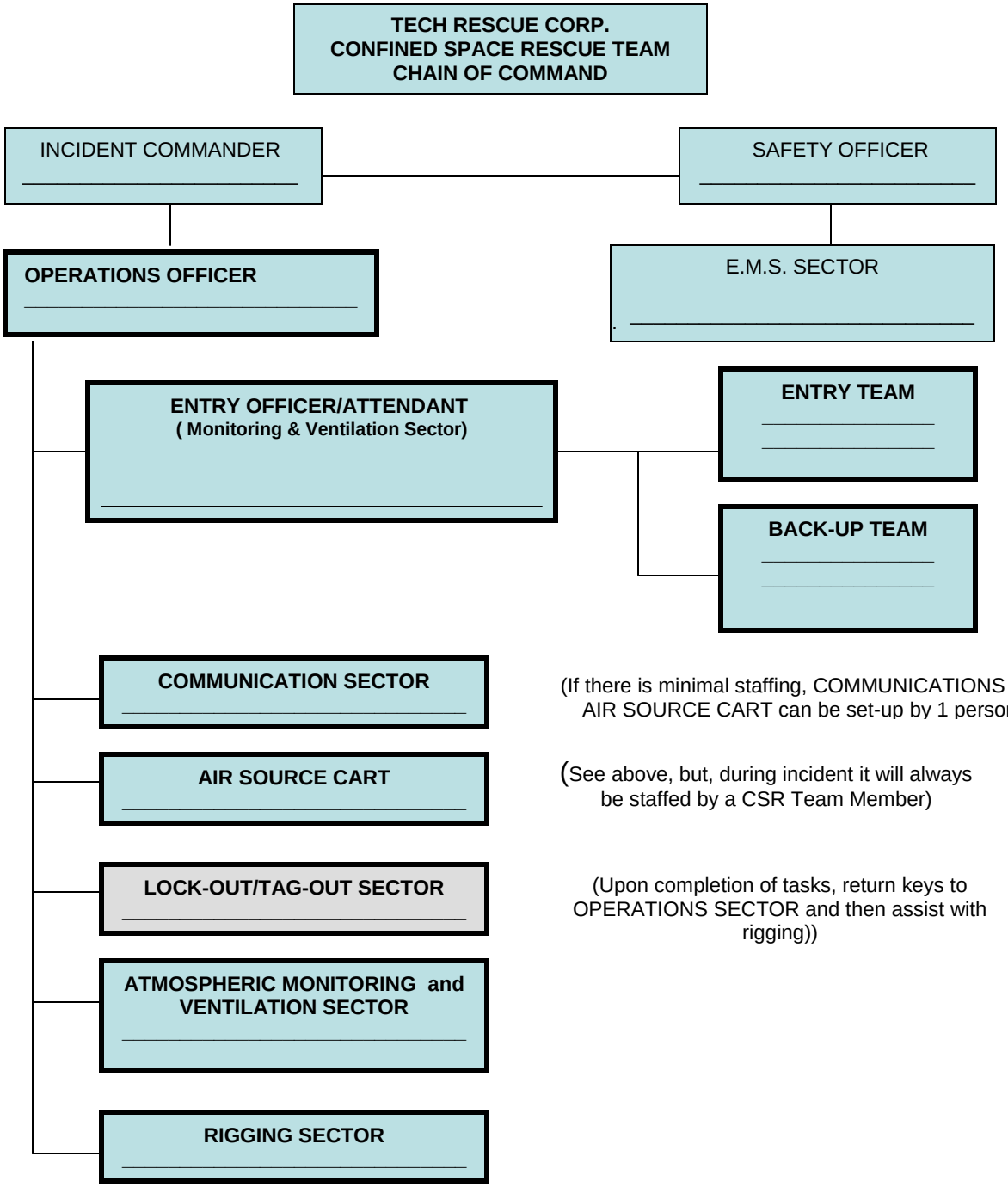

****NOTE: ALL SECTORS IN BOXES HEAVILY OUTLINED AND IN BOLD LETTERS MUST BE STAFFED BEFORE ANY ENTRY CAN BE MADE. ALL OTHER SECTORS MUST BE ACCOMPLISHED BEFORE ENTRY, BUT NEED NOT BE STAFFED FOR AN ENTRY TO OCCUR.**

