CONFINED SPACE HAZARD ANALYSIS

Name of Confined Space: ____________________________________________
Space Location: ____________________________________________________

In order to determine if the space is a confined space, please answer “Yes” or “No” to the following questions:

A. IS IT A CONFINED SPACE?
   1. Is the space large enough and so configured that a person can bodily enter and perform work?
      ☐ Yes
      ☐ No
      Description: ______________________________________________________

   2. And, does the space have limited or restricted means for entry or exit (e.g., tanks, pits, vessels, silos, storage bins, hoppers, vaults, and pits)?
      ☐ Yes
      ☐ No
      Description: ______________________________________________________

   3. And, is it not designed for continuous occupancy?
      ☐ Yes
      ☐ No
      Description: ______________________________________________________

If you answered “No” to any one of the three questions above, then the space is NOT considered to be a confined space.

If you answered “Yes” to all three of the above questions, then the space is considered a confined space. Proceed to the section B and answer “Yes” or “No” to the following questions:

B. IS IT A PERMIT-REQUIRED CONFINED SPACE?
   1. Is the internal configuration such that an entrant could be trapped or asphyxiated by converging walls or floors that slope downward and taper to a smaller cross-section?
      ☐ Yes
      ☐ No
      Description: ______________________________________________________
2. Or, does it contain any other recognized serious safety or health hazard?
   - Yes
   - No
   Description: ______________________________________________________________________

3. Or, contains a material that has potential for engulfing an entrant?
   - Yes
   - No
   Description: ______________________________________________________________________

4. Or, contains or has the potential to contain a hazardous atmosphere?
   - Yes
   - No
   Description: ______________________________________________________________________

5. Or, is there anything hazardous that will be brought into the confined space?
   - Yes
   - No
   Description: ______________________________________________________________________

If you answered “No” to all five of the above questions, then the confined space is considered a **non-permit required confined space**.

If you answered “Yes” to any of the above questions, then the confined space is considered a **permit-required confined space**.

For both space classifications, (permit-required or non-permit required confined space), complete the following hazard assessment checklist to determine if other hazards are present in the space:

**C. SAFETY HAZARDS**

- Animals or insects (stinging, biting, snakes, skunks)
- Low ceilings (ergonomics, sharp objects, visual obstructions)
- Sharp objects
- Electrical hazards (live circuits, metal rope around electrical devices)
- Adverse temperatures (steam lines, coolant lines)
- Slippery ladder rungs
- Rusty surfaces (cuts, hides chemicals, poor footing)
- Chemical coated walls/surfaces
- Biological residue/slime (exposure, slippery surfaces, sewage)
- Loud ambient noise - traffic, etc. (annoyance, communications interference)
- Vibration (discomfort, noise)
- Poor lighting (can’t read meters, can’t perform critical tasks)
- Radiation
Other extreme ergonomic conditions including those that may occur because of PPE limitations: respirators, fall protection harnesses, connection to retrieval equipment
- Liquids on floor/walking surface (standing water)
- Hazards external to the hole that could affect operations--combustion exhaust, possible precipitation, vehicle traffic, overhead electrical wires, chemical/hazardous materials lines nearby
- Others:

D. HEALTH HAZARDS
Chemical Hazards: ___________________________________________________________________

MSDS available?
- Yes
- No

Asphyxiation Potential: ___________________________________________________________________

E. GETTING TO THE CONFINED SPACE
Is the entrance easily accessible?
- Yes
- No

Is a ladder or scaffold required?
- Yes
- No

Describe entrance: ___________________________________________________________________

Is there plenty of workspace available to set up all equipment at entrance?
- Yes
- No

Limitations: ___________________________________________________________________

Type of entry:
- Vertical
- Horizontal

F. INTERNAL CONFIGURATION
- Are there low ceilings--how low?
  Can a person:
  - Walk in or crawl in?
    - On Hands & Knees
    - On Stomach/Back
  - Erect or Stooped?
  - Footing conditions inside space:


- Flat Surface
- Cramped or Limited
- Round (horizontal pipe)
- Uneven Surface
- Slippery Footing Surfaces
- Obstructions that have to be Stepped Over
- Sharp Objects
- Spilled Chemicals
- Other: ___________________________
- Structural Cross Members
- Low Ceiling
- Head Hazards
- Climb over Required
  - Has a configuration that will prevent adequate purging.

G. ENGULFMENT HAZARDS?
- Liquid
- Water always present?
- Powder/grains
- Sludge/Sewage

H. FALL POTENTIAL
- How far?
- Fall directly onto concrete/level surface?
- Fall onto something sharp?
- Any place to tie off/secure lanyard or winch?
- Extraction device available?

