2022 Field Judge's Problem

FAB

Communication cable can be strung out prior to starting the clock, if the team has a CCA, the Visio mapping device will be up and running with the SD card in place during this time. Teams should have the option to ask for 3 paper maps if they request. No other work is allowed at this time by the team until the clock is started.

The captain will line up with team and introduce himself along with the team.

After instructions, and the statement has been given by the mine manager, the captain must start the clock, and write correct month, day, year, and draw position on the date board. At this time the blank maps will be given to the team.

A statement needs to be made to the judges about having non sparking tools due to the mine being gassy.

Page 42 MINE RESCUE DISCOUNTS AND INTERPRETATIONS Surface Discount Sheet Judge #1

Apparatus improperly assembled, each apparatus 10 x ___ = ____ 2. Apparatus improperly adjusted to the wearer, each infraction 1 x ___ = ____ 3. Apparatus part or parts worn or deteriorated so as to be dangerous to wearer, each person 8 x ___ = ____ 4. Failure to follow prescribed procedures for going under oxygen, each person 3 x ___ = ____ 5. Failure of team member to be clean shaven in the area that affects a good face-to-facepiece seal, each infraction 10 x ___ = ____ 6. Failure of captain to examine each apparatus and have captains examined before entering the mine, each apparatus each infraction 2 x ___ = ____ 7. Team member not wearing identification, protective clothing, including safety shoes, hard hat, permissible cap lamp, self-rescuer, each infraction 2 x ___ = ____ 8. Failure of team captain to mark date and team position number on the check board at mine portal or fresh air base, or start timing device, each omission 4 x ___ = ____ 9. No work will be done prior to starting the clock 4 (total) ____ 10. Failure of team to "count off" before entering or leaving the mine 2 x ___ = ___

Checking the shafts

The number 1 is the intake shaft the number 3 is the exhaust shaft, both locations need roof test RT and date and Initial DI. Teams will need to use the proper cage signals when entering, exiting, and releasing the cage. When the team checks #3 shaft for possible damage, they will find that their combustible materials are wet after raising the cage back to the surface. Team will count off and then ride the #1 shaft into the mine for team safety.

MINE LEVEL SIGNALS Surface Shaft Collar - 1-2 Bells 500 Feet First Level - 2-1 Bells

HOIST SIGNAL 1 Bell - STOP 2 Bells - Lower Conveyance 3 Bells - Raise Conveyance 3-1 Bells - Hoist Persons 3-2 Bells - Lower Persons 2-1-2 Bells - Release Conveyance

Team Stop #1

XC A entry #1 50-foot check will need to be conducted. Captain will break all the openings in the 3-way intersection. DI, GT, and RT are needed at all these locations, DI and RT are verbally stated by the captain though out the problem. Captain needs to verbally recognize the unsafe rib to his team, and it must be verbally recognized each time it's passed in the future, or the team will be discounted.

Team Stop #2

XC B entry #1 all the openings need to be broke by the captain and followed up with RT, GT, and a DI at the overcast wall. Team will find an explosive gas in front of the overcast; explosive mixture needs to be called out to the FAB. Team will need to retreat to XC A. At this point the team must not break the 2X3 rule under exploration.

Team Stop #3

Team will airlock though the permanent stopping in XC A. GT need to be conducted at all these openings prior to advancing, along with verbal acknowledgement of checking the back RT.

Team Stop(s) #4/5 - 5/4

Teams have options they can either advance up to the overcast in XC B #2 entry or they may tie across into the #3 entry over where the ankle-deep water is located. GT's, DI's, and RT's need to be conducted at all these openings prior to advancing from this team stop, in addition both sides of the overcast wall need GT, and DI. Also, teams may not break the 2X3 inby the overcast until all XC A has been tied in. Explosive, and irrespirable gas is found in front of the cave in the #3 entry XC A. Teams must call the explosive out to the FAB. Teams should travel up the #3 shaft so not to exceed there 3X2 crosscut rule, and so they will be able to ventilate through it later.

