Professional Process Safety Engineer

Application guidance

Led by members, supporting members, serving society
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<td>V1.1</td>
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1. Why apply for Professional Process Safety Engineer registration?

The benefits of Professional Process Safety Engineer registration

Becoming recognised as a professional process safety engineer is about public demonstration of your competences in the field of process safety, achieved through rigorous Peer Review by fellow professional process safety practitioners. By achieving registration, you will gain an internationally recognised status as a professional process safety practitioner. You will demonstrate to employers (or clients) that you are a competent process safety engineer and committed to high standards of professional conduct.

All registrants are authorised to use the descriptor Professional Process Safety Engineer after their name providing instant recognition of credentials. IChemE is a recognised professional institution worldwide and is known for its rigorous high-quality professional qualifications related activities. Many of IChemE’s members work within the High Hazard industry sectors and the institution is uniquely able to award this independent registration.

The Register is recognised in the UK, US, Australia, South Africa, Europe etc.

General requirements for Professional Process Safety Engineer registration

IChemE’s Standard for professional engineering competence in process safety describes in detail the competence standards for a registrant. It is recommended that you refer to the Standard at www.icheme.org before making your application. The general requirements that you must satisfy for registration are summarised below:

1. You must be a Chartered Member or Fellow of IChemE;
2. You will have adequate and relevant training and experience at an appropriate level of responsibility in process safety, covering a breadth and depth of process safety competencies;
3. You must submit an online application including:
   - a completed Competence & Commitment (Process Safety) report
   - a copy of your CV
   - your personal information
   - details of professional referees who know your work
4. You must meet our assessment standards for review of you report(s) (reviewed by professionals from a panel of IChemE members);
5. You must attend a peer review-based interview during which your skills, knowledge, competence and commitment are verified by two registered process safety professionals. This interview will be based on your CV and C&C report;
6. Your election to the register will be confirmed through a Professional Formation Forum election panel decision.

2. Training and experience

What sort of experience do I need?

In order to confirm your eligibility for Professional Process Safety Engineer registration at a preliminary stage you may first want to establish that you have enough relevant experience in the field of technical process safety and you
apply engineering or science principles in this context routinely (in design or operations or both). Note that the process safety competences defined in the Professional Process Safety Engineer Standard can be met by individuals working in either ProcessDesign or Plant Operations contexts.

All prospective registrants require a broad knowledge of process safety principles and of their competent application within engineering design and operations. Examples of process safety principles include but are not necessarily limited to:

- hazard Identification
- protection of the public
- assessment of consequences
- incident investigation, lessons learned
- control of hazards
- emergency planning
- risk assessment
- process safety management
- application of regulations
- influence of safety culture

As well as demonstration of a broad knowledge of process safety principles and of their application, applicants will also be expected to demonstrate technical leadership in one or more of these areas with knowledge of how they relate to process safety as a whole.

To be eligible for the Professional Process Safety Engineer registration you don’t need to be applying all of the above principles and knowledge in your work on a daily basis. We appreciate that you will apply some more than others depending on the nature of your work, however you also need to have a working knowledge of all other areas and how they interrelate to your areas of current process safety activity.

Professional process safety professionals can work in many fields and industry sectors. There are many opportunities to gain training and experience across a wide range of roles in industry and academia. Technical areas include but, again, are not limited to:

- safety in process plant operation
- regulatory organisations
- (technical safety in) design
- process safety teaching and training
- computer applications
- research
- project management and administration
- design of process plant and equipment
How much experience do I need?

Candidates are required to have several years of professional experience in the field of process safety. Graduate engineers are increasingly hired directly into process safety roles, though, more generally, other engineering or science professionals move into the field later in their career, to pursue specific career interests. What the applicant needs to consider is their ability to demonstrate they have operated for a significant period of time in roles of responsibility within process safety.

The experience cited in your Competence & Commitment (Process Safety) report will nearly always have been gained post-graduation in an industry setting. However, there are occasional cases where, academic study may be considered to be at the right level of responsibility and complexity:

- if you have completed process safety research activity;
- if you have completed a degree programme as a mature student whilst in full time employment for which elements of your pre-graduation experience such as placements or research may be relevant.

