

Rock Springs 2021 Day 1

Written Problem

Explore all areas of the mine necessary to account for the missing miners if it can be done safely.

Account for the 9 missing miners.

Bring any live miners to the FAB.

Your team is not allowed to move any inoperable battery powered mobile equipment.

Your team has 75 minutes to complete this problem.

2021 Rock Springs Day 1 Written Statement

Thank you for responding to our mine emergency.

A Command Center has been established on the surface.

Last night 9 miners were working in the 1 North area. We have had no contact with them. The 1 North entries are numbered from left to right 1, 2 and 3.

The EXHAUSTING mine fan on the surface is running, is guarded and CAN be reversed. All power into the mine is locked out.

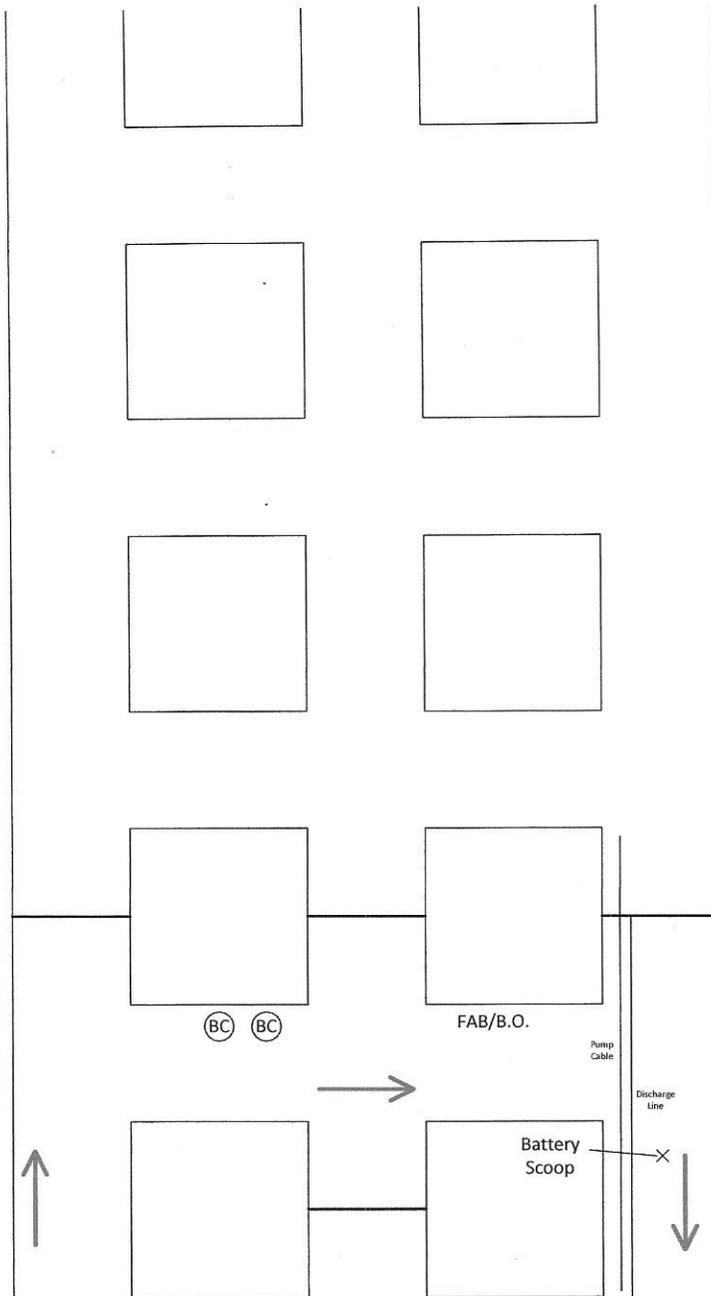
If power is required to energize any equipment in the mine, switches will be available at the FAB.

The mine uses battery powered haulage equipment. Your team is not to start up or move any inoperable mobile equipment found due to the methane present in our mine.

All officials and backup teams are present. The mine map is up to date.

