(Please print)

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| Candidate’s Name |  |
| Date of birth: |  |
| Address: |  |
| NZQA number: |  |
| Email: |  |

ASSESSMENT ACTIVITY

**Activity No. :** 1

**Activity Title :** Lead a HAZOP in the Workplace – Post Course Assignment

**Unit Standard No. :** 27243

**Outcomes & Evidence Requirements covered :** 27243 (all)

**Please attach a scan of a photo ID**

Once completed, please scan, and send this form to training@safetysolutions.co.nz

**CONDITIONS**: These activities are to be undertaken by the candidate in the workplace and be verified as his or her own work by the candidate’s supervisor.

The candidate may consult any resources available to complete the assignments but must paraphrase any information obtained from texts or the internet in his or her own words.

The candidate has 6 months following attendance at the HAZOP leader’s course to complete this assignment. Should this not be possible, for reasons beyond the control of the candidate, contact the assessor for guidance.

It is expected that the candidate should undertake some additional study to complete the following assignment.

**RESOURCES: No constraints**

#### Candidate assessment result (circle): **C / NYC / FER**

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| Signature of Candidate / Date: |  | | |
| Signature of Assessor / Date: |  | | |
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|  | **Activity 1 Unit Standard 27243 (HAZOP Leader)** | | |  |  | |
| 1..0  *(2.1, 2.3, 2.4, 3.2)* | Prepare and attach a “Terms of Reference” document for a HAZOP you will lead. | | |  |  | |
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| 2.0  *(3.1,*  *3.2, 3.3,*  *3.4,)* | Lead a HAZOP study and complete a report. The study must be of at least one day duration and/or involve at least three nodes. Marked up P&ID’s should be scanned into the report as an appendix. | | |  |  | |
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| 3.0  *(2.6)* | Identify the situations to which a HAZOP may be applied? (E.g. new plant design) | | |  |  | |
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| 4.0  *(2.6)* | 1. Identify three situations to which use of the classical guidewords would not be appropriate? 2. What approach could be taken for a system which is purely mechanical? | | |  |  | |

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| 5.0  *(3.5)* | Write a few words on how you would deal with each of the following types of people.   1. The person who thinks they are in a design review. 2. The talker 3. The smart phone addicts 4. The person who is defensive about the design. 5. The point scorer at the expense of another team member 6. The dominant personality (your boss) |  |  |

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| 6.0  *(2.7*  *1.2)* | 1. Identify the location(s) in the Health and Safety at Work Regulations which is/are satisfied by a HAZOP study and explain how this is achieved.   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. Which four of the following may be required under the Hazardous Substances Regulations for a site holding or using hazardous substances? 2. Stationary Container Certificate \_\_\_\_\_\_\_\_\_\_ 3. Design Verification \_\_\_\_\_\_\_\_\_\_ 4. Air Resource Consent \_\_\_\_\_\_\_\_\_\_ 5. Approved Handler certificates \_\_\_\_\_\_\_\_\_\_ 6. Location certificate \_\_\_\_\_\_\_\_\_\_ 7. Dangerous Goods License \_\_\_\_\_\_\_\_\_\_ 8. Hazardous area classification \_\_\_\_\_\_\_\_\_\_ 9. What does PECPR stand for and what items of equipment do these regulations relate to?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_   1. What is required by the Electricity Regulations for a site where an explosive atmosphere may exist?   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |

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| 7.0  *(1.1)* | Explain one failure for each of the following with an example of its effect on the process.  e.g. Non-Return Valve: Failure: sticks open  Effect: reverse flow contaminating product   1. Transmitters 2. Switches 3. Valves 4. Centrifugal Pumps 5. Reciprocating Pumps 6. Pressure Relief Valves 7. Heat exchangers (name type) 8. Human error. |  |  |

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| 8.0  *(1.3, 1.5)* | Explain the term LOPA with a simple example. Include one of each of the following in your example:   * BPCS loop * Overpressure or overfill protection * Fire/ smoke or gas detection |  |  |

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| 9.0  *(1.3)* | What does SIL (Safety Integrity Level) mean and when would you apply it?  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |

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| 10.0  *(1.5)* | 1. Determine the likelihood (frequency) of a critical vessel overpressure and rupture in the following scenario:  * Initiating Event (cause): Pressure regulator fails, causing critical overpressure in the vessel – Frequency 1/ 10 yrs. * High pressure alarm fails, or operator fails to respond in time – Probability: 1/ 10 times * Pressure relief valve fails – Probability: 1/ 10 times  1. Compare your result from 10i., with a risk criterion of 1 x 10 -5/ yr. and explain any actions you would take following this assessment |  |  |

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| 11.0  *(1.4)* | Assess the following statement: “The HAZOP leader is responsible for following up on all action items.”  (Circle the correct answer)  TRUE FALSE  Why? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |

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| 12.0  *(2.1)* | List the documentation which must be available to carry out a HAZOP study.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |

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| 13.0  *(2.2)* | Describe the ideal venue and room set up in which to carry out a HAZOP.  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |  |

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| 14.0  *(2.5)* | Which of the following should be included in the “terms of reference” for the review?   1. Location 2. Time and date 3. Lunch menu 4. Who will attend 5. Dress code for the meeting 6. Scope of the review, nodes etc. 7. Expected duration 8. Process/ project description |  |  |

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| 15.0  *(3.6, 3.7)* | 1. Describe three methods used for assessing the likelihood of an eventescribe three methods for determining the consequence of an eventelecting one of the methods from above, describe how you would use it to tune your company’s risk matrix   \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  |

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| 16.0  *(3.8)* | The overpressure of a reaction vessel has been identified during a HAZOP review as an unacceptable hazard.  Give an approach which you would use for each of the following, and explain your reasoning:  Eliminating the hazard  Approach: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Reasoning: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Isolating the hazard  Approach: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Reasoning: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Minimising the hazard  Approach: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  Reasoning: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_  \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |  | |
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**Witness Testimony**

**Candidates name:**

*To be completed by the candidate’s manager:*

**Name (print):**

**Phone:**

**Mobile:**

**Email:**

**Position:**

I verify that the work included in this HAZOP Leader’s post course assignment is the work of the candidate:

Comment:

**Signed:**

**Date:**