

RESCUE PRE-PLAN

| | | | | | Date: | |
|--------------------------|--------|--------------|-----------|----------------------------|--|-----------------------|
| GENERAL INFORMAT | ION | | | | | |
| Effective Time: | | AM | PM | Expiration Time: | АМ | PM |
| Equipment / Line ID: | | | | Customer: | | |
| Permit #: | | | | Safety Attendant: | | |
| IMMEDIATE HAZARD | | | | | Chemical Information: | N/A |
| | | Purgii | ng and Cl | eaning Methods | | |
| | | | | | | |
| | | | | | | |
| Possible Chem | nical | | Possible | Chemical | Possible Chemical | |
| | I | _ | 000 | | | |
| SDS Attach | ied | | SDS | S Attached | SDS Attached | |
| HIN # | | HIN # | | | HIN # | |
| UN # | | • UN # | | | | $\mathbf{\mathbf{Y}}$ |
| 77 | | π | | | | |
| | | Disperseme | nt Charac | eteristics (most volatile) | Physical and Chemical Properties:) | N/A |
| State of Matter: (check) | Solid | Liquid | Gas | Solubility / Miscibilit | y: | |
| Vapor Pressure: | | | | | Ionization Potential: | |
| Boiling Point: | | Flash | Point: | | Ignition Temperature: | |
| Molecular Weight: | | Specific G | ravity: | | Vapor Density: | |
| | | Act | tion Leve | ls (most toxic) | | |
| IDLH: | I | PEL: | | REL: | UEL: | |
| TLV-C: | Т | WA: | | STEL: | LEL: | |
| | | | | | Weather and Environmental Condit | tions: |
| Temperature: | Wind D | Direction: | | Wind Speed: | Humidity: | |
| Heat Index: | Wind C | hill Factor: | | Precipitation: | Dew Point: | |
| Topography Consideration | ns: | | | (Sumps, Drains, Berms, etc | c.) | |
| Data Collected Fro | m: | | | | | |



| SECONDARY HAZARD PRCS Configuration Type (Ops / Tech) | | | | | | | | | | | |
|---|----------|------------|-----------------------|----------|------------|--|--|--|--|--|--|
| Entrants Visible: | Yes | No | Portal Opening | Yes | No | | | | | | |
| Internal Space: | Spacious | Congested | External Clearance: | Spacious | Congested | | | | | | |
| Internal Configuration: | Open | Obstructed | Engulfment Potential: | Open | Obstructed | | | | | | |

All hazards in and around the hazard space have been identified and can be mitigated by using respiratory protection so that the victim is contacted, confined space entry is established and maintained, atmosphere is continuously monitored, and victim removal can be initiated by a retrieval system. Yes No

| | | | PRCS Characteris | stics: Working at He | ight | | | |
|-----------------|-------------------|----------------------|------------------------|----------------------|-------|--|--|--|
| levated > 5' | No Yes | | Space Access: | Horizontal Vertic | cal | | | |
| | | | Ту | pes of Potential Haz | zard | | | |
| Radiation | | Pressure | | Temperature | | | | |
| Chemical | | Electrical | | Mechanical | | | | |
| Biological | | Noise | | Gravity | | | | |
| Motion | | Strain or Tension | | Weather | | | | |
| Oxygen-Def | icient Atmosphere | Engulfment | | Energized Equipmen | t | | | |
| Oxygen-Enr | iched Atmosphere | Toxic Atmosphere | | Entrapment | | | | |
| Flammable | Atmosphere | Ignition Sources | | Hazardous Material | | | | |
| Complex Sp | ecial Operations | Fatigue | | Simultaneous Operat | tions | | | |
| Other Health | h Hazards | Other Specific Haz | Other Specific Hazards | | | | | |
| PRCS HAZARI | D SUMMARY | | | | | | | |
| | OXYGEN | FLAMMABILITY | ΤΟΧΙΟΙΤΥ | CONFIGURATION | N | | | |
| CLASS A | <19.5% OR >23.5% | >10% OF LEL | >IDLH or Ceiling | Complex internal | | | | |
| CLASS B | >-0.1% OR 20.9% | <10% OF LEL | >TLV/REL/PEL | Fall line or inline | | | | |
| CLASS C | >0.1% OF 20.9% | <10% OF LEL | < TLV / REL / PEL | Complex internal | | | | |
| CLASS D | +0.1% OF 20.9% | 0 LEL | No exposure | Fall line or inline | | | | |
| SAFETY PREC | AUTIONS | | | Isolation Cor | ntrol | | | |
| arricade Contro | lZones | | | | | | | |
| N/A | Initial Isolat | ion & PAD Exclus | sion/CRZ/Support | Hot/Warm/Co | old | | | |
| ock-out/Tag-ou | ıt | | | | | | | |
| N/A | Air Gap | Double Block & Bleed | Slip Bind | Lock & Tag | | | | |
| econtamination | 1 | | | | | | | |
| N/A | Safety Show | er & Eye Wash Tech | nnical | Gross | | | | |