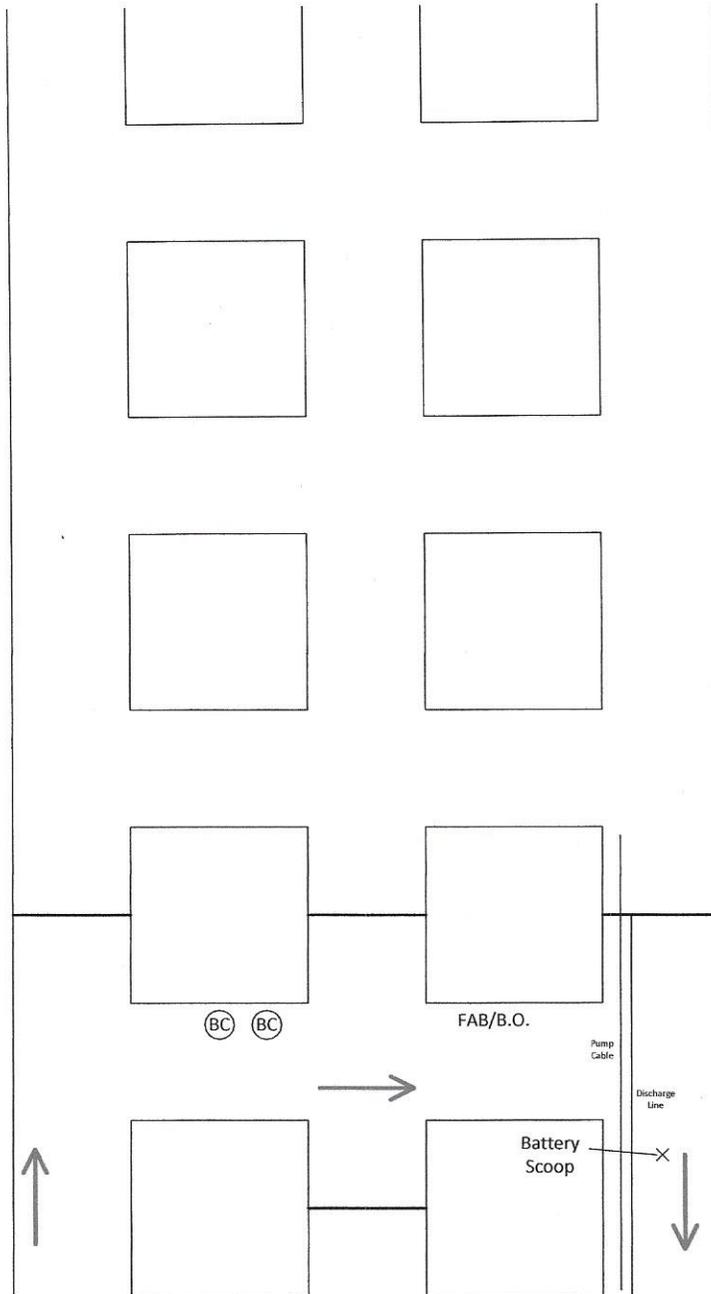
Rock Springs Contest 2021
Day 1

Team Map



Rock Springs Contest 2021
Day 1

Attendant Map

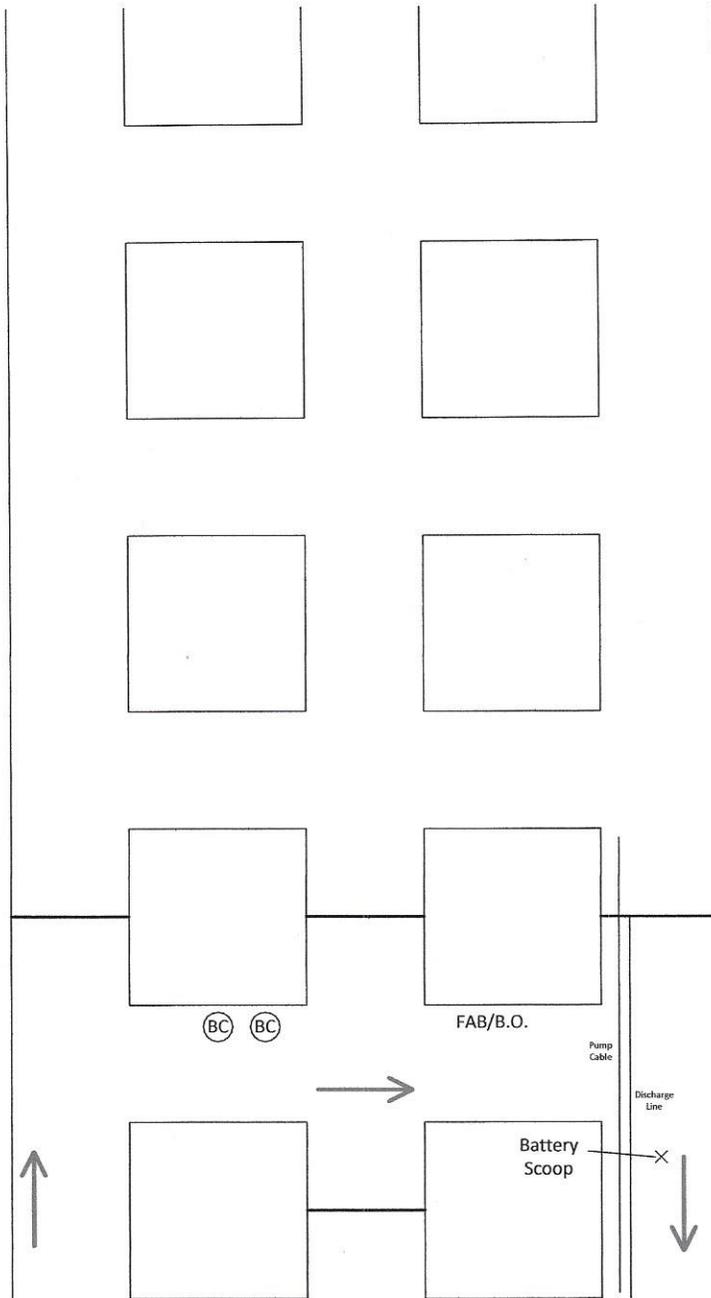


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Rock Springs Contest 2021
Day 1