Team Stop(s) #6/7 – 7/6

Teams has the option to travel to either of these locations, all opening will be examined by the captain and then proper RT, DI and gas test GT will be done. The 2X3 standard has now moved up to 3 feet inby XC C. Team will find explosive gas in the #2 entry inby XC C, team must call the explosive gas to the FAB.

Team Stop #8

Captain will break all the openings RT, DI, and GT's will be conducted behind him.

Team Stop #9

Team finds the back side of the cave, and explosive gas. GT, DI, and RT are needed at this opening. When the team advances to the West team find irrespirable gas and explosive gas in front of the refuge chamber. The explosive gas needs call out to the FAB. There is a verbal response from the refuge chamber, Help, Get me Out! Teams can now ventilate the chamber and rescue the survivor. Please see the first ventilation solution for proper placement of temporary stoppings. Teams can go to any of their previous explored team stops but must not advance to a new team stop #10. After the team requests a ventilation change and all gasses have been cleared Todd can be recovered from the chamber. The fan controls are on the surface and can be started and stopped by flipping the placard. Todd has no injuries and can be walked out of the mine, but must be protected from the low 02 behind the barricade. Proper gas checks must be conduct along their route of travel from rib to rib.

Team Stop(s) #10/11 – 11/10

It is again a matter of choice where the team decides to go. All opening will be first checked by the captain and then followed up with proper GT, DI, and RT. The body inby XC D in the #1 entry will also need a DI for its location. If the team elects to go to the barricade in XC D #3 entry, the team will get a response from behind the barricade saying Help, Help, It's airtight behind me! The N02 concentration is over the barricade limits, so the team will have to continue exploring.

Team Stop #12

The teams will conduct all examinations GT, RT, and Di at the cave, and at the face of the #2 entry. The body in the face will also need to have a DI. Now it's time to figure out how to ventilate the barricade. Please reference the 2nd ventilation solution. Once all the temporary stoppings have been built the team will request a ventilation change, and then flip the fan control placard. Team will not have to airlock to enter because of the airtight response from Tim. Once the team breaches the barricade, they will find Tim unconscious facing up with a life-threatening bleed to the back of his right thigh. Appropriate GT, RT, and DI will need conducted at Tim and at the face. Proper gas checks will need to be conducted along the route of travel. Once the team reaches the surface and has turned over their patient the team will need to count off, stop the clock, and turn in their maps, and SD card if using a CCA.

THE END!!

Day #1 TEAM BRIEFING

Thank, you for responding to our emergency here at the Big Dig Pete Mine. Last night on our hoot owl shift nine miners entered the mine to conduct routine mining and maintenance work on our new development section. At approximately 2:00am this morning it was reported that there was an explosion underground. After taking the time to reviewing our pressure recording chart records, we believe this to be an accurate statement. Unfortunately, at this time we still have not had any communications with any of the miners since the explosion.

We are a multi-level room and pillar Trona Mine that operates at the 500-foot level. We produce ore 24 hours a day 365 days a year. We are classified as a category 3 mine in which noncombustible ore is extracted which liberates a concentration of methane that is explosive or can form an explosive mixture with air or have the potential to do so based on the history of the mine or the geological area in which the mine is located. We do occasionally see water in places throughout our mine that doesn't always excite us. Most of the time our back is competent, but we have had more geological struggles in the past couple months so be careful.

The mine is accessed and ventilated by two shafts on the surface. The #1 shaft is an intake shaft and the second shaft in the #3 entry is an upcast return shaft. Our pillar sizes are 15 feet by 15 feet with 10-foot entries, and crosscuts. There are no explosives stored anywhere on surface and none are currently being stored underground.

We have been taking atmospheric gas samples from our two shafts and all samples have been trending down. Currently we are clear of any toxic type gases at our shafts. All federal and state agencies have been briefed on our current conditions and have approved us to send teams underground.

All the mine maps are current and up to date.