| | v v |
|--------------------------------|--|
| Anchor System | Edge Protection |
| AHD Load Mgt. or Friction Mgt. | TTRS |
| Decent Control | Tag Line / Lifeline |
| Progress Capture | Dual Tag Line |
| Mechanical Advantage | Track Line |
| Haul Field Orientation | Control Line |
| Center Haul ONLY | Reeve Line |
| Oppositional Back tie | Knot Passing |
| Stainless Steel Equipment | Specialized Equipment |
| | Administrative Controls |
| | Administrative Controls |
| Signs Posted | Housekeeping |
| | AHD Load Mgt. or Friction Mgt. Decent Control Progress Capture Mechanical Advantage Haul Field Orientation Center Haul ONLY Oppositional Back tie Stainless Steel Equipment |

- Essential PersonnelPerrBuddy System EstablishedSDSSpecial Operations PersonnelJoirVAI (Victim Assessment)ConMCI (Mass Casuality)HydTechnician Recycle / RehabFati
- Inert Helmet (Life Support System) SCBA (minimum 45-minute) SAR w/ 5-minute Emergency Egress Line (EEL) PAPR Full Face Respirator Half Face Respirator Body Substance Isolation PPE Edge Restraint
- Permit SDS Sheets Attached Joint Hazard Meeting Communication Plan Hydration Fatigue Schedule Required
- Life Safety Harness Gloves (Leather, CPC, Rope) Fire-Retardant Clothing Proximity Suit Chemical Clothing (Level A) Chemical Clothing (Level B) Chemical Clothing (Level C) Hardhat Double Lanyard

PPE Controls

Engineering Controls

Goggles Spoggles Safety Glasses Ear Protection Double Ear Protection Steel Toe Boots Spark Proof Tools CS Packaging Device Self-Retracting Lifeline

Certified Equipment

Preflight Checklist

Critical Point Test

Upwind & LZ Identified

Touch Test

Whistle Test

Method of Summoning Rescue Team, Fire Department and/or EMS

Dial in plant emergency number:

Rescue Team contact number:

Contact plant via radio channel:

Face to Face

Other:



| EXTRACTION | | | Mai |
|--------------------------|-----------------------|---------------------------------|--------------------------|
| Anchorage System | | | |
| Tripod / TerrAdaptor | Structural Beam | Manway | Stairwell Component |
| Ladder Cage | Welded Steel Hand | rail Steel Pipe | Scaffolding Intersection |
| N/A | Other: | | |
| Haul System | | | |
| Winch/DBI | 6:1 Force Accumula | ation System | Block and Tackle |
| 4:1/5:1 Piggyback | 1:1 Lifeline/Tag Line | e/Load Line | Evolution of Z-Rig |
| N/A | Other: | | |
| ower Device | | | |
| Petzl Maestro | CMC Clutch | MPD | Petzl ID |
| N/A | Other: | | |
| | | | Bela |
| Anchorage System | | | 2000 |
| Tripod / TerrAdaptor | Structural Beam | Manway | Stairwell Component |
| Ladder Cage | Welded Steel Hand | - | Scaffolding Intersectio |
| N/A | Other: | | |
| Haul System | | | |
| Winch/DBI | 6:1 Force Accumula | ation System | Block and Tackle |
| 4:1/5:1 Piggyback | 1:1 Lifeline/Tag Line | | Evolution of Z-Rig |
| N/A | Other: | | C C |
| ower Device | | | |
| Petzl Maestro | CMC Clutch | MPD | Petzl ID |
| N/A | Other: | | |
| | | | Harnes |
| Full Body Harness (Belay | , Central & Dorsal) | Full Body Harness (Dorsal Only) | |
| Improvised Victim Harne | SS | Wristlets | Anklets |
| N/A | Other: | | |
| | | | Packaging Devic |
| Long Spine Deard | | C-Collar | Head Immobilizer |
| Long Spine Board | | | |
| Scoop Board | Other | FAST Board | Yates Spec Pak |
| N/A | Other: | | |