The practical aspects from a completed postgraduate academic study eg MSc dissertation, EngD or PhD in a process safety research field can be cited within your Competence & Commitment report and can be considered as appropriate experience for developing process safety competences.

Level of responsibility

The experience cited in your Competence & Commitment (Process Safety) report should demonstrate that you are responsible in a professional sense for the consequences of your technical judgements and decisions.

In your early career, you will probably work under close supervision and have on-the-job-training and guidance. You may start by working on simple projects using established codes, data and standards where duties are assigned through detailed instructions. However, as you prepare for application for Professional Process Safety Engineer registration, there will have been progression to a level where less detailed supervision is necessary and eventually progression to attain a professional engineering level, ie completing varied and responsible projects, deploying a broad range of knowledge within the safety discipline, whilst also showing awareness of interaction with other fields.

At this stage of increased responsibility, you should demonstrate technical leadership and technical problem-solving through a combination of standard procedure and novel methods, eg modifying established guides, devising new approaches, applying existing criteria in new ways, drawing conclusions from comparative situations.

There are many ways to demonstrate technical leadership from acting on your own initiative and being proactive to delegating work. You do not need to lead a team of engineers to be working at the right level of responsibility.

Agreement with some, or all, of the statements below indicate that you are likely to hold, or have held a position of sufficient responsibility, provided it is in the field of process safety:

- other professionals rely on my judgment, advice and engineering skills;
- I am proactive and able to work using my own initiative to lead my technical safety work;
- I have experience of supervising / mentoring /training other professionals;
- I take ownership of my area of work;
3. Making your application

Where to apply

Your application must be made online through the IChemE Professional Process Safety Engineer application portal at www.iche.org. You will need to upload necessary documents, complete the online application form and pay the application fee.

What to provide

- Personal details
  contact information, employment etc

- Details of referees

  The names and contact details of two supporting referees will be required.
  
  - one referee MUST be a Chartered Chemical Engineer (MiChemE, FChemE) or Professional Process Safety Engineer registered and in current membership of IChemE;
  - the second referee may be either be a Chartered Chemical Engineer in current membership of IChemE (MiChemE, FChemE), or hold current Chartered Engineer or Professional Engineer status with an engineering institution recognised by IChemE for this purpose (see Appendix 3) or be Professional Process Safety Engineer registered;
  - one of the two referees MUST be in a current, responsible process safety role.

  Referees must be familiar with your work, e.g. line manager, colleague, client or mentor. A referee can be a professional colleague you have been associated with in the past but who you no longer work with providing they are familiar with your career to date and that they are content to support your application. If you cannot identify suitable engineers as described above who can act as referees this should not be a barrier to your application. In this event you should contact IChemE who can then offer to assist you in finding two appropriately qualified professionals in order to fulfil the referee requirement in your particular case.

- CV/resume

  A current CV will be required. There is no set format to the CV required as part of your application; however you should aim to submit a maximum of two to three A4 pages. Consider producing a CV especially for your application: the focus should be on aspects of your career that are most relevant to process safety engineering. A CV needs to be able to support the statements in the C&C report.

- Completed Competence and Commitment (Process Safety) report
A completed C&C (Process Safety) report will be required. What you write in your C&C report will demonstrate that you have the competences expected of an experienced, practising process safety engineer. You must also show a commitment to high standards of professional conduct and your own personal continuing professional development (CPD). If it is of substantive nature the same project can be referred to in various places within the C&C report. However, taken as a whole, the examples used should give a fair picture of the breadth and depth of your training and experience. In each case outline the situation briefly, and you MUST clearly state your individual contribution and the result or conclusion of your activity. You should aim to write around 2500 words in total with roughly 200–300 words per subheading. The competences evidence within your C&C (Process Safety) report, together with context provided via your CV, will be used as the platform for your subsequent peer review interview.

Advice on Content

A well written and concise summary of your work, roles and responsibilities will save valuable words in your C&C (Process Safety) report examples. When providing supporting evidence within the C&C (Process Safety) report it can be helpful to provide description of context, your technical action(s) and indication of the result, impact or consequence of your work.

