

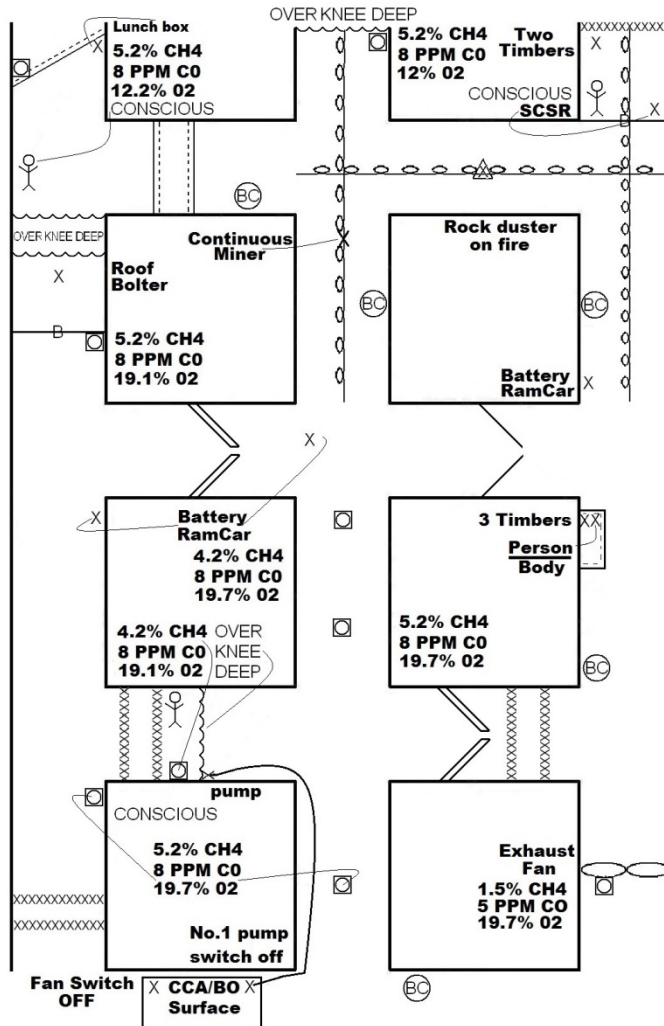
2016 KCA Nationwide Skills Championship



Problem Briefing

2016

2016 Nationwide Championship

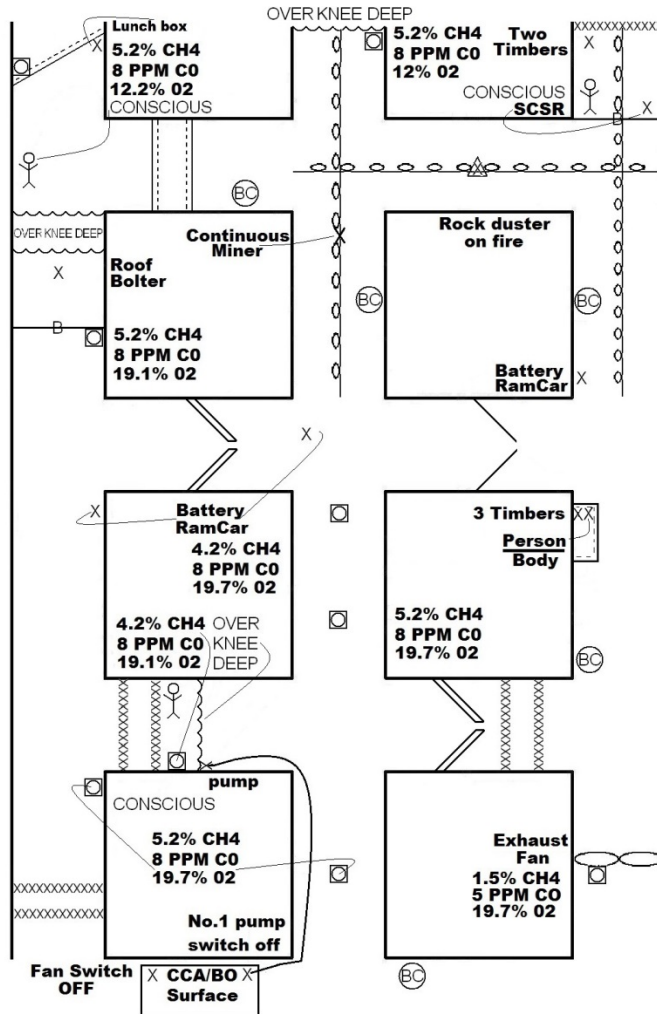


Problem Statement

Early this morning, a 3 man maintenance crew along with their foreman entered the mine to rock dust and do service work. At approximately 6:00 am, a loud explosion was heard and power to the mines was knocked. All four miners are still missing.

This is a new mines that is being developed near the Ole Blue no.2 mines. We have de-energized all electrical power going into the mine. Ventilation is provided by an exhaust fan. The fan is off and being monitored and guarded. All the federal and state agencies have been notified and are on site to offer assistance. The maps are up not to date. This mine is noted for poor roof, high liberations of methane, and low oxygen levels. A fully equipped back up mine rescue team is stationed here while you work in by the fresh air base. You may start work when your team is ready. Good luck, and thank you for responding to our emergency.