| | | | | System Conversio |
|----------------------|---------------------|---------------|---------------------|--------------------------|
| AZTEK | LRH | | Dog and Tails | RPM |
| N/A | Other: | | | |
| | | | | Transfer Technique |
| Twin Tension | Pike and Pivot | | Dynamic Directional | Two Rope Offs |
| N/A | Other: | | | |
| ERIAL BASED OPERAT | ION | | | |
| Fall Line | Minor Offset | Major Offset | Steep Highline | Highline |
| N/A | Other: | | | |
| OWER | | | | Mai |
| chorage System | | | | |
| Tripod / TerrAdaptor | Structural Beam | М | anway | Stairwell Component |
| Ladder Cage | Welded Steel Han | drail St | eel Pipe | Scaffolding Intersection |
| N/A | Other: | | | |
| ul System | | | | |
| Winch/DBI | 6:1 Force Accumu | lation System | | Block and Tackle |
| 4:1/5:1 Piggyback | 1:1 Lifeline/Tag Li | ne/Load Line | | Evolution of Z-Rig |
| N/A | Other: | | | |
| wer Device | | | | |
| Petzl Maestro | CMC Clutch | М | PD | Petzl ID |
| N/A | Other: | | | |
| | | | | Bela |
| chorage System | | | | |
| Tripod / TerrAdaptor | Structural Beam | М | anway | Stairwell Component |
| Ladder Cage | Welded Steel Han | drail St | eel Pipe | Scaffolding Intersectio |
| N/A | Other: | | | |
| ul System | | | | |
| Winch/DBI | 6:1 Force Accumu | lation System | | Block and Tackle |
| 4:1/5:1 Piggyback | 1:1 Lifeline/Tag Li | ne/Load Line | | Evolution of Z-Rig |
| N/A | Other: | | | |
| wer Device | | | | |
| Petzl Maestro | CMC Clutch | М | PD | Petzl ID |
| N/A | Other: | | | |



| | | | Tag Lir | | | | | |
|---------------------------|----------------------|------------------------------|--------------------|--|--|--|--|--|
| Tag to Yoke/Masterpoint | Tag to Lit | ter | Trianulated Taglir | | | | | |
| Elevated Tag | Dual Tagl | Dual Taglines (Oppositional) | | | | | | |
| N/A | Other: | | | | | | | |
| | | | System Conversion | | | | | |
| AZTEK | Load Releasing Hitch | Dog and Tails | RPM | | | | | |
| N/A | Other: | | | | | | | |
| | | | Transfer Techniqu | | | | | |
| Twin Tension | Pike and Pivot | Dynamic Directional | Two Rope Offset | | | | | |
| Hybrid Skate block | Mirrored/Skate Block | Steep Highline | Highline | | | | | |
| N/A | Other: | | | | | | | |
| | | | Packaging Devi | | | | | |
| Long Spine Board | C-Coll | ar | Head Immobilizer | | | | | |
| Scoop Board | FAST | Board | Yates Spec Pak | | | | | |
| Stokes Litter | Man B | asket (Crane) | Skid Pan (Crane) | | | | | |
| N/A | Other: | | | | | | | |
| | | | Configuratio | | | | | |
| IPS Quad-Bridle | Arizon | a Tri-Bridle | Improvised Bridle | | | | | |
| N/A | Other: | | | | | | | |
| | | | Masterpoint or Yo | | | | | |
| Doubled Long Tail Bowline | es Primary Second | ary Knots at Masterpoint | Crane Hook | | | | | |
| N/A | Other: | | | | | | | |
| OUND | | | Based Operation | | | | | |
| Flat | Low | Steep | High-Angle | | | | | |
| N/A | Other: | | | | | | | |
| ckaging Device | | | | | | | | |
| Long Spine Board | C-C | ollar | Head Immobilizer | | | | | |
| Scoop Board | FAS | T Board | Yates Spec Pak | | | | | |
| Stokes Liter | Ree | ve Sleeve | SKED | | | | | |
| N/A | Other: | | | | | | | |



| | | | | | | D | iagı | ram | (| see | atta | ache | d) | | | | | | | | |
|----------|--|--|--|--|--|---|------|-----|---|-----|------|------|----|---|--|--|---|----------|---|---|----------|
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Incident Occurs

- ★ Awareness level personnel who witness or discover an incident initiate an emergency response sequence by notifying the proper authorities.
- ★ Attendant will summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
- ★ Initiate site rescue Emergency Response Plan.
- ★ RIC/CI controls the incident until properly relieved.
- * RIC/CI will perform personnel size-up through roll call of delegated roles and responsibilities of essential personnel.

<u>ANALYZE</u>

Scene Assessment

- ★ Rescue team will prioritize accountability and establish the communication plan via L-CAN report.
- Rescue team conducts rapid hazard identification and risk assessment to verify location for initial guidance establishing "Initial Isolation Zone" and "Protective Action Zone" utilizing the LIP principle.
- ★ Establish communication with victim(s) as soon as possible.
- Determine how long the victim(s) has been down, and establish the mechanism of the injury, and the survivability profile of the victim(s).
- ★ Determine the entry type of the confined space rescue and the required equipment and safety precautions: vertical rescue, horizontal rescue, suspended victim rescue, entrapped or engulfed victim rescue, rescue involving hazardous material.
- ★ Determine the response objectives based on circumstances of the emergency: victim rescue, victim recovery, remote extrication, or nonintervention.
- ★ Rescue team personnel will establish the alert code 1-5 to designate the emergency operation strategy as "Defensive", "Offensive", or "Non-Intervention".
- ★ All non-intrinsically safe mechanical equipment must be shut down and brought to a zero mechanical state prior to entry (excluding ventilation, localized exhaust, or Nitrogen where prescribed).
- ★ Structural stability of the confined space should be re-evaluated if appropriate measures must be taken to assure the structural stability of the space.
- ★ Determine the number and location of victim(s). (Could initiate MCI)
- ★ Make quick visual assessment of victim(s), if possible. (Could initiate Mass Decon)
- ★ Barricade scene immediately to prevent others from entry or contaminating evidence.