Further guidance for completion of your C&C (Process Safety) report is suggested in Appendix 2.

- Verification

You need to get your C&C (Process Safety) report verified (ie signed off) by a professional in a responsible position in relation to you at the time you gained the experience cited in your C&C (Process Safety) report (eg line manager, technical supervisor, consultancy partner). You may just have one verifier sign off the whole report or a number of different verifiers signing off experience gained at different companies or at different times in your career. Ideally 100% of the report should be verified, however IChemE appreciates you may have difficulty contacting past employers. If there are sections in your C&C (Process Safety) report which you are unable to have verified, please enclose a short covering letter with your application to explain the reason why.

IChemE will accept verification via email rather than an original signature. Please upload such emails as supplementary support to your application.

4. Assessment of your application

The Professional Review process

The assessment of your application for Professional Process Safety Engineer registration is known as the Professional Review. There are several stages to the Professional Review which take place once you have submitted your application:

- confirmation of your academic qualifications and/or current professional qualifications or registrations;
- confirmation your referees’ recommendations;
- assessment of your C&C (Process Safety) report;
- Professional Review interview;
- review and endorsement by the Professional Formation Forum (Process Safety) election panel.

Once IChemE has feedback on each aspect of your Professional Review, your application together with the feedback is ready to be considered by the Professional Formation Forum for decision.

The interview

This is normally conducted by two process safety professionals, normally at the office of one of them or an otherwise agreed location. It should normally take around one hour. The interviewers must determine that:

- you hold, or have held, sufficient experience in a position of responsibility within process safety engineering;
- your C&C (Process Safety) report is a true account of your experience and competences;
- your C&C (Process Safety) report provides sufficient and adequate evidence of the qualities and competences required to justify election to registration status.

How long will the peer review process take?

Once you submit your application, you have two years in which to complete the professional review process, which, if satisfactory evidence is provided by you, should then conclude with your election to IChemE’s Professional Process Safety Engineer register.

It generally takes two to four months to carry out a Professional Review. The process is rigorous and requires IChemE to validate any formal qualifications required and provided; validation of the support of your nominated referees; assessment of your C&C (Process Safety) report; Peer Review Interview and review of the acquired evidence in total. Please understand that the Professional Review process will take longer if insufficient required information is provided, if your C&C (Process Safety) report requires amendment and if there are logistical problems with making mutually satisfactory arrangements for Peer Interview.

Once this has been done your application and professional review assessments will be considered at the earliest meeting, usually held virtually for efficiency. The Professional Formation Forum (Process Safety) will meet regularly to review assessments and take decisions regarding election to the Professional Process Safety Engineer register.

The result

If all aspects of your Professional Review are satisfactory, then the Professional Formation Forum (Process Safety) panel will elect you to the IChemE register. This will entitle you to describe yourself as a ‘Professional Process Safety Engineer’.

All registrants are required to abide by IChemE’s Code of Professional Conduct. For this reason, and to provide access to supportive, relevant process safety resources etc, all registrants are required to enrol in IChemE’s membership structure at an appropriate grade (further advice is available in this at the point of application). For as long as you maintain your IChemE membership and the Professional Process Safety Engineer register annual subscription you will remain on the register. You will be notified of your election by email soon after your application has been considered by the Professional Formation Forum election panel.
Your registration status becomes effective on the date of the election panel meeting at which your registration is approved.

**Providing additional information**

If there is some uncertainty about your application you may be asked to amplify, or revise and resubmit your C&C (Process Safety) report, or you may be invited to a further interview conducted by two members of the Professional Formation Forum (Process Safety) to clarify the uncertainty. Please note that the Professional Formation Forum (Process Safety) routinely interviews a number of applicants, as part of its quality assurance procedure, as well as in cases where it is felt that the application needs clarification. If you are requested to provide further information in addition to your initial application, it is because the panel is giving you every chance to have a successful application.