2016 Nationwide Championship



2016

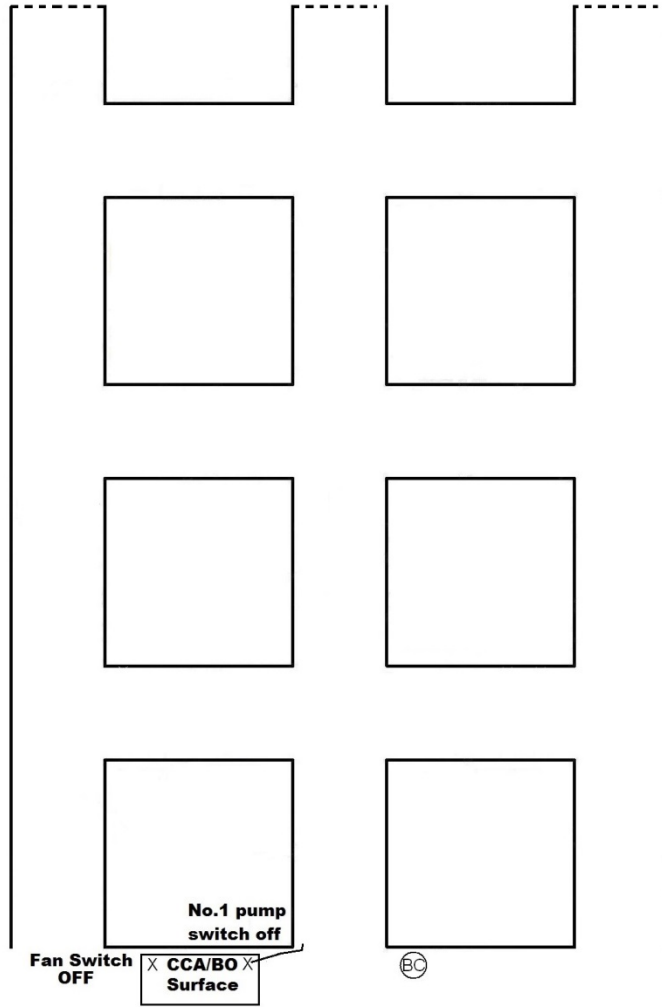
Mine Rescue Contest

Written Instructions

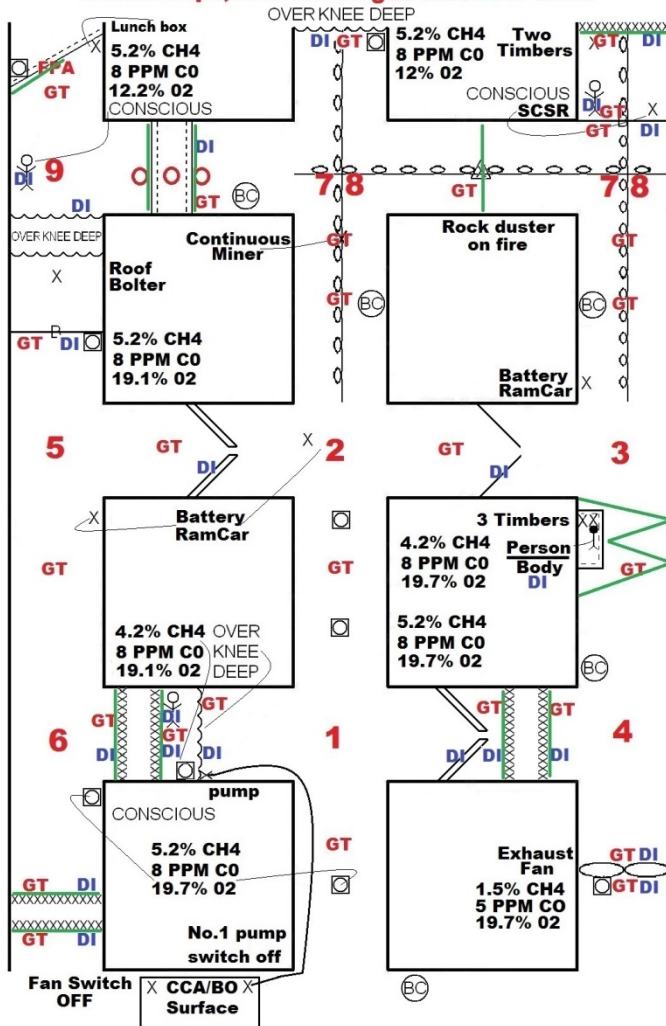
- **ACCOUNT FOR ALL MISSING MINERS**
- **THE EXHAUST FAN CAN BE TURNED ON BY A SWITCH IN THE COMMAND CENTER ON THE SURFACE**