*** Note: RIC/CI has the authority to change strategies based on hazards and available resources.



PLAN / IMPLEMENT / EVALUATE

Self-Rescue Operations

- ★ Entrant should recognize signs & symptoms of physical exhaustion, heat, or cold stress, or over exposure to any chemical within the space.
- ★ Entrant should notify the safety attendant that something is wrong and that they need to exit the space immediately.
- ★ Safety attendant should remove any obstructions from the space to allow entrant to safely exit. (Including monitoring equipment)
- ★ If entrant is not feeling well or is suffering from any signs or symptoms of physical exhaustion or injury, heat, or cold stress, or over exposure to any chemical within the space, entrant should quickly vacate the space before becoming incapacitated.
- ★ If Self-Rescue is unsuccessful or deemed unsafe, begin external rescue operations

*** Note: Safety attendant should always notify the rescue team to continue with victim assessment, even if self-rescue is successful.

External Rescue Operations

- ★ To minimize risk, if other entrant(s) not affected by the emergency are in the confined space, they shall exit first.
- The victim's pathway should be cleared as entrants exit. Exiting entrants should stage victim in line or within the fall line prior to egress as appropriate.
- ★ Entrant(s) shall wear full body harness connected to retrieval system the entire time they are within the space. This system should be in place prior to entry in such a manner that retrieval of rescue entrants can begin immediately. Retrieval systems can be used as fall arresting devices for rescue personnel.
- ★ RIC/CI or HASS shall ensure that least one rescuer is appropriately dressed and ready for entry if external rescue operations fail.
- ★ If external rescue is unsuccessful, begin Internal rescue operations.

Self-Rescue Operations

- ★ Operational safeguards and rules of engagement have been met and pre-flight checklist conducted
- ★ Air monitoring shall be conducted prior to rescue entry, this will determine the need for breathing apparatus and/or dermal protection for rescuer
- ★ Pre-assigned personnel will then make entry TED or higher.
- ★ RIC/CI or HASS shall ensure that least one rescuer is appropriately dressed and ready as a backup.
- ★ It is recommended that entry personnel should use personal air monitoring devices when available.
- ★ If possible, the entry team should bring a supply of breathable air for the victim(s)
- ★ Declare safe entry conditions have been met.
- ★ Make entry to conduct recon, rescue, or recovery as appropriate.

*** Note: TED will always remain connected to an external rope while internal operations are being conducted.



Internal Victim Assessment and Packing

- ★ Upon reaching the victim, entry personnel shall conduct a primary victim assessment.
- ★ Use VAI Medical plan and use proper BSI and universal precautions while conducting victim aid.
- ★ Upon completion of primary victim assessment, update condition to rescue team, verify medical aid response is appropriate.
- ★ If required, appropriate life-saving interventions should be started immediately.
- ★ A quick but thorough secondary assessment of the victim shall be conducted. If conditions permit, entry personnel should attempt to treat serious injuries prior to removal
- ★ If indicated, C-Spine precautions should be administered.
- ★ In the event of C-spine trauma, the victim will be packaged in the EXTRACTION PACKAGING DEVICE due to the diameter of manways, internal configuration, equipment availability, and/or any other limitation.
- ★ If the victim is conscious, and has no signs of trauma, C-spine precautions will be disregarded.

*** Note: Because of the difficulty removing the victim from the space, optimum C-spine precautions may not be possible.

Victim Removal (Extraction or Extrication)

- ★ To minimize risk, TED will negotiate the victim's pathway through internal configuration. They will stage victim in line or within the fall line prior to rescuer egress.
- ★ Placement, construction, and operations of rope rescue systems for extraction will be dictated by the rescue team.
- Prior to removal of the victim, rescue team members will have completed all rescue system rigging required to move victim to safety and conduct pre-flight checklist.
- ★ Non-trauma victims will be removed from the space utilizing a rope rescue system which is connected to the rear D-ring of the victim's safety harness.
- ★ For trauma victims or in the unlikely event that the victim is not wearing a harness, the entry team will package the victim in an emergency appropriate EXTRACTION HARNESS. The loops that are created will be the improvised harness connection point.
- ★ Trauma and non-trauma victims will be extracted utilizing redundant lines, a(n) EXTRACTION MAIN anchored to EXTRACTION — MAIN ANCHORAGE SYSTEM and a(n) EXTRACTION — BELAY anchored to EXTRACTION — BELAY ANCHORAGE SYSTEM. To haul the victim from the space, A a(n) EXTRACTION — MAIN HAUL SYSTEM and or a(n) EXTRACTION — BELAY HAUL SYSTEM will be constructed for mechanical advantage. A(n) EXTRACTION — MAIN LOWER DEVICE for the main line and or a(n) EXTRACTION — BELAY LOWER DEVICE for the belay line will be used for descent control.
- ★ In the event, a system operation needs to be converted and the set up does not support hauling and lowering efficiently, a(n) EXTRACTION - SYSTEM CONVERSION will be utilized.
- ★ To navigate horizontal movement during extraction, a(n) EXTRACTION TRANSFER TECHNIQUE will be utilized
- ★ Both trauma and non-trauma victims will be placed outside of the hazard space upwind or crosswind.