Applications can occasionally be rejected outright. However, our preference is to ‘defer’ applications should the Professional Formation Forum (Process Safety) panel judge that the candidate does not currently meet the requirements but may do so upon further experience to develop breadth and/or depth of process safety competences. When an election is deferred, the IChemE will advise you how to improve those aspects of your application which do not yet meet the requirements for professional registration.

**Appeals**

Candidates who have been unsuccessful in their application for election or transfer may choose to appeal against the decision of the PFF. The appeal will be referred to the IChemE Appeals Panel provided that the correct procedure is followed. The Candidate may appeal against the decision of the PFF if he or she believes that any one or more of the following issues are relevant:

- there were procedural errors in the handling of the application;
- insufficient consideration was given to the evidence presented;
- the PFF has not properly applied the selection criteria;
- there were mitigating circumstances outside the Candidate’s control which adversely affected the Professional Review interview.

Visit the governance pages of [www.iche.org](http://www.iche.org) for further information.

**5. Periodic re-registration (revalidation)**

All Professional Process Safety Engineer registrants will be required to maintain their competences in the field of process safety. Registrants are therefore obliged to undertake and to record their CPD.

Every five years IChemE will also request registrants for evidence of the following:

- confirmation that the professional person is still active in a role of responsibility within the discipline;
- confirmation that a proper sustained and relevant CPD programme has been followed by the registrant.

Evidence of CPD undertaken will be assessed by IChemE. Successful review will permit continued registration of the registrant for a further five-year period.
Appendix 1: Pre-application self-assessment

If you can identify with the examples given below for each section of the C&C report, you should be ready to make an application for Professional Process Safety Engineer:

<table>
<thead>
<tr>
<th>Section</th>
<th>Operations</th>
<th>Design</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1</td>
<td>Understand the principal methods of hazard identification, eg HAZOP, what-if, checklists, FMEA etc., their benefits, disadvantages and experience of application during design or operation.</td>
<td>Use of hazard identification tools and techniques to review design of new plant, including management of change during detailed design.</td>
</tr>
<tr>
<td>Example</td>
<td>Use of hazard identification tools and techniques to review management of change to existing plant.</td>
<td>Use of hazard identification tools and techniques to review design of new plant, including management of change during detailed design.</td>
</tr>
<tr>
<td>A2</td>
<td>Understand the principal mechanisms involved in consequence assessment eg source term, dispersion, fires, explosion, toxicity and environmental consequences. Experience in interpreting results of consequence models, is aware of the key modelling techniques and limitations and in interpreting the results in terms of site risks.</td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>Explosion modelling to determine impacts on existing plant arising from new equipment. Validation of input assumptions and calculation basis against plant operating data.</td>
<td>Explosion modelling to determine separation distances and blast loading for structures during design of new plant. Validation of input assumptions and calculation basis against current design data allowing for design change, including sensitivity analysis.</td>
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<tr>
<td>A3</td>
<td>Understand the principal types of barriers or safeguards typically used for the control of hazards, how they are specified and likely failure modes and, in particular, have an understanding of inherently safe design. Understand the key safe systems of work needed for safe operation of a facility.</td>
<td></td>
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<tr>
<td>Examples</td>
<td>Selection of inherently safe options or assessment of existing layers of protection and their suitability for use against additional hazards. Consideration of asset integrity related to the maintenance and reliability of layers of</td>
<td>Selection of inherently safe options or selection of suitable layers of protection for the hazard identified. Consideration of asset integrity, included in the design process,</td>
</tr>
<tr>
<td>A4</td>
<td>Understand the principal methods of risk assessment, e.g. qualitative, semi-quantitative, and quantitative, their advantages, disadvantages, and when to apply them. Understand the setting and application of risk criteria e.g. individual risk, societal risk, annualised life lost, ALARP etc.</td>
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<tr>
<td>Examples</td>
<td>Interpretation of risk profiles against risk criteria and how these can be impacted and minimised by operational change. Review of existing safety case documentation to determine whether and how changes on plant will impact the current risk profile.</td>
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<tr>
<td>B1</td>
<td>Have sufficient knowledge of the current regulations and standards applicable to the candidate’s technology, jurisdictions, or country to be able to apply the standards or regulations appropriately.</td>
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<tr>
<td>Example</td>
<td>Interpretation of applicable standards (i.e. international, corporate, regulatory engineering standards) to operating plant and impact of new standards and regulations to existing plant.</td>
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<tr>
<td>B2</td>
<td>Understands the application of process safety principles in reducing process safety risks to the general public, neighbouring facilities and the environment. Understands the need for consideration of this at the early design phase of a new facility and respond to changes in surrounding environment.</td>
<td></td>
</tr>
<tr>
<td>Example</td>
<td>Assessment and understanding of current impacts to local communities (hazards, noise, environmental concerns). Minimisation of impacts through operational and/or design changes.</td>
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<tr>
<td></td>
<td>Identification of impacts to local communities (hazards, noise, environmental concerns). Minimisation of impacts through design.</td>
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<tr>
<td>B3</td>
<td>Understand the principal methods of incident investigation that establish the root causes of accidents, and the implementation of lessons learned from investigations. Describe sources of information on incidents and able to outline factors which contributed to recent incidents.</td>
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<td>---</td>
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<tr>
<td>Example</td>
<td>Review of outcomes of incident investigations and inclusion of recommendations, new approaches within operations.</td>
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<tr>
<td></td>
<td>Review of outcomes of incident investigations and inclusion of recommendations and new approaches in the design process</td>
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<table>
<thead>
<tr>
<th>B4</th>
<th>Have an understanding as to how the hazards, consequence and risk assessments apply to emergency plans, including the protection of the public, neighbouring facilities and the environment.</th>
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<tbody>
<tr>
<td>Example</td>
<td>Maintenance of effective escape and emergency planning processes and procedures. Review and update of emergency plans, participation in emergency drills, liaison with emergency services.</td>
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<td></td>
<td>Development of appropriate design which supports escape and emergency planning actions. Review of 3D model for escape route adequacy, escape and evacuation risk assessments or plot plan reviews.</td>
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<tr>
<th>C1</th>
<th>Understand the purpose of process safety management systems and their key components.</th>
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<tbody>
<tr>
<td>Examples</td>
<td>Application of process safety management processes to reduce plant operational risk. Review of operational safety KPIs and implementation of risk reduction measures through the use of safety management system controls. Minimisation of overall plant risk by applying a holistic approach to each safety aspect using ALARP approach during normal and unusual operations.</td>
</tr>
<tr>
<td></td>
<td>Application of rigorous design processes to resolve safety actions, balancing the use of the safety management system and the design to minimise overall risk. Minimisation of overall plant risk by applying a holistic approach to each safety aspect within the design using ALARP approach.</td>
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</table>

<p>| C2 | Understand principal factors that influence human behaviour and culture, and their importance. |</p>
<table>
<thead>
<tr>
<th>Example</th>
<th>Exhibits leadership and drives understanding of process safety identification, hazards and mitigations etc across all operational stakeholders.</th>
<th>Exhibits leadership and drives understanding of process safety identification, hazards and mitigations etc across all design stakeholders.</th>
</tr>
</thead>
</table>
| D       | **Understands and complies with relevant codes.**  
          **Operates and acts in a way that contributes to sustainable development.**  
          **Takes responsibility for management and applying safe systems of work.** | **Upholds process safety principles and standards to minimise risk while resisting quality, cost and time pressures.**  
          **Minimises operational and environmental risks.**  
          **Encourages safe, environmentally sound and economic long-term approaches for a sustainable operational model.**  
          **Discharges their professional duties, acts with integrity, and exercises all reasonable professional skill and care.** |
| Examples | **Upholds process safety principles and standards to minimise risk while resisting quality, cost and time pressures.**  
          **Minimises operational and environmental risks.**  
          **Encourages safe, environmentally sound and economic long-term approaches for a sustainable operational model.**  
          **Discharges their professional duties, acts with integrity, and exercises all reasonable professional skill and care.** | **Upholds process safety principles and standards to minimise risk while resisting quality, cost and time pressures.**  
          **Ensures design minimises operational and environmental risks.**  
          **Encourages safe, environmentally sound and economic long-term approaches for a sustainable design.**  
          **Discharges their professional duties, acts with integrity, and exercises all reasonable professional skill and care.** |
| E1      | **Reporting on CPD undertaken** | |
| Examples | **Briefly describe the methods and tools you use to record your CPD activities**  
          **Describe the significant CPD activities you have carried out in the last 1-2 working years**  
          **For each activity listed, describe the purpose / objective of carrying it out and the benefits you gained from it.** | |
| E2      | **Future CPD plans** | |
| Examples | **Briefly describe the method and approach/tools that you use to identify your CPD development objectives, and how they are turned into an actionable plan.**  
          **Describe the development objectives that you have identified to be addressed in the next 1-2 years and the purpose of each one.**  
          **For each development objective listed, describe what activities you plan to carry out to achieve it and the expected timescale.** | |
Appendix 2: C&C report guidance by section