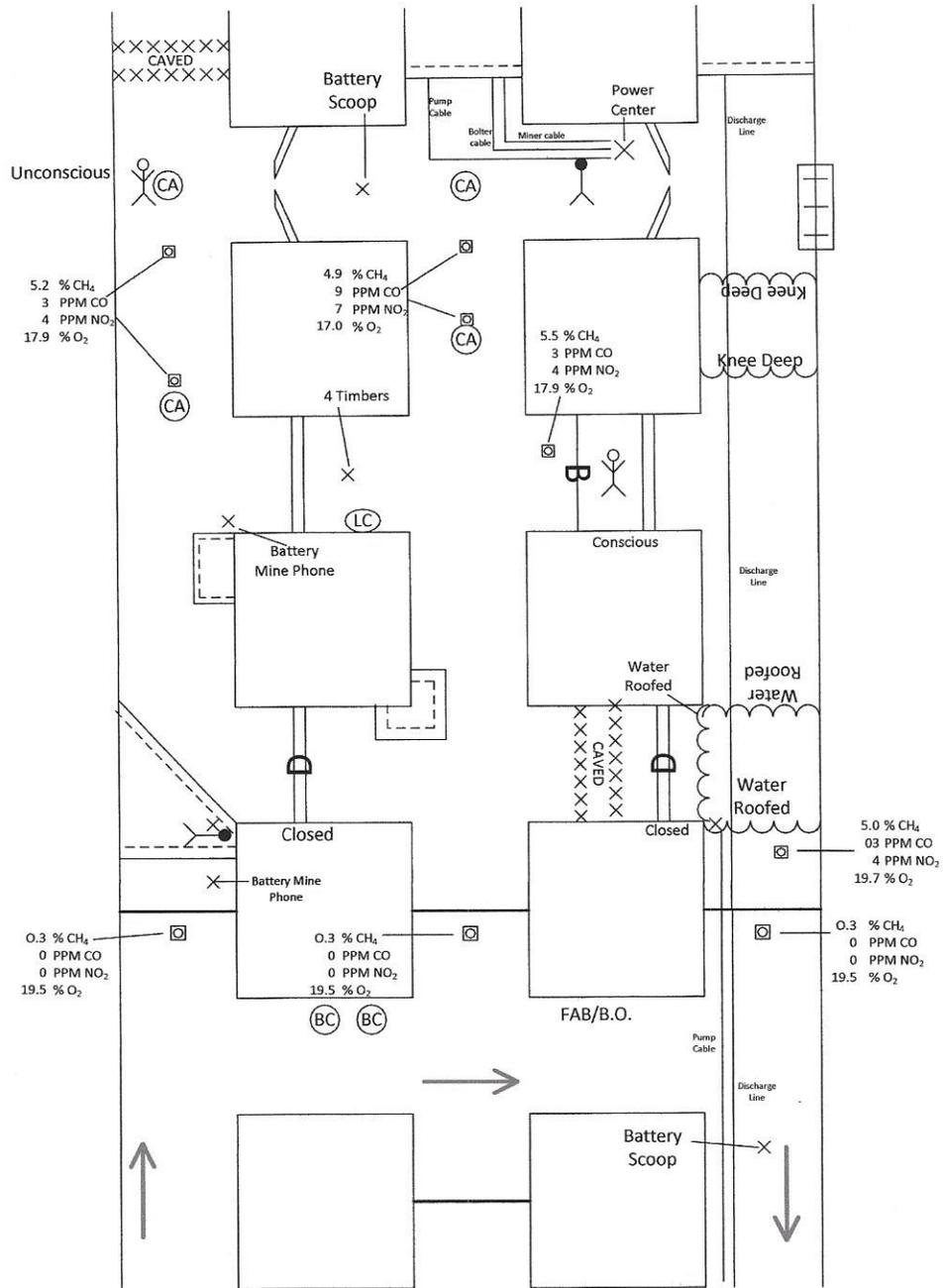
Briefing Officer
Map

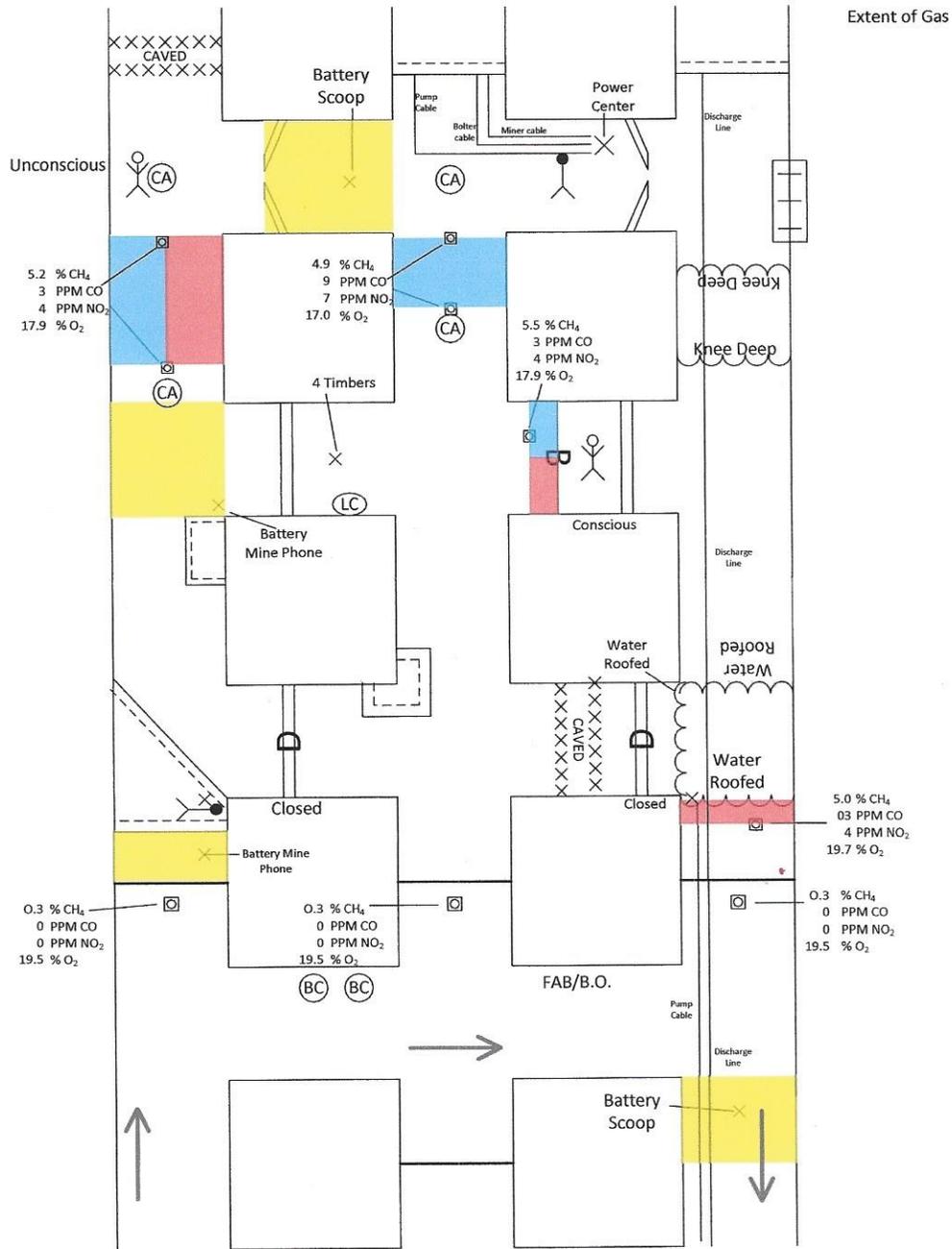


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Rock Springs Contest 2021
Day 1





Rock Springs 2021 Mine Rescue Contest

Day 1 Judges Packet Team Stops, DI, GT

Entries are numbered left to right; 1, 2, 3. Cross-cuts are numbered XC-0 FAB, toward face XC-1, XC-2, XC-3. Initial opening checks at entries/openings at FAB. All 3 entries have temporary stoppings. Teams can enter ANY entry – apparatus check required at stop when all team members inby FAB. Team stops 1,2,3 are optional regarding sequence and each require an airlock. Battery ramcars and scoops are inoperable. No cables or discharge lines interfere with building brattices. [ZRR = zig-zag roof exam, Pg 46, Fig. 1a.] **Line curtain is 30 feet long.**

Captain Check E1, E2, & E3 to Temp stoppings, GT, DI

1. Stop 1/2/3 E1, inby XC-0; Airlock, breech stopping, GT, mine phone, unsafe roof, DI, need timbers