***BE SURE TO DOCUMENT THE NAME(S) OF THE SECTOR OFFICERS AND MEMBERS IN EACH APPROPRIATE BOX.**

Tech Rescue Corp. Confined Space Rescue Team
Operations Officer Worksheet

Entry Permit Data

Incident Location Entry Permit Data

Permit space location: _____
_____
Purpose of entry: _____
_____
Entry permit valid for:
Date:_____/_____/_____ to Date:_____/_____/_____
Date:_____/_____/_____
Time:_____:_____ to Time:_____:_____
Entry authorized by:
Print Name:_____
Signature:_____
Title:_____

Confined Space Rescue Team Entry Permit Data

Permit space location: -

Purpose of entry:

Entry permit valid for:
Date:_____/_____/_____ to

Time:_____:_____ to Time:_____:_____
Entry authorized by:
PrintName_____
Signature: _____
Title:_____

Permit Space Hazards

Atmospheric			Before arrival	After arrival
Oxygen deficiency?	Yes	No	if yes, reading: _____	_____
Oxygen enrichment?	Yes	No	if yes, reading: _____	_____
Explosive?	Yes	No	if yes, reading: _____	_____
Explosive dust?	Yes	No	If yes, describe: _____	
Carbon monoxide ?	Yes	No	if yes, reading: _____	_____
Hydrogen sulfide?	Yes	No	if yes, reading: _____	_____
Other gases/vapors?	Yes	No	If yes, describe: _____	
On-site "Direct Reading Meter: being used:			_____	
Engulfment?	Yes	No	If yes, describe: _____	

Configuration, or the possibility of entrapment by facility design? Yes No If Yes, describe:

Mechanical?	Yes	No	If yes, describe: _____
Electrical?	Yes	No	If yes, describe: _____
Heat Stress?	Yes	No	If yes, describe _____
Noise?	Yes	No	If yes, protection worn: _____
MSDS's available	Yes	No	If yes, obtain copy for RFD Entry Officer and EMS Sector

Initial Actions Taken	Before arrival	After arrival	Person/Sector performing
Scene secured	_____	_____	_____
Lockout/Tagout	_____	_____	_____
Blanking/Blinding	_____	_____	_____
Double Block & Bleed	_____	_____	_____
Line Break/Misalignment	_____	_____	_____
Other_____	_____	_____	_____
Purging/Cleaning	_____	_____	_____
Ventilation of Space began	_____	_____	_____

Ventilation type: Natural Continuous forced air Local exhaust

Acceptable standards:		
	1. Oxygen:	19.5% to 23.5%
	2. LEL/LFL:	Less than 10% of those particular chemicals LEL/LFL
	3. Toxic:	Less than 10 PPM of Hydrogen Sulfide (H2S)
	4. Carbon Monoxide	Less than 35 PPM (as a T.W.A.)
	5. Ammonia	Less than 35 PPM (as a T.W.A.)
	6. Sulfur Dioxide	Less than 2 PPM (as a T.W.A.)

Confined Space Rescue Team
Lock-out/Tag-out Sector

Roles and Responsibilities

1) Establish contact with a facilities representative (engineer, maintenance, etc.:
    a) locate and isolate all hazards.
    b) properly lock-out and tag-out all necessary hazards.
2) Communicate with Operations Sector when **ALL** possible hazards have been secured.
3) Ensure all secondary or back-up systems have been de-energized or secured.

Equipment

1) Lock-out/tag-out bins.
2) Toolbox with accessories for lock-out/tag-out devices.
3) Pen for marking tag-out tags.
4) Locks and keys.
5) Portable radio.
6) PPE as needed for environment.