Section A: Evidence of your abilities to apply knowledge and understanding of technical process safety to practical engineering situations and of your abilities to apply theoretical and practical methods to the analysis and solution of process safety problems

(evidence can be provided from Design and/or Operations)

You must pay particular attention to Section A which should provide adequate technical detail

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<tr>
<td>Demonstrate your ability to identify hazards using recognised hazard identification techniques.</td>
<td>Demonstrate your experience in assessing hazard consequences using techniques such as consequence modelling and fire scenario assessment.</td>
</tr>
</tbody>
</table>

_in your evidence you might consider:_

How do you select the appropriate hazard identification technique for the problem in hand? How do you go about applying the technique in a rigorous manner to ensure a thorough review is completed? Please make reference to particular instances and/or reviews undertaken.

Examples:

- HAZOP review of a new reactor
- HAZID review for a concept selection
- Management of Change review for a retrofit on existing plant for debottlenecking project—
- FMEA on Ballast Systems for offshore installation
- SIMOPS review on a high hazard installation.
- More specifically:
  - I chaired a HAZOP Review of new reactor to be installed as a part of a new development. The reactor was of a novel design. I selected and briefed the review team to ensure that they fully understood the design and technology to ensure that collectively we could identify hazards which may be very specific to this particular design. For example, it was found that level control was critical, and a second independent level device was incorporated into the design...
  - I took part in a HAZID comparing potential concepts for an offshore installation. I represented the process safety function and was required to

Examples:

- gas dispersion calculations for the release of a chlorine cloud from an operating plant
- CFD modelling to determine overpressure values on congested plant
- development of a toxic probit model for released gas
- occupied building assessment
- escape and evacuation analysis
- flare design

More specifically:

- I developed a consequence model using PHAST to determine the hazard distances from a chlorine release. I defined the inputs based on design information, and validated the results based on previous published work and sensitivity runs. As a result, it was determined that the control room was to be positioned 50m from the unloading facility...
<table>
<thead>
<tr>
<th>Outline the safety aspects for each concept and how they differed from each other. For example, I discussed the relative merits of the position of the accommodation block and by positioning it upwind and away from the gas compressor area could minimise the risk to personnel...</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ I undertook an occupied building assessment which required calculation of blast overpressures contours which could impact the buildings. I selected release locations and identified congested areas where blasts could occur. It was concluded that the windows were to be replaced by laminated glass to prevent the blast entering the building and prevent glass fragments injuring people...</td>
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<tr>
<th>A3 Control of Hazards</th>
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<tbody>
<tr>
<td>Demonstrate your experience of assessing and implementing safeguards appropriate for the hazard being considered in an operations or design environment.</td>
</tr>
<tr>
<td><em>In your evidence you might consider:</em></td>
</tr>
<tr>
<td>How do you identify and apply appropriate mitigations for the hazards identified and how do you ensure that these are adequate?</td>
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</tbody>
</table>

**Examples:**

- control of ignition
- safe handling of dangerous chemicals
- active and passive fire protection
- inherent safety in design and operations
- managing residual risk through safe operations
- Human Factors engineering

**More specifically:**

- I developed a hazardous area classification schedule in accordance with IP15 and specified the zone requirements for electrical equipment in a hazardous area...
- I designed a firewater system to provide general area protection to a process unit. I selected appropriate nozzles, based on flow and pressure drop requirements...