- **THE EXHAUST FAN CAN NEVER BE REVERSED AND ONCE THE FAN IS TURNED ON, IT CANNOT BE STOPPED OR STALLED**
- **NO WORK CAN BE PERFORMED BY THE BACK UP TEAM**

PATIENT STATEMENTS IN FIRST
CROSSCUT BEHIND WATER
OVER KNEE DEEP,
AT BARRICADE IN NO.3 ENTRY
AND AT UNSAFE ROOF
BETWEEN 1 AND 2 IN LAST
OPEN CROSSCUT

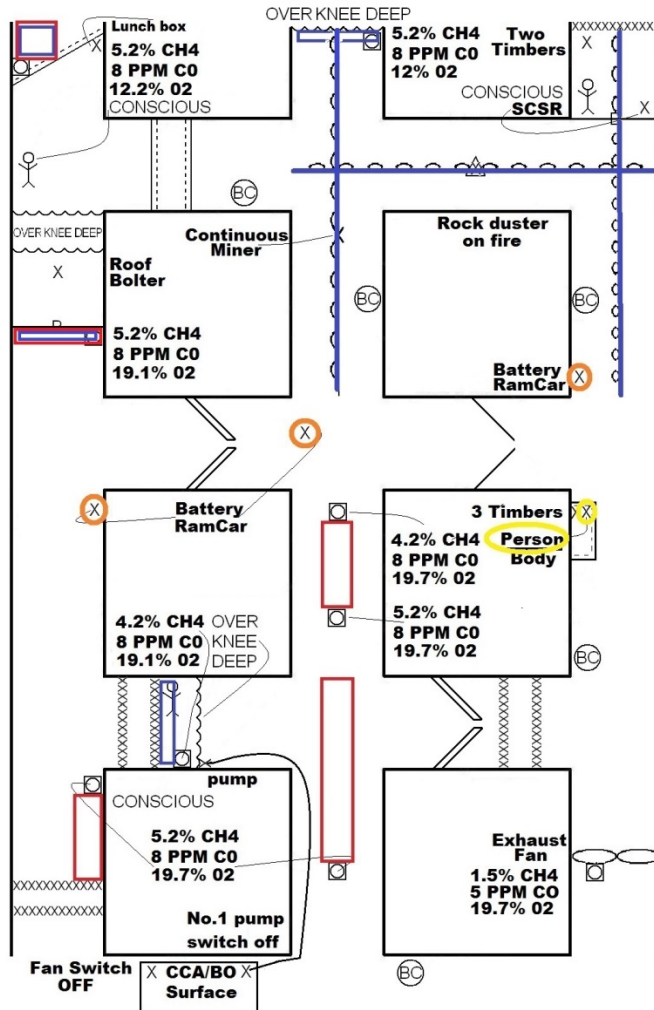
HELP! GET ME OUT!