Duties

1) If needed, grab an assistant to help accomplish all lock-outs/tag-outs.
2) Communicate with Safety Sector any problems securing hazards/potential hazards.
3) Upon completion of all goals, give keys to Safety Sector.
4) Upon completion of all goals, report to Entry Sector to assist with ventilation or atmospheric monitoring.

Electrical:	Lock-out:	yes	no	Tag-out:	yes	no	Time: _____
Piping:	Lock-out:	yes	no	Tag-out:	yes	no	Time: _____
Mechanical:	Block linkage:	yes	no	Disconnect	yes	no	Time: _____

Hydraulic:

Lock-out:	yes	no	Time: _____	
Tag-out	yes	no	Time: _____	
Disconnect lines:	yes	no	Time: _____	
Lock, pump, and bleed:		yes	no	Time: _____

Pneumatic:

Lock-out:	yes	no	Time: _____
Tag-out	yes	no	Time: _____
Disconnect lines:	yes	no	Time: _____
Lock compartment & bleed lines:	yes	no	Time: _____

Other: _____ Time: _____

Confined Space Rescue Team
Safety Officer Worksheet

Roles & Responsibilities

1) The Safety Officer shall ensure all actions taken by members of the Confined Space Rescue Team, as well as all other companies, shall act in a safe and efficient manner.
2) The Safety Officer has the authority to immediately stop all actions deemed to be unsafe. This includes ordering the immediate withdraw of Entry Team personnel.
3) The Safety Officer shall keep in mind that nearly 60% of all injuries and fatalities that occur during confined space rescue incidents happen to rescuers.
4) The Safety Officer may, but shall not be required to, assist CSR Team members in setting up sectors, preparing equipment and gathering pertinent information.
5) Before any entry is made into the confined space, the Safety Officer shall confer with the Operations Sector and the Entry Sector.
6) Ensure all members of the CSR Team are aware of the hazards with this particular incident (e.g., internal configuration, MSDS information, proper PPE being used, etc.).
7) Secure current entry permit (or ensure Operations Sector has done so).

Equipment

1) Portable radio for communication with support companies.
2) To communicate with CSR Team members, position yourself near the Entry Officer or the Communications Sector.
3) PPE as required for this particular incident.
4) Forms packet/clipboard.

Duties

1) Reports immediately to the Operations Officer.
2) May, at the discretion of the Operations Officer, liaise with the Authority Having Jurisdiction (AHJ)
3) Constantly evaluates/re-evaluates the entire incident for changing conditions, some of which may include, but not be limited to:
    a) changing weather conditions.
    b) support companies encroaching on the entry site.
    c) reports from the Entry Team indicating changing work conditions.
    d) ensuring atmospheric monitoring is done at least every 10 minutes.
    e) ensures the Entry Team (and Backup Team) are evaluated both before and after any entry by the EMS Sector).
    f) verifies the completion of all assigned tasks/Sectors before any entry is made

Confined Space Rescue Team
Entry Sector

Roles and Responsibilities

1) To properly locate and establish a safe point of entry based on victim location and points of access.
2) To ensure all entry/back-up personnel are properly trained CSR members.
3) To ensure all components of the Entry Team are in place, properly secured and operational:
    a) primary air supply.
    b) back-up air supply.
    c) communications.
    d) back-up communications system.
    e) PhD Ultra meter.
    f) retrieval system.
4) To ensure all tools and devices entering the confined space are intrinsically safe.
5) To stay "on-line" within the communication system.
6) To ensure all rigging is completed before any aspect of entry is made.

Equipment

1) Communications sets.
2) Full body harnesses.
3) Lifelines.
4) Tripod (with GRIP TECH), if necessary).
5) PhD Ultra meter:
    a) 1 for Entry Team.
    b) 1 for point of entry for monitoring.
6) Non-sparking tools.
7) SKED system, other EMS equipment as needed.
8) Sector notebook with stopwatches.
9) Other equipment as necessary.