Lowering

- ★ Placement, construction, and operations of lowering rope rescue systems will be dictated by the rescue team.
- Prior to lowering of the victim, rescue team members will have completed all rescue system rigging required to move victim and conduct pre-flight checklist.
- ★ For aerial based operations, trauma and non-trauma victims will be lowered utilizing redundant lines a(n) LOWER MAIN anchored to LOWER — MAIN ANCHORAGE SYSTEM and a(n) LOWER — BELAY anchored to LOWER — BELAY ANCHORAGE SYSTEM. To haul the victim from the space, A a(n) LOWER — MAIN HAUL SYSTEM and or a(n) LOWER — BELAY HAUL SYSTEM will be constructed for mechanical advantage. A(n) LOWER — MAIN LOWER DEVICE for the main line and or a(n) LOWER — BELAY LOWER DEVICE for the belay line will be used for descent control.
- ★ The rope rescue system lines will be configured into a(n) MASTERPOINT OR YOKE and will be connected at the BRIDLE CONFIGURATION. of the LOWER PACKAGING DEVICE.
- ★ In the event, a system operation needs to be converted and the set up does not support hauling and lowering efficiently, a(n) LOWER - SYSTEM CONVERSION will be utilized.
- To stabilize a suspended load that might otherwise rotate or swing in an uncontrolled fashion during the lower, a(n) LOWER
 TAG LINE will be connected.
- ★ To navigate horizontal movement during the lower, a(n) LOWER TRANSFER TECHNIQUE will be utilized.
- ★ Upon removal, victim decontamination will be conducted if required.
- ★ Rescue personnel shall transfer the victim to local EMS for transport.

TERMINATE

Termination

- ★ Personnel accountability
- ★ In the event of a rescue, all affected personnel are required to participate following the termination of emergency operations for a quick post-incident debriefing.
- ★ Conduct a debriefing, critique, and post incident analysis.
- ★ Remove tools and equipment used for the rescue/recovery. If there has been a fatality, consider leaving the tools and equipment in place for investigative purposes.
- ★ Secure the scene. Prior to turning the property back over to the responsible party, one final reading of atmospheres shall be taken and recorded.
- ★ Transfer custody of the incident to AHJ

*** Note: Because of the difficulty removing the victim from the space, optimum C-spine precautions may not be possible.

Demobilization

- ★ Conduct Post-Incident Inspection of resources utilized during operations.
- ★ For non-fatality incidents, if entry personnel or equipment have been contaminated during, proper decontamination procedures must be conducted prior to returning equipment back in service.
- ★ Return to normal operations.

Comments:

| Date: | / | / | *** Rescue Plan Subject to Change *** |
|---------------------------|---|---|---------------------------------------|
| Rescue Supervisor RIC/CI: | | | HASS: |
| Team Member: | | | Team Member: |
| Team Member: | | | Team Member: |