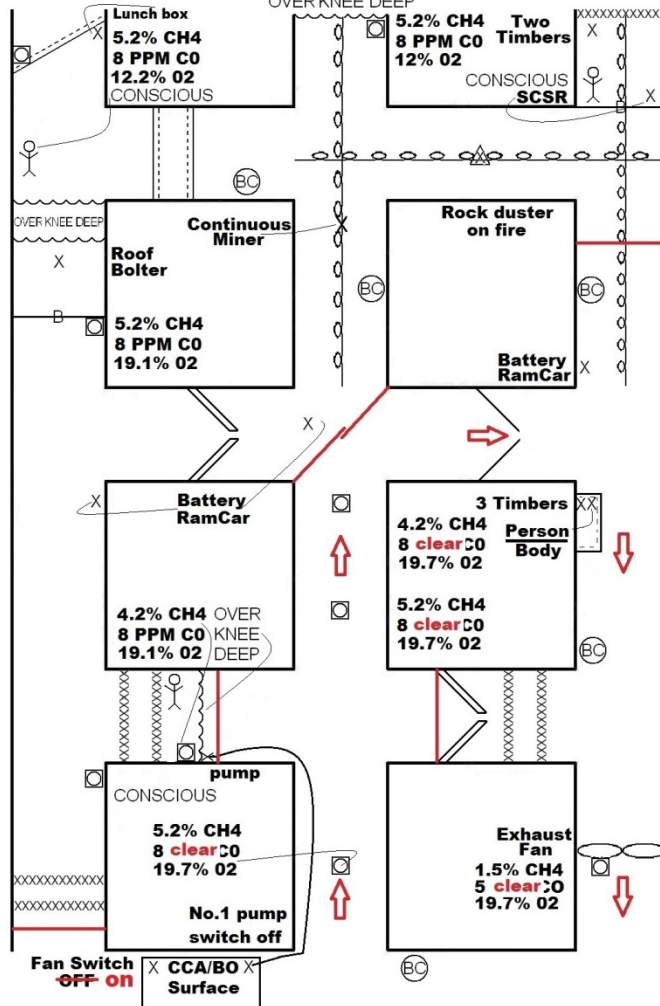
Team stops, date & int. gas test roof & rib