Our main mine fan is currently off but can be turned on and off, if necessary, from the surface. The fan cannot be stalled or reversed. All the power to the mine has been locked out and is being guarded. There is currently 2 back up teams stationed and ready to assist if they were to be called upon.

Objective:

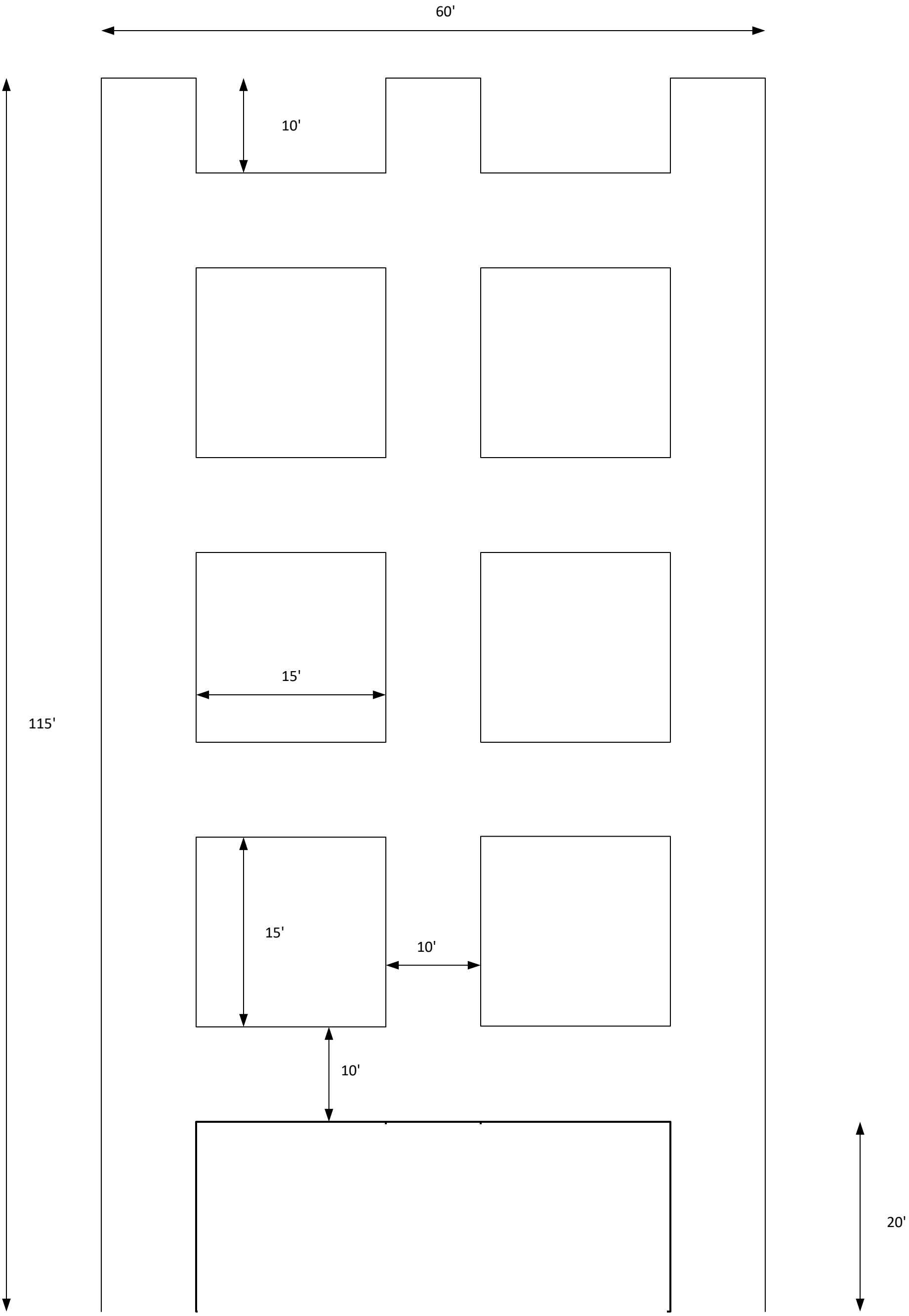
- Explore all accessible areas of the mine if it can be done safely
- Extinguish or seal all fires
- Locate all missing miners
- Bring all survivors to the surface
- Your Team has 90 minutes to complete the problem (5 minute warning)

Please be careful and good luck!!