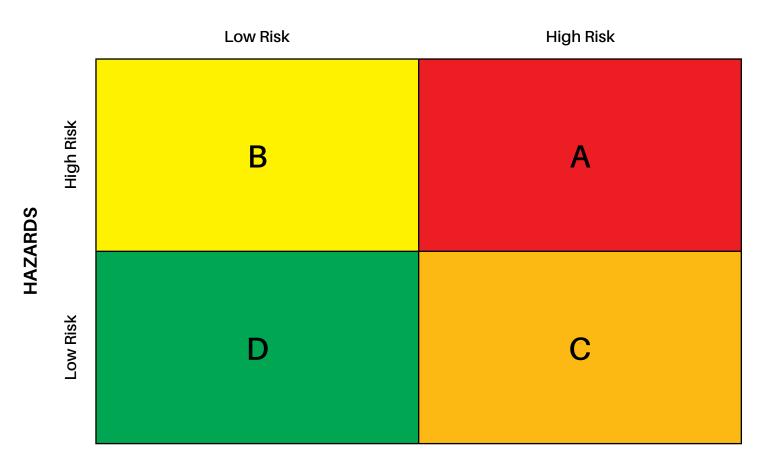
CONFINED SPACE CLASSIFICATION SYSTEM

| Class | Characteristics | | Criteria | Hazard Risk | Team Skill Capability | |
|-------|--|---|--|--|--|--|
| | IDLH, rescue procedures | * | Permit required space | | | |
| | require the entry of more than one individual fully equipped with life support | * | The entrant is exposed to atmospheric or engulfment hazards | Immediate = High | | |
| A | equipped with the support equipment, maintenance of communication requires | * | Configuration of accessibility is complex and difficult to maneuver without high risk of entanglement | 8 Secondary = High | Technician | |
| | additional standby personnel and potentially | * | Potential hazardous material | | | |
| | other support personnel. | * | Rescuers must enter | | | |
| | | * | Permit required space | | | |
| | Dangerous but not IDLH, rescue procedures | * | The entrant is exposed to atmospheric or engulfment hazards | | | |
| В | require the entry of no more than one individual fully equipped with life support equipment, indirect visual or auditory | * | Rescue personnel can conduct the rescue without entering the space or utilizing minimal personnel for mission specific tasks under the supervision of a Technician | Immediate = High & Secondary = Low | Technician & Operations Mission Specific | |
| | communication with victims. | * | The victim is in immediate peril, is unable to self-rescue | | opeenie | |
| | | | Is within the fall line or horizontally inline, can be physically removed using mechanical retrieval devices | - | | |
| | | * | May be a permit-required space or a non-permit required space | | | |
| | Potential hazard, requires no modification of work | * | Low risk of exposure to atmospheric or engulfment hazards that would be an immediate threat to health or life | | | |
| с | procedures, standard rescue procedures, direct communication with victims from outside the | * | The victim is not in immediate peril from conditions in the space; however, is unable to self-rescue and must be physically removed without using mechanical extrication or retrieval devices | Immediate = Low & Secondary = High | Technician & Operation - Mission Specific | |
| | confined space | * | Configuration of accessibility is complex and difficult to maneuver without high risk of entanglement | | | |
| | | * | The entrant is exposed to the possibility of additional injury without proper packaging or treatment | - | | |
| | Entrant is visible, portal opening is | * | May be a permit-required space or a non-permit required space | | | |
| D | unrestricted, internal space is not congested and configuration is unobstructed. All hazards in and around | * | Entrant may require protection other than that associated with a confined space, such as fall protection, hearing protection, or other personal protective equipment | Immediate = Low ਓ | Operation | |
| | the hazard space have been identified and can | * | No exposure to atmospheric or engulfment hazards that would be an immediate threat to health or life | Secondary = Low | | |
| | be mitigated by using respiratory protection. No risk of engulfment. | | The rescue personnel can conduct the rescue without entering | | | |