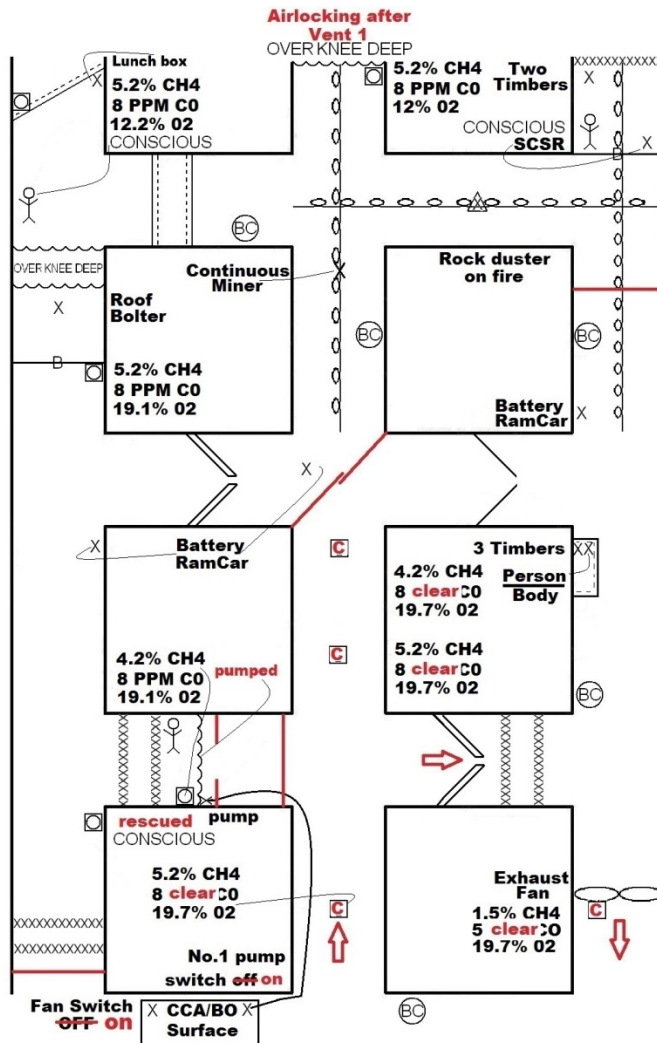


Gas Extents

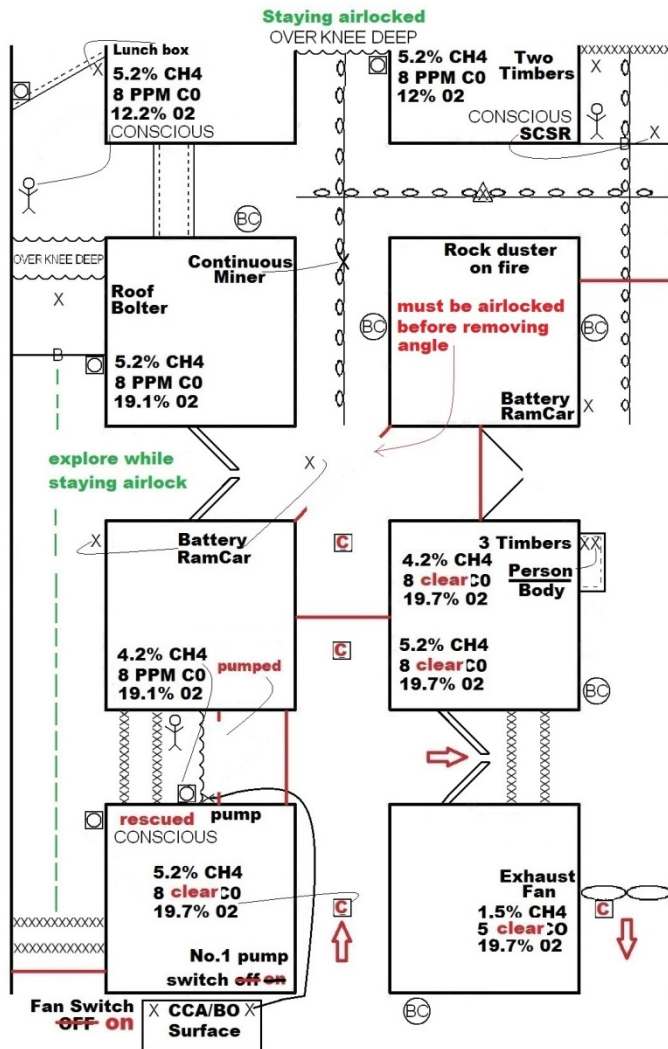


OVER KNEE DEEP

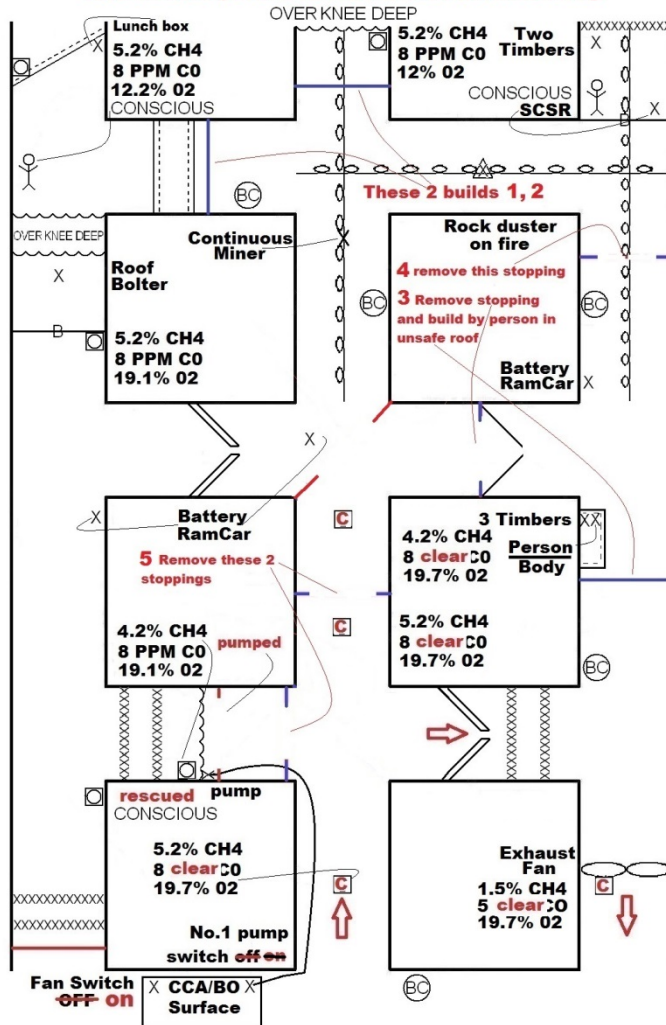