This map NOT to scale

2022 Loveland CO
Day 1

Materials	
BC/Stoppings:	12
Elongated objects:	2 x 32' ropes
Unsafe roof/rib markers:	Red-6 blue-3
Misc:	1 x 20'LC
	59 placards

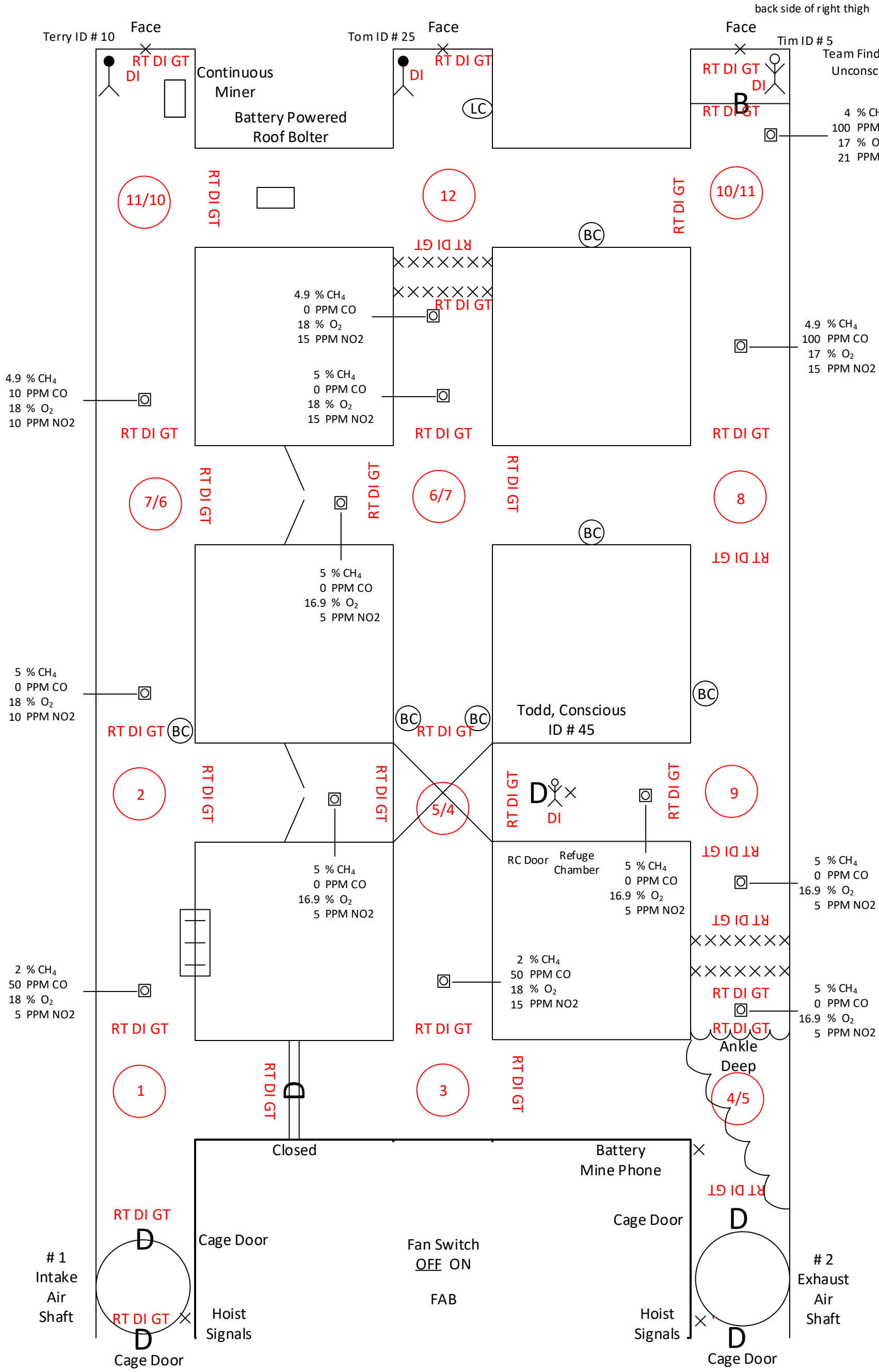


2022 Loveland CO
Day 1

Judges Map

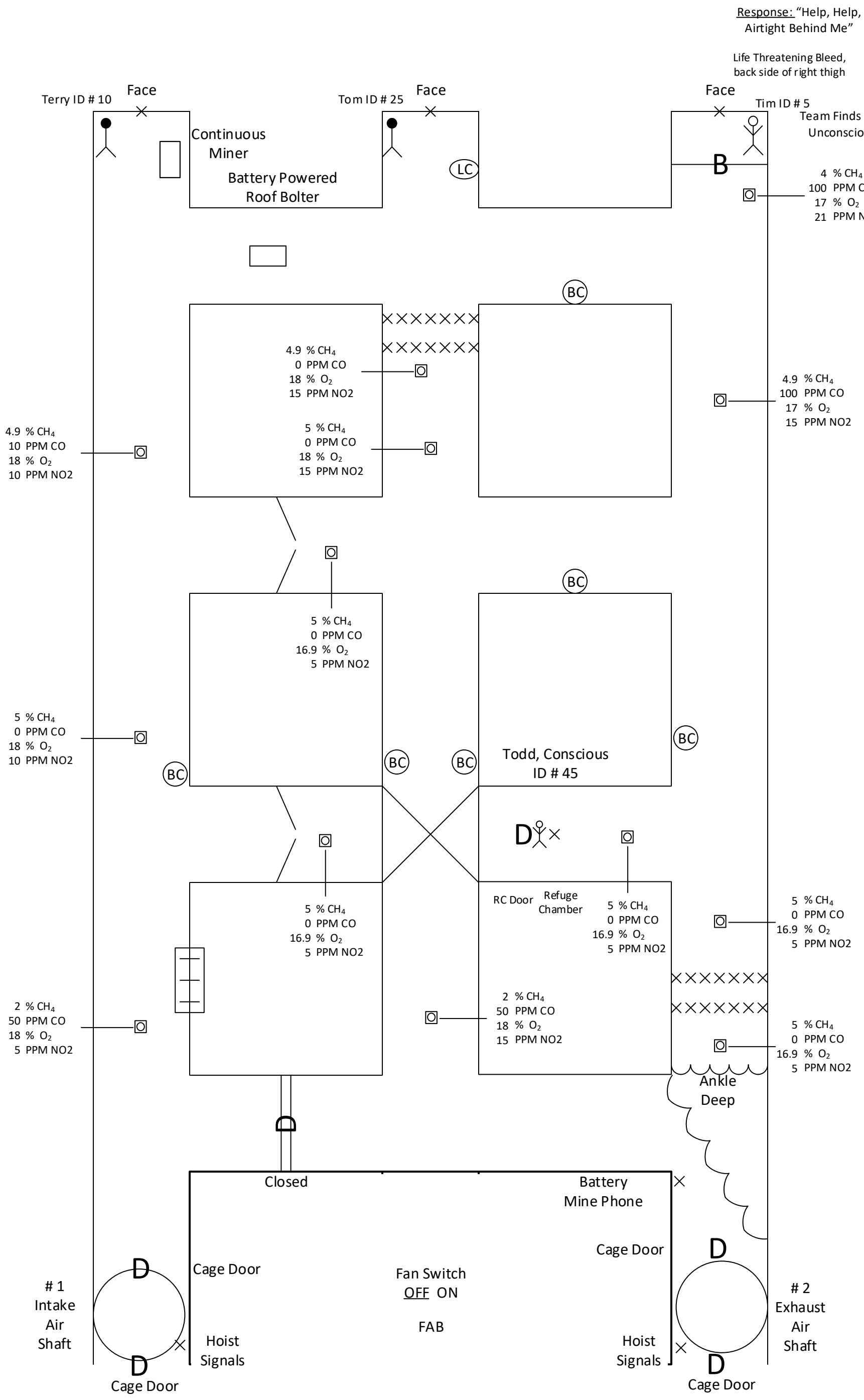
Response: "Help, Help, Airtight Behind Me"

