explicitly.	Stage 5
L101 / HSG53	Suitability of persons, including physical build and medical factors where relevant; fitness to wear selected RPE where required.	Stage 5 competence and suitability	Suitability is a risk based control, not a universal screening requirement.	Stage 5
L101 / INDG258	Avoid entry where reasonably practicable.	Stage 1	First decision in the sequence. Must be documented.	Stage 1
INDG258	A safe system of work must address supervisor suitability, isolation, cleaning, opening, ventilation, testing, special tools and lighting.	Stage 5 controls	Creates a minimum confined space control package.	Stage 5
INDG258	Breathing apparatus is essential when the atmosphere cannot be made safe or when oxygen is lacking.	Stage 5 atmosphere and RPE	Drives BA capable planning.	Stage 5

Source	Requirement or safety element	Mapped model element	Decision consequence	Section
INDG258	Emergency arrangements, rescue harnesses, communications and alarm arrangements required.	Stage 5 rescue readiness	Links classification to rescue system design.	Stage 5
Water UK OGN	NC1-NC4 are operational entry management classifications.	Stage 4 operational class	Secondary layer only, applied after Stage 2.	Stage 4
Water UK OGN	NC4 requires a detailed risk assessment, a task-specific safe system of work, and specialist competence beyond NC1 to NC3.	Stage 4 complex entry	Documentation alone is not sufficient for NC4 equivalent entries.	Stage 4
Water UK OGN	Restricted spaces: substantially enclosed spaces with difficult access but no specified risk.	Operational management term	Non statutory category; other duties remain in force.	Stage 2
Water UK OGN	NCX for non vertical or non standard geometry.	Stage 4 non standard geometry class	Prevents standard vertical categories from being misapplied.	Stage 4
Water UK OGN	Reassessment required if actual conditions differ from expected.	Stage 6 review	Supports dynamic reclassification.	Stage 6
COSHH 2002 / L5	Suitable and sufficient assessment before work exposing persons to hazardous substances.	Stage 3 hazard evidence	Formal substance and exposure evaluation required.	Stage 3
COSHH 2002 / L5 / EH40	Workplace exposure limits are time-weighted, not bright-line limits between safe and unsafe.	Stage 3 atmospheric evidence	Prevents WELs from being used as a single-pass or fail rule.	Stage 3
COSHH 2002 / L5	Exposure must be considered via inhalation, skin contact, ingestion and puncture wounds.	Stage 3 (A1 / C)	Supports contamination controls beyond inhalation.	Stage 3
DSEAR 2002 / L138	Risk assessment must consider the properties and processes of the substance, the enclosed plant atmosphere, and the ventilation system.	Stage 3 (F)	Provides evidence triggers for ignition risk categorisation.	Stage 3
HSG53	Filtering devices must not be used in oxygen-deficient atmospheres.	Stage 5 atmosphere and RPE	Prevents inappropriate filter respirator selection.	Stage 5
HSG53	RPE is the last line of protection. It must be adequate and suitable.	Stage 5 control hierarchy	Reinforces control order and competence requirements.	Stage 5
HSG250	A permit is a formal, recorded process, not permission alone.	Stage 5 permit system	Frames the permit as a control process.	Stage 5
HSG250	The permit must address interactions, suspensions, handovers, and handbacks.	Stage 5 permit content	Prevents permit issuance before evidence gathering.	Stage 5
MHSWR 1999, regulation 3(3)	Review the risk assessment when it is no longer valid or when a significant change occurs.	Stage 6 review	Provides a statutory basis for review and reclassification.	Stage 6