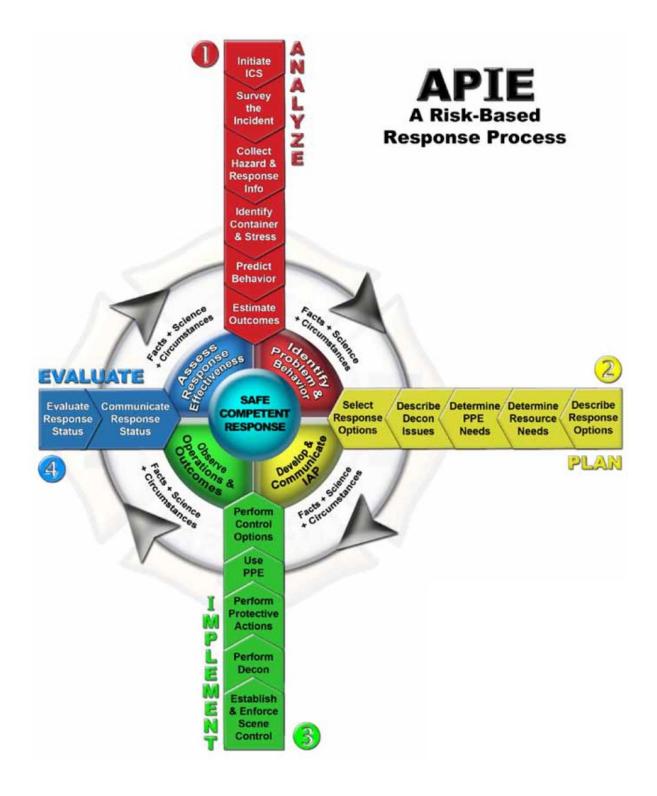


CONFINED SPACE CLASSIFICATION SYSTEM

IMMEDIATE HAZARDS







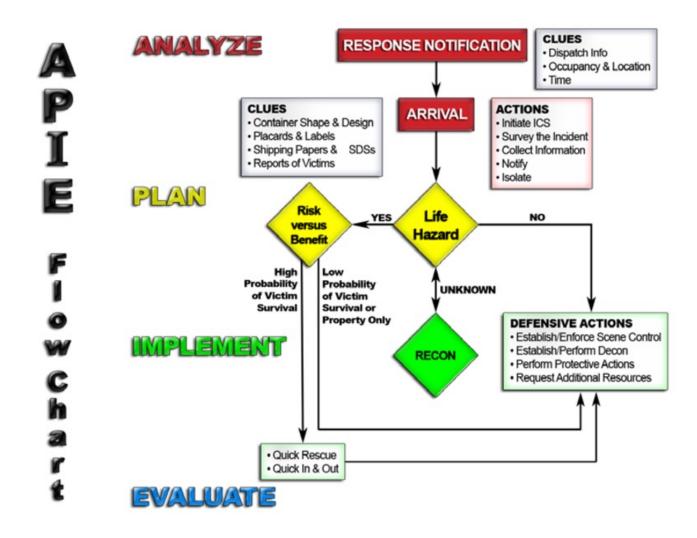


RISK-BASED RESPONSE ACTIONS

| Analyze the Problem | GOAL = Identify the Problem and Likely Behavior |
|---|---|
| Initiate ICS | |
| Survey the incident | |
| Collect hazard and response information | |
| Identify container type and stress | |
| Predict behavior | |
| Estimate outcomes | |
| Plan the Response | GOAL = Develop and Communicate the IAP |
| Describe response objectives | |
| Determine PPE needs | |
| Describe decon issues | |
| Select response options | |
| Implement the Plan | GOAL = Observe Operations and Outcomes |
| Establish and enforce scene control | |
| Secure area | |
| Control crowd | |
| Control traffic | |
| Determine zones | |
| Hot | |
| Warm | |
| Cold | |
| Set up/perform decon | |
| Perform protective actions | |
| Rescue/recovery | |
| Evacuation | |
| Shelter-in-place | |
| Patient transport | |
| Use PPE | |
| Perform control options | |
| Evaluate the Progress | GOAL = Assess Response Effectiveness |
| Evaluate response status | |
| Communicate response status | |



Flow Chart for APIE: A Risk-Based Response Process





| Step 1 ICS Establish command | | |
|------------------------------------|-----|----|
| Command established and identified | Yes | No |
| Command is: | | |

Command has been transferred to:

| Step 2 ANALYZE Identify the type of rescue problem | | |
|---|-----|----|
| Container stress or release / excavation or trench collapse | Yes | No |
| Hazardous materials incident with rescue | Yes | No |
| Confined space rescue | Yes | No |
| Rope rescue | Yes | No |
| Other non-fire rescue | Yes | No |

| Step 3 ANAL | YZE Perform hazard and risk as | ssessment | | | |
|--------------------|-------------------------------------|-----------------------------|-----|-----|----|
| Date: | Effective Time: | AM PM Expiration Time: | | AM | PM |
| Job site/space ID |) correct | | N/A | Yes | No |
| Job supervisor ic | lentified and present | | N/A | Yes | No |
| Work being perfo | ormed: | | | | |
| All on site person | nel accounted for (include victims) | | | Yes | No |
| Number of victim | 15: | Number of onsite personnel: | | | |
| Location of victin | ns: | | | | |
| Required SDSs at | t site and available: | | | Yes | No |

| Date: | / | / | | | | |
|-------------------|-----|----|------|--|------|------|
| NORM / Radiation: | | | mRem | Time: | A | M PM |
| Toxic Atmosphere: | Yes | No | | Oxygen: | LEL: | % |
| Corrosivity: | | | рН | H2S: | VOC: | ppm |
| CO: | | | ppm | Other: | | ppm |
| Benzene: | | | ppm | Instruments Used: | | |
| Calibration Date: | / | / | | Serial Number: | | |
| Expiration Date: | / | / | | Personnel Conducting Atmospheric Monitoring: | | |



| Step 3 (cor | ntinued) | | | | | | |
|---|--|---------------------------------|-------------------|-----------------|---------------------|----------------|--|
| | OXYGEN | FLAMMABILITY | TOXICITY | CON | FIGURAT | ION | |
| CLASS A | <19.5% OR > 23.5% | >10% of LEL | >IDLH or Ceiling | Complex inte | | ernal | |
| CLASS B | >-0.1% of 20.9% <10% of LEL >TLV / REL / PEL | | | | Fall line or inline | | |
| CLASS C | >-0.1% of 20.9% | <10% of LEL | < TLV / REL / PEL | Complex interna | | | |
| CLASS D | +-0.1% of 20.9% 0 LEL No exposure | | | | Fall line or inline | | |
| | OXYGEN | FLAMMABILITY | ΤΟΧΙΟΙΤΥ | CON | FIGURAT | ION | |
| CLASS A | <19.5% OR > 23.5% >10% of LEL >IDLH or Ceiling | | | | Complex intern | | |
| CLASS B | >-0.1% of 20.9% | <10% of LEL | >TLV/REL/PEL | Fa | ll line or i | line or inline | |
| CLASS C | >-0.1% of 20.9% | <10% of LEL | < TLV / REL / PEL | Co | mplex int | ernal | |
| CLASS D | +-0.1% of 20.9% | 0 LEL | No exposure | Fa | ll line or i | nline | |
| Step 4 ANA | ALYZE Identify Response O | bjectives | | | | | |
| Use communic | cation plan to determine respor | nse objectives | | | Yes | No | |
| Non-intervention | on, protective actions (alert 5): | | | | | | |
| Order an B | Evacuation | | | | Yes | No | |
| Order a Sh | | Yes | No | | | | |
| Defensive, prot | | | | | | | |
| Establish | | Yes | No | | | | |
| Establish | | Yes | No | | | | |
| Establish | | Yes | No | | | | |
| Can you identi | fy offensive operations (alert 3) |): | | | | | |
| Rescue ta | ctics in the hot zone (recon, rap | oid extraction, VAI & rescue, M | Cl triage) | | Yes | No | |
| | ALYZE Identify Resource No | eeds to Support Rescue C | bjectives | | | | |
| | nitoring equipment | | | N/A | Yes | No | |
| Safety harness | es and lifeline for entry and sta | ndby personnel | | N/A | Yes | No | |
| Hoisting equipment | | | | | Yes | No | |
| Communication equipment | | | | | Yes | No | |
| SCBAs or SARs for entry and standby personnel | | | | | Yes | No | |
| CPC and or other PPE | | | | | Yes | No | |
| All electric equipment is intrinsically safe and tools are non-sparking | | | | | Yes | No | |