Life Threatening Bleed, back side of right thigh



2022 Loveland CO
Day 1

PROBLEM MAP



2022 Loveland CO
Day 1

VENT 1

Response: "Help, Help, Airtight Behind Me"

Life Threatening Bleed, back side of right thigh

Terry ID # 10
Face
Continuous Miner
Battery Powered Roof Bolter
Tom ID # 25
Face
LC
Face
Tim ID # 5
Team Finds Tim Unconscious
B
4 % CH_4
100 PPM CO
17 % O_2
21 PPM NO2
BC
4.9 % CH_4
0 PPM CO
18 % O_2
15 PPM NO2
5 % CH_4
0 PPM CO
18 % O_2
15 PPM NO2
4.9 % CH_4
100 PPM CO
17 % O_2
15 PPM NO2
4.9 % CH_4
10 PPM CO
18 % O_2
10 PPM NO2
Build
Build
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2
BC
5 % CH_4
0 PPM CO
18 % O_2
10 PPM NO2
BC
Build
BC
BC
Todd, Conscious
ID # 45
BC
D
Cleared
Cleared
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2
RC Door
Refuge Chamber
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2
Build
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2
2 % CH_4
50 PPM CO
18 % O_2
5 PPM NO2
Cleared
Cleared
2 % CH_4
50 PPM CO
18 % O_2
15 PPM NO2
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2
Ankle Deep
Must Re-Locate phone
D
Closed
Battery
Mine Phone
Cage Door
D
1
Intake
Air
Shaft
D
Cage Door
Hoist
Signals
Fan Switch
OFF ON
ON
FAB
Hoist
Signals
2
Exhaust
Air
Shaft
D
Cage Door

2022 Loveland CO
Day 1

VENT 2

Response: "Help, Help, Airtight Behind Me"

Life Threatening Bleed, back side of right thigh

Terry ID # 10
Face
Continuous Miner
Battery Powered Roof Bolter

Tom ID # 25
Face
LC

Face
Tim ID # 5
Team Finds Tim Unconscious
B
Cleared
4 % CH_4
100 PPM CO
17 % O_2
21 PPM NO2

BC

4.9 % CH_4
0 PPM CO
18 % O_2
15 PPM NO2
Cleared

4.9 % CH_4
100 PPM CO
17 % O_2
15 PPM NO2
Cleared

4.9 % CH_4
10 PPM CO
18 % O_2
10 PPM NO2

5 % CH_4
0 PPM CO
18 % O_2
15 PPM NO2
Cleared

Build

Build

BC

5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2

Build

5 % CH_4
0 PPM CO
18 % O_2
10 PPM NO2

Build

BC

BC

BC

Todd, Conscious
ID # 45

D

Cleared

Cleared

5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2

RC Door
Refuge Chamber

5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2

Build
5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2

2 % CH_4
50 PPM CO
18 % O_2
5 PPM NO2

Cleared

Cleared

2 % CH_4
50 PPM CO
18 % O_2
15 PPM NO2

5 % CH_4
0 PPM CO
16.9 % O_2
5 PPM NO2

Ankle Deep

Closed

Battery
Mine Phone
Re-located

Cage Door

D

1 Intake Air Shaft

D

Cage Door

Hoist Signals

D

Cage Door

Fan Switch
OFF ON
ON

FAB

Hoist Signals

D

Cage Door

2 Exhaust Air Shaft