Small Scale Industrial Explosions – Part 1
Learned Society Project

Volunteer Role Descriptor

1. Vacancy reference

LSC/SSIE/1.0

2. Background

The benefits of joining this project include the opportunity to network with other volunteers who have similar problems. This project has been specifically designed to maximise networking as part of the primary purpose of defining the problems associated with the design, operation and/or maintenance of small-scale industrial operations where explosive atmospheres can form.

Explosions may be large, spectacular and devastating but they can also be small with risk of injury and damage to equipment, leading to economic loss. The mechanisms of small explosions are often poorly understood. The Learned Society Committee of the Institution of Chemical Engineers (IChemE) has approved a project which aims to develop a detailed understanding of the problems associated with small scale industrial operations which have explosion risk because they use or produce flammable gas, vapours, mist or combustible dusts or a combination of these.

The planned deliverables will have special relevance to the pharmaceutical, food and loss prevention sectors, as well as other processes where small-scale operations are part of a larger operation. The project will be structured as a desk-top study and literature survey with multiple contributors. The intellectual property will belong to IChemE. The study will be a first step in a larger project, to be financed by others, in which practical studies are carried out. The deliverables will be one or more reports detailing problems, hazards and risks associated with small-scale operations, including a list of recommendations for further work.

The project will be progressed by dividing the volunteer group into a number of streams. The whole team of volunteers will be engaged in deciding how to break the project into these streams. There are currently only two designated volunteer positions, the Project Leader and the Project Coordinator. Other roles such as stream leader will be agreed by the whole project team.

3. Main duties and responsibilities

We require volunteers who have personal experience of designing, operating, maintaining, assessing and/or inspecting small scale industrial operations including those used for process development and manufacturing where there is a risk of an explosive atmosphere being formed. This will include academics who have relevant experience.

Part 1 – Brain Storming

Initially the main duty during Part 1 will be to join a full team brain storming meeting. One of the principal outcomes of this meeting will be to divide the project up into a number of specialist streams focusing on the problems that are associated with the design, operation and maintenance of small-scale industrial operations where there is a risk of an explosion occurring.

Part 1 – Working in Steams
Once the project has been broken up into streams, volunteers will be expected to attend as many as possible online meetings to discuss the problems associated with the stream’s area of interest and to form a consensus of the problems that should be progressed to Part 2 of the project.

**Part 1 – Final Assessment**

The final meeting of Part 1 will include the whole team. The purpose of this meeting will be to agree which problems should be carried forward to Part 2 of the project.

### 4. Appointment method

There is no expectation that there will be an upper limit on the number of volunteers. Interested volunteers should contact IChemE via volunteer@icheme.org attaching a brief (approx. 300-word) description of their personal experience of the design, operation, maintenance, assessment and/or inspection of small-scale industrial operations where there is risk of an explosion occurring.

### 5. Period of appointment

The period of appointment is expected to 9 to 12 months

### 6. Commitment required

Expected time commitment:
- 3 to 4 hours per month for meetings.
- 1 to 2 hours per month for meeting papers

### 7. Training

Simple training will be provided for:
- IChemE’s GDPR requirements.
- the project communication approach

### 8. Person specification

Volunteers do not need any formal qualifications.

The most important characteristic is likely to be a desire to contribute to the understanding of the problems associated with small-scale industrial where there is the risk of explosion. In particular, with the design, operation and maintenance of these operations.

In contributing to the understanding the problems volunteers should be able to help provide the input into Parts 2 and 3 of this project. Part 2 will cover drawing up detailed specifications for projects to provide solutions to the identified problems. Part 3 will be the execution of the projects once suitable funding can be provided.

### 9. Others

**Benefits to volunteers.**

Volunteers will benefit significantly from the opportunity expand their knowledge by networking with their peers. The discussions relating to the problems are likely to provide assistance to all participating volunteers in carry out their professional duties.

**Communications:**

Communications will be compliant with IChemE GDPR requirements. Training will be provided to ensure all volunteers understand the requirements.

**Expenses for the activities:**

All activities will be carried out online and it is not anticipated that there will any requirement to pay expenses.
## 10. Additional details

### Area of interest that relates to the role:

All those with personal experience of designing, operating, maintaining, assessing and/or inspecting small-scale industrial operations including those used for process development and manufacturing where there is a risk of an explosive atmosphere being formed.

It is expected that this project will be of interested to the following IChemE Special Interest Group members:
- Biochemical Engineering
- Food and Drink
- Particle Technology
- Pharma
- Safety and Loss Prevention

### Is the role location specific?

No, however it may be necessary to hold some meetings at different time to suit different time zones.

If there are sufficient volunteers the streams maybe divided by time zone as well as by subject.

### Total number of volunteers required for role:

10 minimum, there is no anticipated maximum since the number of streams can be expanded to accommodate additional numbers.

### Closing date:

31 December 2023

To apply for this role, please contact volunteer@icheme.org, quoting the role and reference number at the top of this document.

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