I. ENTRY CONDITIONS
Vertical Entries
- Stairs in place?
- Industrial stairs?
- Ship’s ladders?
- Ladders Used?
- Fixed ladders?
  - Condition: ___________________________
  - Straight portable ladder?
- No ladders used
  - Tripod accessible?
  - Even surface, tripod okay?
  - Uneven surface, tripod not okay? Describe: ___________________________
  - Tripod available--has chain on legs, or not?
Tripod unusable due to inability to place legs, cylindrical surface?
- Requires some other method?
- Davit?
- Secure to overhead beam? (Beam structurally okay?)
- Some other method?
- Horizontal support beam available over hole?
- Need eccentric support or davit?

Horizontal Entries:
- Elevation above ground?
- Work platform provided to upper elevation?
- Place to secure lifeline?
- Location to place mechanical device?
- Cut hazards can damage rescue rope?

J. ENTRANCE/EXIT CONFIGURATION
- Opening?
  - Type: ________________________________
    - Round?
      - Yes  What diameter? ________________________________
      - No
    - Vertical
      - How far? ________________________________
    - Horizontal
      - How far? ________________________________
    - Both
      - How far? ________________________________

K. INTERNAL FEATURES
- Pipes with mechanical joints or possible openings inside space?
- Materials in pipes/lines?
- Electrical equipment that needs servicing?
- Possibility of engulfment?
- Entrapping features (converging walls, wedging situations)?
- Pipe/lines going through the space?
- Any mechanical joints (flanges, valves)?

L. CONTAMINANTS TO SAMPLE FOR
- Oxygen
- Combustible gas? Type: ________________________________
- Toxics
  - Direct reading instrument available/type
  - Use Draeger/Colorimetric

M. KNOWN USE OF SPACE
- Original
Present Use
- Contained Chemicals
- Oxygen consumers? (Rust, decay, wet carbon, chemical reactions, combustion)

N. HAZARDS/FEATURES OF THE SURROUNDING AREA
- Piping or chemical containers?
  - What chemicals?
  - How far away?
  - Possibility of spill into Confined Space?
- High noise levels? (Communications interference)
- Soil methane?
- Parking lot, loading area or parking spaces close by?
- Can anything fall into the hole?
- Poor lighting in the area?
- No electrical services?
- No ground point?
- Traffic hazards (in surrounding area)?

O. SEASONAL WEATHER EFFECTS
- Must the entry be made in bad weather?
- Could precipitation create a hazard - subject to rapid flooding?

P. OTHER
- High ambient noise (or anything that can hamper communications)?
- Ambient temperature extremes (heat stress, direct employee exposure, cold stress, ice formation on working surfaces)?

Q. HAZARDOUS ENERGY HAZARDS
- Moving machinery hazards?
  - Written lockout procedures in place?
- Electrical energy hazards?
  - Lockout procedures in place?
  - Lockout points identified?
  - Tagged/labeled?
  - Described in procedures only?
  - Chemical hazards - line breaking required?
- Identified shutoff valve?
- Line blanking required?

R. SITE SUPPORT FEATURES
- Certified grounding point available or in proximity?
- Electrical services present?
  - How many outlets? (two separate circuits recommended) ____________
  - Generator required?
- Telephone nearby?
Rope anchorage points available for rescue use?
Other: ________________________________

S. EQUIPMENT
Type of equipment needed to enter/exit space
☐ Portable Ladders?

T. VISUAL
☐ Poor lighting?
☐ Entrants cannot be visually observed by attendant?

U. VENTILATION
☐ Space has configuration that will hamper effective ventilation/purging
  ☐ Convoluted Space
  ☐ Large Volume
  ☐ Second or additional opening
    ☐ Exits Close Together
    ☐ Favors Flow through Ventilation
    ☐ Distance Openings Apart
☐ Estimate of Internal Volume of Space: ______________________

V. COMMUNICATIONS
☐ Internal Available
☐ Radio Required
☐ Voice Only Adequate
☐ Intrinsic Safety Design Required
☐ Radio Interference
  ☐ Inside Space
  ☐ Outside Space

W. DISTANCE INTO SPACE
☐ Greater than 50 feet? (Greater than length of extraction cable)
☐ Will require extra internal attendant(s)?

X. SEWER/MANHOLE WORK
☐ Telecommunications/Electrical?
☐ Sewer?
  ☐ Sanitary?
  ☐ Storm?
  ☐ Combined?

Once the hazard assessment checklist is complete, file the completed form with the department performing the work and EH&S. Ensure that all necessary actions are completed before work commences. If necessary, consult EH&S for assistance.
For entry into non-permit required confined spaces, use the Pre-Entry Checklist for Non-Permit Required Confined Spaces (Appendix B) and consult EH&S if necessary.

For entry into permit-required confined spaces, use the Permit-Required Confined Space Entry Permit (Appendix C) and consult EH&S for assistance.