<table>
<thead>
<tr>
<th>A4 Risk Assessment</th>
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<tr>
<td>Demonstrate your experience in undertaking risk assessment to determine whether safeguards are adequate to mitigate hazards.</td>
</tr>
<tr>
<td><em>In your evidence you might consider:</em></td>
</tr>
<tr>
<td>What formal risk assessment and safety studies have you undertaken? How did you select a basis for the study and validate the results?</td>
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</tbody>
</table>

**Examples:**

- Quantified Risk Assessment (QRA)
- Safety Integrity Level (SIL)
- Layer of protection analysis (LOPA)
- fault tree
- event tree
- Human Factors engineering

**More specifically:**

- I completed a QRA on an existing plant which was undergoing debottlenecking. I developed the model based on event trees and published release frequency data...
- I chaired a LOPA workshop to identify layers of protection and SIL requirements...

**Section B: Evidence of your ability to handle the wider implications of your work as a process safety practitioner**
<table>
<thead>
<tr>
<th>B1 Understanding &amp; Application of Regulations</th>
<th>B2 Protection of the Public</th>
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<tr>
<td>In your evidence you might consider:</td>
<td>In your evidence you might consider:</td>
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<tr>
<td>How do you identify which regulations, codes and best practises are applicable? Give examples of when you have applied this codes and regulations.</td>
<td>How you demonstrate your understanding and application of technical safety principles in reducing public risk.</td>
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<tr>
<td>Examples:</td>
<td>Examples:</td>
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<tr>
<td>- UK-HSE or other Regulation based</td>
<td>- QRA for third party risk</td>
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<tr>
<td>- API</td>
<td>- Land Use Planning</td>
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<tr>
<td>- NORSOK</td>
<td>More specifically:</td>
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<tr>
<td>- OSHA</td>
<td>- I completed a QRA to identify the third-party risk from a proposed pipeline routing adjacent to a housing estate. The QRA demonstrated that the risk to occupants in the nearest house was less that the criteria published by...</td>
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<td>- ABS</td>
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<td>- Lloyd Register</td>
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<td>- ATEX</td>
<td>-</td>
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<td>- DSEAR</td>
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</table>

More specifically:
- Whilst working on an offshore installation I had to apply appropriate DNV classification codes to the marine systems. I identified which systems were topsides, and which were marine, and reviewed the codes to ensure the applicability...
- Whilst working on a project for installation in a country where the local regulator did not provide defined standards, I developed a philosophy based on international best practise eg API, DNV and NORSOK which I then presented to the local regulator for their approval...

<table>
<thead>
<tr>
<th>B3 Incident Investigation</th>
<th>B4 Emergency Planning</th>
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<tbody>
<tr>
<td>Demonstrate your understanding and experience of incident investigation and implementation of lessons learned.</td>
<td>Demonstrate your understanding and experience in defining emergency actions for hazards identified.</td>
</tr>
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<td>Examples:</td>
<td>Examples:</td>
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<tr>
<td>- Investigation of an onsite incident</td>
<td>- Temporary refuge integrity</td>
</tr>
<tr>
<td>- Applying findings from an incident report to currently operating plant</td>
<td>- Emergency evacuation procedures</td>
</tr>
<tr>
<td></td>
<td>- Escape and Evacuation Risk Analysis</td>
</tr>
</tbody>
</table>
Incorporation of lessons learned from an incident to a new design

More specifically:
- I led an incident investigation into the release of a medium sized release of flammable gas onsite. I interviewed witnesses and reviewed failure mechanisms. I determined that the root causes were... and assigned the following actions to address those causes:
- I reviewed the location of occupied buildings following the ABC incident. Based on the findings I determined potential overpressure scenarios and made recommendations on the relocation of worker populations...