| Step 6 PLAN Develop an Action Plan | | | |
|---|--------------------------|--------------------------|----------------------|
| Any viable victims? | | Yes | No |
| If yes, determine tactical objectives for victim rescue: | | | |
| Aerial Based OpsGround Based OpsReconRapid ExtractionVAI & Rescue | Decon | MCI | Triage |
| Designate essential personnel for task objectives: | N/A | Yes | No |
| Safety supervisor & rescue attendant | N/A | Yes | No |
| Entry & backup personnel | N/A | Yes | No |
| Other support personnel | N/A | Yes | No |
| Request additional resources | | Yes | No |
| Additional resources: | | | |
| If no, determine tactical objectives for victim recovery (alert 4): | | | |
| Tactical objectives: | | | |
| Determine IAP strategy based on available personnel and equipment: Non-Intervention | Defensive | Of | ffensive |
| Step 7 IMPLEMENT Implement the Action Plan | | | |
| The following have been reviewed and is acceptable for rescue to begin | | Yes | No |
| Control zones secured (initial isolation & PAD> HZ / WZ / CZ) | N/A | Yes | No |
| Line(s) broken-capped-blanked | N/A | Yes | No |
| Lockout/de-energize/tagout | N/A | Yes | No |
| Ventilation started | N/A | Yes | No |
| Hazard monitoring started | N/A | Yes | No |
| | | | |
| Rescuer medical monitoring prior to HZ entry (hazmat) | N/A | Yes | No |
| Rescuer medical monitoring prior to HZ entry (hazmat) CRZ / Decontamination measures established | N/A N/A | Yes Yes | No |
| | | | |
| CRZ / Decontamination measures established | N/A | Yes | No |
| CRZ / Decontamination measures established Rescue personnel don PPE appropriate for task(s) | N/A N/A | Yes | No No |
| CRZ / Decontamination measures established Rescue personnel don PPE appropriate for task(s) Other resources in place for safe work practices | N/A N/A N/A | Yes Yes Yes | No No No |
| CRZ / Decontamination measures established Rescue personnel don PPE appropriate for task(s) Other resources in place for safe work practices Emergency procedures and rescuer safe refuge area | N/A N/A N/A N/A | Yes Yes Yes Yes | No No No |
| CRZ / Decontamination measures established Rescue personnel don PPE appropriate for task(s) Other resources in place for safe work practices Emergency procedures and rescuer safe refuge area Entry rescuers are attached to lifelines | N/A N/A N/A N/A | Yes Yes Yes Yes | No No No No |



| Step 7 (continued) Respiratory Equipment Time Log | | | | | | |
|---|--------------|--------------|--------------|--|--|--|
| Name | Name | Name | Name | | | |
| SCBA SAR | SCBA SAR | SCBA SAR | SCBA SAR | | | |
| Pressure | Pressure | Pressure | Pressure | | | |
| On air time | On air time | On air time | On air time | | | |
| Air duration | Air duration | Air duration | Air duration | | | |
| Recall time Recall time | | Recall time | Recall time | | | |
| Off air time | Off air time | Off air time | Off air time | | | |
| Step 8 EVALUATE Evaluate the effectiveness of the action plan | | | | | | |

Changes to plan:

| Plan is proceeding as expected | N/A | Yes | No |
|--|-----|-----|----|
| Plan is not proceeding as expected | N/A | Yes | No |
| Minor changes needed | N/A | Yes | No |
| Major changes needed | N/A | Yes | No |
| Does the operation need to be stopped to make changes | N/A | Yes | No |
| Victim condition and information recorded for transfer of care | | Yes | No |
| Step 9 TERMINATION Terminate the incident | | | |

Debrief notes:

| All personnel accounted for: | N/A | Yes | No |
|--|-----|-----|----|
| All equipment has been retrieved, recovered and maintained | N/A | Yes | No |
| Was a debriefing held | N/A | Yes | No |
| Evaluate operations and their effectiveness | N/A | Yes | No |
| Incident reports prepared | N/A | Yes | No |
| Are corrective actions needed | N/A | Yes | No |