2. Stop 2/3/1 E2, XC-1; Go to E2; Airlock, breech stopping, GT; Right; cave, DI, RR, GT; Left; stopping Door closed, DI; E2 strait to corner 2-X; GT, ZRR unsafe corner.
3. Stop 3/4/5; E2, XC-2; right; explosive mix & irrespirable, barricade, knock, [I'm ok, stopping behind me]. Cannot vent yet to recover miner. XC-2-1, find 4 timbers, LC, and stopping.
4. Stop 1/2/3; E3; Airlock, breech stopping, GT; explosive mix, find water roofed –stopped
5. Stop 3/5; E1, XC-1; airlock, breech door, ZRR required at bad roof, tie outby, see person – **SET TIMBERS [may only need 3] but #1E must be fully explored**, find body; inby #1 – ZRR at bad roof.
6. Stop 4; E1, XC-2; find battery mine phone, XC-1-2 stopping, GT,RR,D/I

HAVE ENOUGH INFO TO VENT BARRICADE

VENT 1 - Ask for vent change; build in 1-x, 1-2; remove 2E 1-X to 2-X; build 2E at cave; build 2E inby 2-X; remove stopping 3-X, 1 to2; build E1 inby 2-x; remove temp E1 outby 2-X; **MOVE 2 MINE PHONES**; maintain door closed in stopping; reverse fan. Hang line curtain 2-X to vent barricade; recover miner to FAB.

7. Stop 7 E3, 2-X; airlock at barricade; breech stopping 2 to 3; tie outby to roofed water; inby E3 thru water knee deep, find unsafe rib on right side.
8. Stop 8 E3, XC-3; face, unsafe roof, DI,RR,GT; xc 3 to 2, find not in-tact stopping, power center, person/body
9. Stop 9 E2, XC-3; clear air; tie outby to temp stopping, irrespirable; face unsafe roof, DI,RR,GT; XC- 2-1, battery scoop, not intact stopping.
10. Stop 10 E1, XC-3; discover person [unconscious, alive], captain assess crew to face caved DI,GT,RR.; tie outby to temp stopping; recover miner to FAB. **ALL ACCESSIBLE AREAS HAVE BEEN EXPLORED. 5 MINERS STILL UNACCOUNTED FOR.**

VENT 2 – Ask for vent change; remove temp across xc-0 1 to2; build across E2 inby XC-0; remove across E3; reverse fan; hang LONG line curtain to vent methane at roofed water.