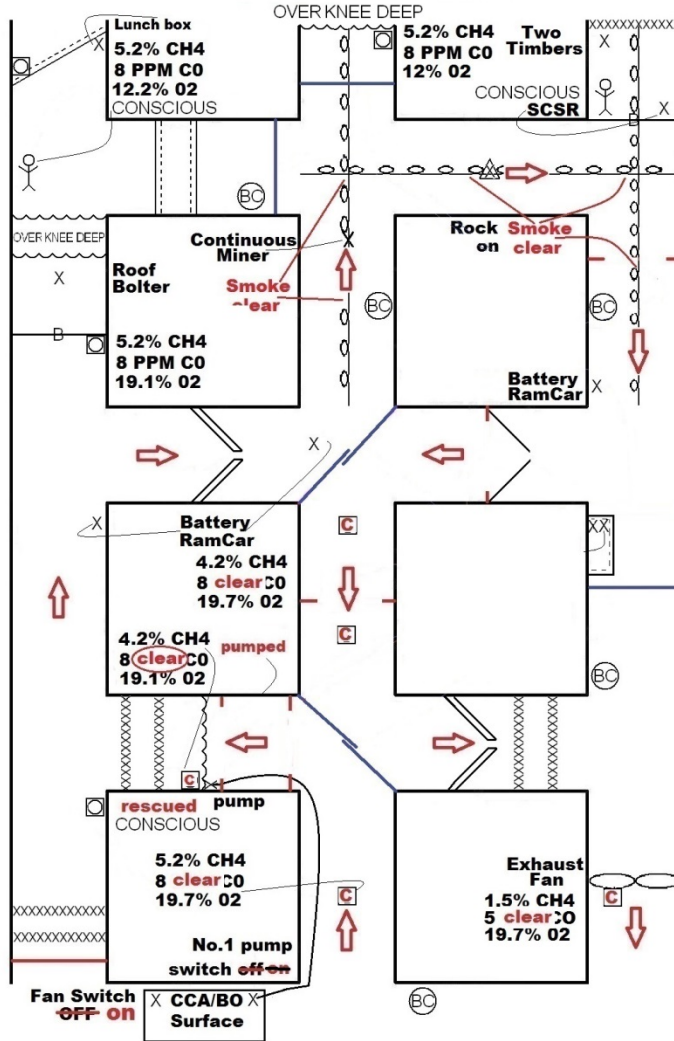
Airlock in and out after vent 1 to pump water over knee deep and to rescue conscious patient. Must stay airlock and not stall fan



