CSE Moderate Hazard Atmosphere Sanitary Manhole Repair

**Sample Risk Assessment**

# RISK ASSESSMENT FOR: CSE MODERATE HAZARD ATMOSPHERE- SANITARY MANHOLE REPAIR

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **WORK LOCATION:** |  | **DESCRIPTION OF WORK:** | **Sanitary Manhole Repair** | | |
| **COMPLETED BY**: |  | **ASSESSMENT DATE:** |  | **RANKING:** | **Medium** |

1. **WORK ACTIVITIES: (Include PPE Requirements for Quick Reference)**

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| --- |
| **List Task Activity:** Sanitary Sewer Manhole Repair |
| **PPE Required:** Ventilation (minimum 1100 cfm fan) must be done for moderate hazard atmospheres- outlet of the ventilation fan ducting must be positioned as close as practicable to the entry worker, Personal Gas Monitors must be bump tested prior to use and are to be set as per WorkSafe BC - Terms of Acceptance- AR20170089 (02- 20.2% to 20.8%) (LEL- 5%) (CO-25 ppm) (H2S- 5ppm)  Each worker entering must wear the following: washable coveralls or chest waders, waterproof steel-toed boots, hard hat, rescue harness (attached to tripod or Davitt Arm) rubber gloves or heavy nitrile gloves, half face respirator (with tight fitting goggles-NO SAFETY GLASSES) or full face respirator with OV/AG- P-100 HEPA Filtered Cartridges (OV- Organic Vapour, AG- Acid Gas, P-100- particulate filter)  **WorkSafe BC- Terms of Acceptance- AR201700089- Valid until: November 7, 2022** |

1. **HAZARDS & RISK LEVEL RATINGS: SCORE = C + P + E = Rate (**3-4 are L**OW) (**5-6-7 are **MEDIUM)** (8-9 are **HIGH)** priority

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **HAZARD #** | **HAZARD IDENTIFICATION** | **CONSEQUENCES** | **PROBABILITY** | **EXPOSURE** | **RISK** | **RATING**  **L/M/H** |
| **1** | Traffic (vehicular, pedestrian) | 3 | 2 | 1 | 6 | Medium |
| **2** | Overhead utilities (Overhead lines above Manholes) | 3 | 2 | 1 | 6 | Medium |
| **3** | Confined space (atmospheric hazards from sewer or  vehicles near the entrance of the space including but not limited to: Carbon Monoxide, Carbon Dioxide, Hydrogen Sulphide, Particulates, Combustible Gases,  Toxic/Corrosive materials, etc.) | 3 | 3 | 1 | 7 | Medium |
| **4** | Trips, slips, falls, strains, sprains | 1 | 2 | 1 | 4 | Low |
| **5** | Tools (Hand/Power/Overhead Hazards) | 1 | 3 | 1 | 5 | Medium |
| **6** | Biological Hazards (Needles or other forms of  biologicals) | 3 | 2 | 1 | 6 | Medium |
| **7** | Noise/Vibration | 1 | 2 | 1 | 4 | Low |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **8** | Limited Access/Egress, Congested Work Area,  Ergonomics- Static position, Restricted Means of  Communication, Structural Hazards (deteriorating concrete, ladder rungs, etc.) | 1 | 3 | 1 | 5 | Medium |
| **9** | Engulfment/Entanglement | 3 | 1 | 1 | 5 | Medium |
| **10** | Electrical/Electric Shock/Explosion Hazards (generator  or invertor, electrically-powered equipment) | 3 | 2 | 1 | 6 | Medium |
| **RISK TOTAL:** | | **2** | **2** | **1** | **5** | **Medium** |

**Add up the individual columns: (Consequence, Probability, Exposure, Risk and divide by number of Hazards)**

# MATRIX FOR RANKING THE HAZARDS:

|  |  |  |  |
| --- | --- | --- | --- |
| **SCORE** | **1** | **2** | **3** |
| **CONSEQUENCES:** | first aid / minor damage | lost time injury/moderate damage | fatality / major damage |
| **PROBABILITY:** | unlikely | possible | likely |
| **EXPOSURE:** | rarely (less than 1/month) | often ( 3 times/week) | everyday |