Duties

1) Ensure the Entry Team (and the Back-up Team, if necessary) are on air no more than 30 minutes.
2) Ensure that all members receive pre-entry and post-entry medical evaluations by the EMS Sector.
3) To stay at the point of entry at all times.
4) Based on atmospheric monitoring, make sure the appropriate PPE and respiratory protection is worn by all Entry and Back-up Team members.
5) Before entry is permitted, communicate with Lock-out/Tag-out Sector to ensure all hazards have been secured.

Entry Team:

a) _____
b) _____

Back-Up Team:

c) _____
d) _____

Entry Supervisor:
Name: _____
Rank:_____
Date:____/____/____
Time:_____:_____
Signature:_____

Personal Protective Equipment used:
Respiratory:
_____SCBA
_____Supplied Air
_____Air purifying mask
_____Other
Protective clothing:
_____Firefighting gear
_____Level_____suit
_____Nomex suit
_____Other:_____
Eye protection:
_____ Full face piece
_____Goggles
Hearing protection: yes no

Confined Space Rescue Team
Rigging Sector

Roles & Responsibilities

1) To do a proper site survey and locate the most appropriate means of entry and egress for the Entry Team.
2) To establish a secure site for proper rigging:
    a) free from entanglement hazards.
    b) Free from sharp corners, edges or equipment.
3) Identify and assemble appropriate equipment.
4) Ensure all members assisting with rigging understand the system to be set-up.
5) Locate proper anchor points.
6) Coordinate rigging with Entry Sector.
7) Check ALL rigging equipment before entry is made.

Equipment

1) Tarp(s) for equipment.
2) Tripod and rigging as needed.
3) Full body harnesses for Entry and Back-up Teams.
4) All rigging bins.
5) Ropes.
6) SKED.
7) Portable radio.
8) PPE for Entry and Back-up Teams
    a) Nomex suits?
    b) Helmets w/ lights.
    c) Eye protection.
    d) Gloves.
    e) Hearing protection?
9) Sector notebook.

Duties

1) To be in charge of all aspects of rigging.
2) To ensure rigging is done safely and efficiently.
3) To report to Operations and Entry Sector when rigging is complete.

Confined Space Rescue Team
Air Source Cart Sector

Roles & Responsibilities

1) To properly set-up and operate the wheeled air source cart.
2) To ensure a support company person is standing by to retrieve extra resources:
   The Air Source Cart is to be attended to by trained personnel at all times!
3) Ensure the location of the air source cart is outside any dangerous or toxic environments.
4) If possible, remain within visual sight of the Entry Team officer.
5) Ensure all components of the system are connected properly and in working order before any entry is made.
6) Check path of air supply lines to ensure there are no obstructions or potentially damaging materials in the path.

Equipment

1) Air source cart.
2) Adequate supply of air hose.
3) Portable radio.
4) PPE as is appropriate for the environment.
5) Forms packet/clipboard.

Duties

1) Secure a location for the air source cart, notify Operations of intended location.
2) Have one member from a support company bring extra air bottles as needed.
3) Turn on air source cart, check air gauges and alarms.
   a. Connect to Entry Team first, then to air source cart.
4) Check system with Entry Team before entry is made.
5) Document team members:
   a. Doing equipment checks.
   b. Going on air.
   c. Time of entry into space.
6) Consult with Operations Officer every 30 minutes – remind them that Entry Team guideline states a 30 minute limit (stress, dry air in supplied air system, dehydration).