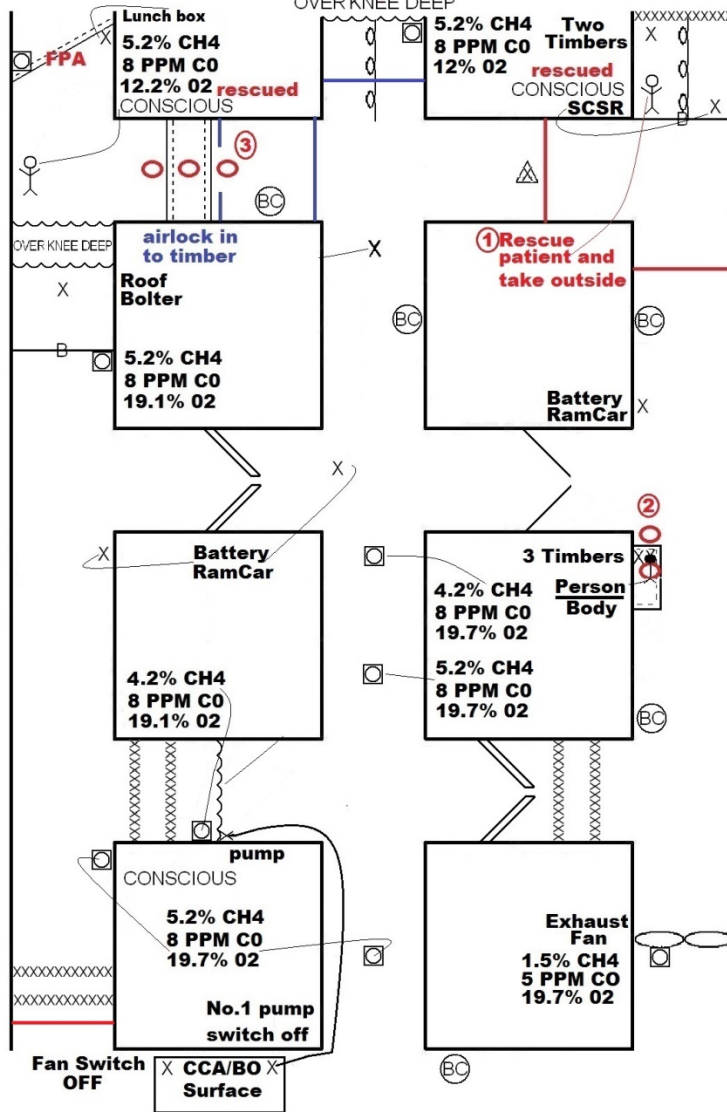
Staying airlocked and moving builds in correct sequence for vent 2 without sending smoke or low O2 over person in unsafe roof in no. 3 entry



Vent 2



**Rescue patients after 2 vent
and stay airlock**



Keys to Problem

- Exhaust fan is in by fresh air base and will create air migration after turning on
- Team must follow contaminated entry while exploring (See team stop map)
- Team must not delay patient behind water over knee (see vent 1 map)
- Team must remain airlock after turning on fan
- Team must move airlocks in proper order before vent 2 (see air-locking sequence on maps)
- Team must not let smoke or low O₂ migrate over person in unsafe roof
- Team must not pass explosive mixture in by last open in no.1 entry (see map) FPA