1. **CONTROL MEASURES FOR EACH HAZARD IDENTIFIED IN SECTION 3**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **HAZARD #** | **LIST ALL EXISTING CONTROL MEASURES**  **(Eliminate, Substitute, Engineering, Administrative, PPE)** | **RECOMMENDATIONS** | **Date required** | **Person Responsible** | **Initial**  **when complete** |
| **1** | Closed site, traffic control devices, TMP, TCP’s,  education/training |  |  |  |  |
| **2** | Monitor overhead utilities in close proximity when using vac truck or other equipment with boom,  education/training |  |  |  |  |
| **3** | Ventilation, Retrieval System, Gas Detection at  Terms of Acceptance set points, RA/SWP/ CSE Permit, PPE as listed above |  |  |  |  |
| **4** | 3 points of contact, proper footwear, gloves,  additional intrinsically safe lighting if needed. |  |  |  |  |
| **5** | Follow manufacturers specifications, SWP/RA for tool use tethered pail to hand down tools- entrant wears  hard hat. |  |  |  |  |
| **6** | Work at lowest flows as per Terms of Acceptance, Utility/Wastewater workers are offered Twin-Rex (Hep A & B Vaccination) as well as Tenuous. Ensure  operators are trained in Safe Needle Disposal- |  |  |  |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Internal Sample City training program. Ensure that needle disposal kits are in truck- contain PPE,  tongs, sharps containers, fa kits and disinfectant wipes) |  |  |  |  |
| **7** | Proper positioning of ventilation, Hearing Protection, ensure good communication (pre-job meeting/tailgate/FLRA to confirm verbal and visual  communications) |  |  |  |  |
| **8** | Pre-inspect Sanitary Manholes for condition of the space prior to entry, good housekeeping around entrance to space, proper body positioning, take micro breaks, vary task/roles when possible, stretch, 3 point of contact, wear all required CSE equipment as per above listing and correlating SWP. Portable lighting and headlamp/flashlight-must be intrinsically safe. ensure good communication (pre- job meeting/tailgate/FLRA to confirm verbal and  visual communications) |  |  |  |  |
| **9** | Work at lowest flow times- per Terms of Acceptance, visually monitor flow when in space, good housekeeping, retrieval line management- don’t get  it tangled |  |  |  |  |
| **10** | Use GFCI/Intrinsically safe equipment. |  |  |  |  |

1. **HIERARCHY OF CONTROL MEASURES: (Must be followed in the order below)**

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| --- | --- | --- |
| **ORDER** | **CONTROL** | **DESCRIPTION** |
| **1** | **ELIMINATION:** | Can the hazard be removed at the source? Can the task be eliminated entirely? Example: eliminating the need to have a worker enter an excavation by hydro-excavating to expose underground infrastructure. |
| **2** | **SUBSTITUTION:** | Can a hazard, hazardous process or hazardous material be substituted with one with no hazards? Example: using salt water brine instead of a chemical for deicing the roads. |
| **3** | **ENGINEERING:** | Engineering controls include isolation, ventilation and equipment modification. These controls focus on the source of the hazard. Example: a guard placed around a saw blade, or a shoring system placed in an excavation. |
| **4** | **ADMINISTRATIVE:** | Remove or reduce the exposures by reducing the duration, frequency and severity of exposure to hazards. Example: changes to work procedures & practices, scheduling, job rotation, breaks during heat/cold exposure. |
| **5** | **PPE:** | Personal Protective Equipment does not control the hazard but reduces the effect of exposure to the hazard has  on the worker. PPE must always be the last line of defense Example: earplugs, latex gloves, CSA boots, CSA Hard Hats |

1. **​REVIEWED BY:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **DATE** | **REVISION DATE** | **PRINT NAME** | **POSITION** | **SIGNATURE** |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

**THE HAZARD IDENTIFICATION AND ASSESSMENT PROCESS**

* 1. Identify the task to be assessed, determine if the task is **H**igh, **M**edium or **L**ow risk
  2. Include workers who have experience in performing the task, ensure the process is led by someone who has training and experience in conducting hazard assessments. These individuals must have some type of formal training.
  3. Identify hazards associated with the tasks. Consider PHYSICAL, CHEMICAL, BIOLOGICAL, AND PSYCHOLOGICAL
  4. Rate the hazards by degree of risk using the following matrix:

|  |  |  |  |
| --- | --- | --- | --- |
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| **PROBABILITY:** | unlikely | possible | likely |
| **EXPOSURE:** | rarely (less than 1/month) | often ( 3 times/week) | everyday |

**TOTAL** the three columns: **(T)**

* + - 3-4 are **low** priority hazards
    - 5-7 are **medium** priority hazards
    - 8-9 are **high** priority hazards

The **high** priority hazards are addressed first, followed by the **medium** priority hazards. **Low** priority hazards may not require attention at this time, they may simply require monitoring. The Hierarchy of Control Measures must be followed when eliminating or mitigating hazards in the following order:

|  |  |  |
| --- | --- | --- |
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Hazard Assessments **must be reviewed** in accordance with Hazard Assessment Program Guide.