Source	Requirement or safety element	Mapped model element	Decision consequence	Section
HSWA 1974 s.2 / MHSWR 1999 / WAHR 2005 / COSHH 2002 / PUWER 1998	General duties, risk assessment and work equipment duties continue where their own tests are met.	Non confined space duties	Other duties continue to apply to enclosed restricted work areas.	Stage 2
CSRTA organisational policy	Controlled space concept for enclosed areas below the statutory threshold.	Operational management term	Organisational term with no legal status.	Stage 2
CSRTA VRT02	Advanced rescue: rope systems, stretchers, suspended casualty, atmospheric injury, prolonged care.	Stages 4 and 5 rescue design	The operational class must alter the rescue system choice.	Stages 4 and 5
CSRTA VRTL / VRTM occupation profiles	Dynamic reassessment in response to changing risk during the operation, including conditions such as irrespirable atmosphere, fire, thermal extremes, engulfment or rising liquid.	Stage 6 review and rescue priority	Operational review triggers and extraction thresholds.	Stages 4 and 5
PUWER 1998 / LOLER 1998	Work equipment and lifting equipment must be suitable, inspected, maintained and used in accordance with relevant requirements.	Stage 5 equipment and rescue controls	Supports equipment inspection, lifting and rescue system control.	Stage 5 / Appendix B



Appendix B: Proposed Decision Record Structure

The following structure is recommended for any organisation implementing this model. It ensures that avoidance, legal status, hazard profile and operational class are recorded separately and can be audited properly.

Part 1: Avoidance Assessment

- Can entry be avoided by remote means, technology, process changes or modifications to external access?
- Where avoidance is not reasonably practicable, record the specific reasons.
- The avoidance reasoning forms part of the significant findings required to be recorded under regulation 3(6) of the Management of Health and Safety at Work Regulations 1999.
- Authorising signature and the date confirming that avoidance has been addressed.

Part 2: Space Identification and Legal Status Decision

- Unique space reference or asset identifier.
- Location and controlling organisation.
- Description of access orientation: vertical, horizontal, side entry, upward entry or mixed.
- Does the place meet the regulation 1(2) enclosed nature limb of the Confined Spaces Regulations 1997?
- Does a reasonably foreseeable specified risk arise, whether intrinsic or introduced by the proposed task?
- Decision outcome: not enclosed, enclosed restricted work area, or statutory confined space.
- If the outcome is an enclosed restricted work area, record which other duties continue to apply, such as HSWA 1974, MHSWR 1999, WAHR 2005, COSHH 2002, or PUWER 1998, provided their own tests are met.

Part 3: Hazard Profile

- F: fire or explosion.
- A1: atmospheric health risk.
- T: temperature.
- A2: airway obstruction or engulfment.
- L: liquids.

Part 4: Operational Class

- Simple direct entry; direct vertical entry with assisted retrieval; remote or team progression entry; complex (NC4 equivalent); or non standard geometry (NCX equivalent).
- Reason for class selection.
- Rescue route and casualty extraction method.
- Specialist competence requirements for NC4 equivalent entries.

Part 5: Control Package

- Isolation requirements.
- Atmosphere testing and monitoring plan, with health exposure and fire or explosion assessed separately.
- Ventilation plan.
- RPE or BA decision and justification.
- Communications plan and attendant or entry controller arrangements.
- Supervision arrangements, including lone entry assessment if applicable.
- Task-specific suitability or medical input requirements.
- Permits and supporting certificates were required by L101 or by the safe system of work.
- Emergency and rescue arrangements, as required under regulation 5 of the Confined Spaces Regulations 1997.

Part 6: Review Triggers

- Conditions or events that require a stop and reassessment.
- Suspension, handover, and handback arrangements.
- Date, competent person and authorising signatures.

References

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4. Health and Safety Executive. Respiratory protective equipment at work. HSG53. Fourth edition, 2013.
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18. CSRTA. Verified Rescue Team Operator I (VRTO1) occupation profile. Version 3.5, dated 25 January 2026.
19. CSRTA. Verified Rescue Team Operator II (VRTO2) occupation profile. Version 3.2, dated 21 October 2025.
20. CSRTA. Verified Rescue Team Leader (VRTL) occupation profile. Version 3.1, dated 1 December 2025.
21. CSRTA. Verified Rescue Team Manager (VRTM) occupation profile. Version 3.1, dated 16 November 2025.

END