TEAM MUST BUILD 2 AIRLOCKS PRIOR TO PUMPING WATER ROOFED IN 3 WAY INTERSECTION - RULE 42.

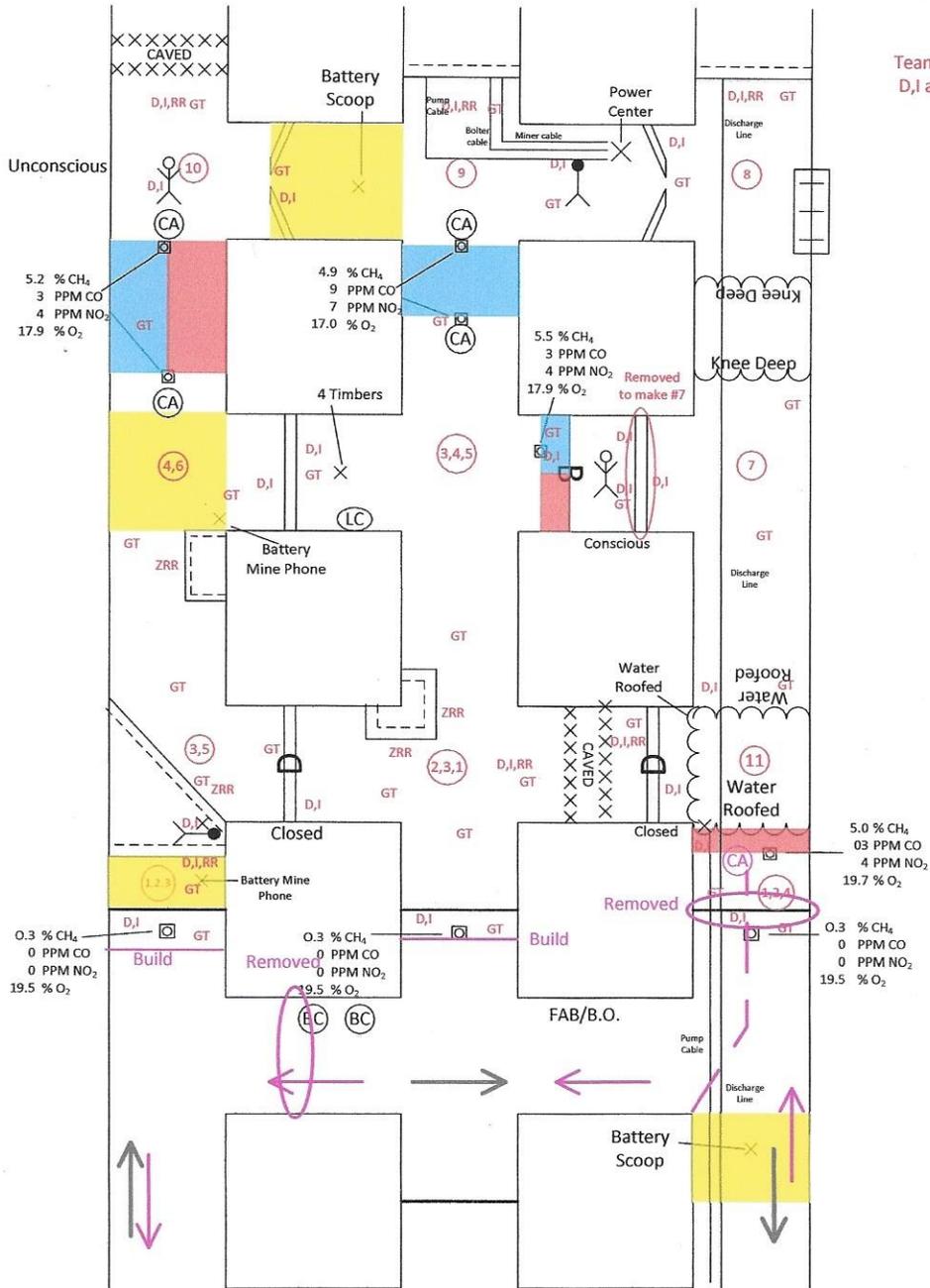
Vent 3 to pump water roofed; ask for vent change; build airlock in E2 XC2 at cave; build airlock in E3 outby pump; maintain stoppings in #1 and @2 entries inby XC-0 from vent 2. PUMP WATER.