Documentation

ENTRY TEAM

1) _____
2) _____

Time of air checks: _____
Time of entry: _____
Time of exit: _____

BACK-UP TEAM

3) _____
4) _____

Time of air checks: _____
Time of entry: _____
Time of exit: _____

Confined Space Rescue Team
Atmosphere and Ventilation Sector

Roles & Responsibilities

1) To ensure that proper monitoring of the atmosphere within the confined space is performed, and that the Entry Sector is aware of any hazards.
2) To ensure that continual monitoring is performed before and during any and all entry operations, at least every 5 minutes, with proper documentation.
3) To ensure that proper ventilation is established, and performed properly, before any entry is performed.
4) Ventilation shall be established and proper precautions taken to ensure the exhaust from the ventilated space is properly eliminated.
5) Continually monitor the ventilation procedure (assign a support company member to this function if need be)
6) Properly document all times, procedures and other concerns
7) Determine depths of the confined space so as to ensure proper ventilation
8) Check the battery conditions on all necessary meters prior to entry and again upon their exit
9) Check with Operations Sector for MSDS information in regards to material in the confined space:
    a) toxicity
    b) reactivity
    c) proper ventilation techniques

Equipment

1) Multi-Meter
    a) extra battery pack (alkaline)
    b) spare batteries for battery pack (in tool box)
2) Portable radio
3) Sector notebook w/ pad and pen
4) Ventilation equipment
    a) Water-powered, and/or
    b) Electric powered unit on
    c) Fans, as needed

Duties

1) Know and understand the hazards of the materials in the confined space (from MSDS, engineer, maintenance staff, etc):
    a. Engulfment
    b. Toxic gases
    c. Flammable gases or vapors greater than 10% of LEL/LFL
    d. Oxygen deficiency or enrichment hazards
    e. Entrapment or configuration hazards
2) Locate and communicate with building engineer (if possible) to facilitate using HVAC system for ventilation, if feasible
3) Record atmospheric readings every 5 minutes, and remind Entry Sector to have entrants do same
4) Ensure ventilation is constantly maintained

Confined Space Rescue Team
Atmosphere & Ventilation Sector
Air Sampling Worksheet

Date:____/____/____ Incident address:_____

Location within address/property_____

Time	O2 Reading	LEL/LFL %	Hyd. Sulfide	CO (ppm)	Other Concerns _____	Other Concerns _____

Allowable Values:

1) Oxygen: 19.5% to 23.5%
2) LEL/LFL: under 10% for that specific chemical (refer to MSDS)
3) Carbon Monoxide: under 35 ppm
4) Hydrogen Sulfide: under 10 ppm

Reminder: These readings are to be taken every 5 minutes.

Confined Space Rescue Team
Communications Sector

Roles and Responsibilities

1) Ensure all the necessary equipment is brought into the designated area:
    a) locate a secure area for establishing communications set-up.
    b) Make sure the area set-up is free of sharp or dangerous materials.
2) Assign a "scribe" to document all communications from:
    a) Entry Team
        1) Times of entry.
        2) Distances traveled.
        3) Turns made or obstacles traversed.
        4) Problems encountered.
        5) Internal atmospheric readings.
    b) Entry Sector Officer
    c) Other critical communications as necessary.
3) Ensure all communications systems are intact before entry is made.
4) Ensure a back-up system of communications is established before entry is made.
    a) Portable radios (possibly intrinsically unsafe).
        1). Line Division portables – have Battalion Chief enable the repeater in his vehicle or,
    b) Hand signals (only if "line-of-sight" is maintained with Entry Team) or
        1). "O" = 1 tug = OK
        2). "A" = 2 tugs = advance line
        3). "T" = 3 tugs = take slack in line
        4). "H" = 4 tugs = HELP
5) Remain in contact with Operations and Safety Sectors (they are not "in-line" on the hardwired communication system).
6) Do not become distracted by any surrounding activity – you are the only link to the Entry Team.

Equipment

1) Con-Space communications equipment.
2) PPE as is appropriate for the environment.
3) Stopwatches (minimum of 2)
4) Portable radios.
5) Documentation materials
    a) Pens
    b) Sector materials
6) Table for setting equipment and chairs.

Duties

1) Set-up secure location for communications equipment.
    a) Let Safety and Operations Sectors know the location.
2) Set-up and assemble all the Con-Space communications equipment.
3) Connect and test all Con-Space equipment with Entry Team and Entry Officer
4) Scribe to document ALL communications made on Con-Space system.
5) Stay in contact with Operations and Safety Sectors (remember they are not "in-line" on the Con-Space Gear.