More specifically:
- I completed an escape and evacuation risk analysis for a facility, including particularly vulnerable worker groups such as crane drivers and those located at extremes of the facility. As a result, I confirmed that the proposed escape pathways and muster areas were appropriate...
- I developed the emergency response procedures for a new facility and tested these through a series of drills. As a result, the following changes were made to the procedures...

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Section C: Evidence of effective Technical Safety leadership and Communication

Demonstrates your contribution to the wider issues of Technical Safety implementation and management.

C1 Process Safety Management
Demonstrate your understanding and experience of process safety management. This does not mean the management of a technical safety team, but the management of process safety hazards.

Examples:
- Process Safety KPI setting
- Monitoring Process Safety performance
- Organisational Factors
- SMS design
- Audit

More specifically:
- I set up a KPI monitoring system with an associated review group. Monthly review meetings were held to review KPIs, near misses and reported incidents, to try to identify any common themes so that mitigations

C2 Influencing Process Safety Culture
Demonstrate where you have influenced process safety culture during your professional practise.

In your evidence you might consider:
How have you helped others, outside of the process safety community to understand safety issues?

More specifically:
- I delivered process safety management training to senior managers...
- I delivered introduction to process safety to new graduates...
- I gave toolbox talks on site...
- I developed a training programme of “lunch and learn” sessions to report back on incidents and near misses in new designs...
could be applied across multiple facilities. From the KPI monitoring of the deluge systems it was discovered that ACB and as a result, the following changes were made:

Section D: Evidence to show your personal commitment to high standards of professional conduct related to Process Safety

In this section you should outline a narrative summary, in around 300 words, demonstrating commitment to producing the best standard of work to your ability is required here. You should show you are committed to ensuring your work is of the best standard and that you are prepared to push the boundaries to continually seek improvement and advancement in your area of work.

Examples:
- Preventing danger to health and safety
- Maintaining competence
- Encouraging others to maintain competence
- Avoiding conflict of interest
- Observing confidentiality owed to appropriate parties
- Adherence to legislation / best practice
- Mentoring junior process safety engineers

More specifically:
- I have trained younger engineers...
- I am active within my professional institution/society/industry association safety activities...

Section E: Evidence of Continuing Professional Development (CPD)

In this section you should outline, in around 200 words, your recent professional development and short-term development plans. You should reflectively describe the received and potential benefits that both you and your organisation have accrued through your continued development. CPD is not just attending training courses, rather it should also include on-the-job learning, research or publishing, secondments or work shadowing in other department(s) within your company as a way of increasing your knowledge, skills and competence in process safety.

E1 Reporting on CPD undertaken
Examples:
- Completed the ABC HAZOP leaders course...
- Undertook a 6-month secondment to XYZ operating site...

E2 Future CPD plans
I plan to attend the XYZ conference on explosion modelling to extend my knowledge on explosion propagation and blast overpressure effects...
- Worked with the Controls and Instrumentation group to support designing of SIL loops...

**Benefits received:**

- Based on my experience of participating in HAZOPS, this allowed me to lead small HAZOP teams myself...
- This provided me with experience in how safety systems are maintained and operated on site as well as how risks are managed day to day
- This developed my knowledge of how particular SIL ratings are achieved and the equipment and design considerations required to ensure they meet the required SIL level...

**Expected benefits:**

Explosion hazards are significant in the industry in which I work, and further knowledge will allow me to identify better mitigations and inherent safety options when designing new systems...
Appendix 3: Approved list of referee registrations

One of your referees must be a Chartered Chemical Engineer (MiChemE or FiChemE) or Professional Process Safety Engineer.

The second referee may either be a Chartered Chemical Engineer or Professional Process Safety Engineer in membership with IChemE, or hold current Chartered Engineer/Professional Engineer status with an engineering institution recognised by IChemE for this purpose:

- CEng with Engineering Council
- PrEng with Board of Engineers Malaysia
- PE with Professional Engineers Board Singapore
- CEng with Engineers Ireland
- CPEng with Engineers Australia
- CPEng with Engineers New Zealand
- P.Eng. with Engineers Canada
- P.E. with US – Federal States
- PrEng with Engineering Council South Africa
Led by members, supporting members, serving society

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