11. Stop 11, E3, XC-1; stopping door closed DI, airlock in, back side of cave, DI, RR, GT.
END OF PROBLEM

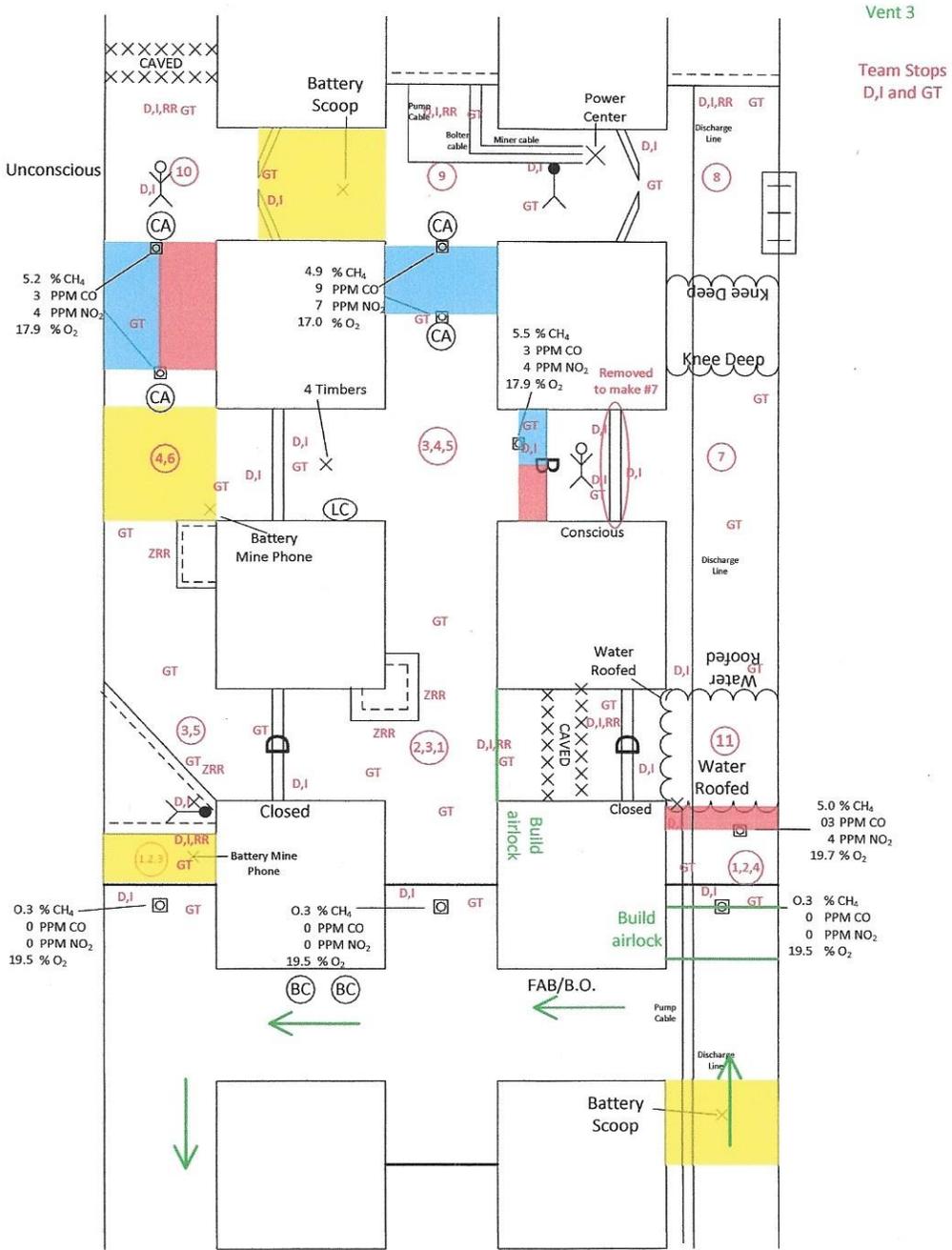
Rock Springs Contest 2021
Day 1

Vent 2

Team Stops
D,I and GT



Rock Springs Contest 2021
Day 1



Rock Springs 2021 Day 2

Written Problem

Explore all areas of the mine necessary to account for the missing miners if it can be done safely.

Account for the remaining missing miners.

Bring any live miners to the FAB.

Your team is not allowed to move any inoperable battery powered mobile equipment.

Your team has 90 minutes to complete this problem.

2021 Rock Springs Day 2 Written Statement

Thank you for responding to our mine emergency.

A Command Center has been established on the surface.

Five miners remain unaccounted for in the 1 North area.

We have had no contact with them. The 1 North entries are numbered from left to right 1, 2 and 3.

The EXHAUSTING mine fan on the surface is running, is guarded and CAN be reversed. All power into the mine is locked out.

If power is required to energize any equipment in the mine, switches will be available at the FAB.

The mine uses battery powered haulage equipment. Your team is not to start up or move any inoperable mobile equipment found due to the methane present in our mine.

All officials and backup teams are present. The mine map is up to date.

Rock Springs 2021 Day 2 Judges Packet & Team Stops

Rock Springs 2021 Mine Rescue Contest

Entries are numbered left to right; 1, 2, 3. Cross-cuts are numbered XC-0 FAB, toward face XC-1, XC-2, XC-3. Initial opening checks at entries/openings at FAB. All 3 entries have temporary stoppings. Teams can enter ANY entry – apparatus check required at stop when all team members in by FAB. Team stops 1,2,3 are optional regarding sequence and each require an airlock. Battery ramcars and scoops are inoperable. No cables or discharge lines interfere with building brattices. Line Curtain is 30 feet long.