ENTRY TEAM: 1._____ 2._____

BACK-UP TEAM: 3._____ 4._____

Event Log

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

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Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Time:________ Event:____

Confined Space Rescue Team
EMS Sector (Ambulance)

Roles and Responsibilities

1) Establish a safe and secure area for Confined Space Rescue Team members.
2) Contact Operations Sector:
    a) obtain a copy of the MSDS from Operations or Safety Sectors.
    b) Make them aware of the EMS Sector location.
3) Prepare and bring equipment necessary for:
    a. pre-entry and post-entry medical evaluations.
    b. weight measurement devices.
    c. temperature sensing devices
    d. transportation of team members.
    e. fluid replacement for team members.
    f. potentially contaminated at Entry Team Members.
4) Communicate with second ambulance (dedicated for victims) as to staging location.
5) Communicate with Entry Team Sector/Safety Sector about members not meeting criteria for entry or re-entry – **the decision to allow/disallow the resumption o duties is entirely up to the EMS Sector, based on vital signs guidelines on the medical evaluation form.**

Equipment

1) Stretcher.
2) Oxygen equipment
3) Cardiac monitor
4) ALS equipment as needed.
5) Communications capable of contacting PCC (Poison Control Center) for comprehensive substance information.
6) “Tox-Box” (anti-dote kit).
7) Other equipment as deemed necessary for the hazards involved.

Duties

1) Do not allow any member of the confined Space Rescue Team to enter the space until they have received a pre-entry evaluation.
2) Do not allow members of the Entry Team(or the Back-up Team) to enter the confined space if their evaluation shows values out of their normal range – relay this information on to the Entry Sector, without compromising the information, or the right to privacy.
3) Unless there is a critical emergency, members exiting the confined space shall rehab for a time period no less than 20 minutes, with all extra equipment removed (during this rehab period, they may fulfill other sector functions).
4) Prepare a medical evaluation form for each team member entering or preparing to enter the confined space.
5) Ensure all CSR Team personnel and support personnel are properly hydrated and rested throughout the course of the incident.

Confined Space Rescue Team
EMS Sector
Medical Evaluation Form

Location:_____ Date:____/____/____

Material(s) in confined space: 1)._____
2)._____
3)._____
4)._____

Temperature inside confined space:_____ @ Time:_____
**Note: if the temperature exceeds 85 degrees Fahrenheit, there is a significantly greater risk for heat stress. Contact the Safety Sector and consider reducing the Entry Teams' time limit from 30 minutes.

C.S.R. Team Member Information

Name:_____ Age:_____

Current medications: 1)._____
2)._____
3)._____
4)._____
5)._____

Current medical problems: 1)._____
2)._____
3)._____

	Pre-entry Data	Post-entry Data #1	Post-entry Data #2
Time:	_____	_____	_____
Blood Pressure:	_____	_____	_____
Pulse:	_____	_____	_____
Respirations:	_____	_____	_____
Temperature:	_____	_____	_____
Weight:	_____	_____	_____

Vital Signs Guidelines

1) Blood Pressure:
    a) Systolic shall be no higher than 150, no lower than 100.
    b) Diastolic shall be no higher than 100.
2) Pulse not to exceed 100 before entry ore resumption of work assignment.
3) Respirations: not to exceed 24 before entry or resumption of work assignment.
4) Temperature: document the actual temperature and the method by which it was obtained (oral, axillary, rectal, tympanic membrane).
    a) To be taken before re-hydration begins.
    b) If over 99.5 F/37.5 C, continue rest.
    c) If over 100.5 F/38C, no resumption of any work.
5) Weight: to be obtained pre-entry and post-entry in the same equipment and/or clothing. If the body weight drops by more than 2% from pre-entry levels, that member will not be allowed to staff any Entry Team or Back-up team role. They can, however, fulfill other sector roles once cleared by medical personnel.