1. Stop 1/2/3 E 1 at temp stopping explosive mix found, airlock in, entry caved.
2. Stop 2-E 2 @XC-1; Airlock in, breech temp stopping, **Timber thru bad top**; explosive & irrespirable mix in intersection, check barricade, conscious miner "I'm ok, barricade behind me"; straight, battery scoop; XC 2-1; not intact stopping; ramcar
3. Stop 3 @ E1 @XC-1, Tie outby to cave, irrespirable; E1 inby- knee deep water

VENT #1 – REQUEST AIR CHANGE; REMOVE TEMP IN #2, BUILD TEMP IN XC-0, 2 TO 3. USE LC TO VENT GAS IN #1 AT TEMP STOPPING. CANNOT VENT EXPLO OVER RAMCAR XC1.

VENT 2 – REQUEST VENT CHANGE; BUILD TEMP ACROSS E1 INBY XC-1; BUILD ACROSS E2 INBY XC-1; REMOVE TEMP #E1 OUTBY CAVE; BUILD ACROSS XC-0, 1 to 2; USE LINE CURTAIN TO VENT BARRICADE. Retrieve miner in barricade; take to FAB

4. Stop 1/4 E 3 @XC-1; Airlock in; breech temp; **Timber thru bad top**; check, E 3 caved; left x-cut; body & barricade – no answer; airlock & breech, tied across.
5. Stop 5 E 2 at XC-2; Airlock in; find battery scoop, XC-2; XC 2-1 – battery mine phone; not in tact stopping; go to E 1
6. Stop 6/7 E 1, XC-2; find mine phone check outby water; knee deep; tied back; check entry water over knee deep; stop
7. Stop 6/7 @ E 3, XC-2; tie back to inby end of cave; go inby XC-2 to corner.
8. Stop 8 E 3, XC-3; find ramcar; Check entry, irrespirable, low oxygen & hi NO2; find continuous miner, smoke and **extinguish fire**, discover body, face,.
9. Stop 9 E 2 at XC-3; XC-2-1, explosive mix + irrespirable; water roofed, stopped; E 2 - irrespirable; CHECK barricade [we're ok];

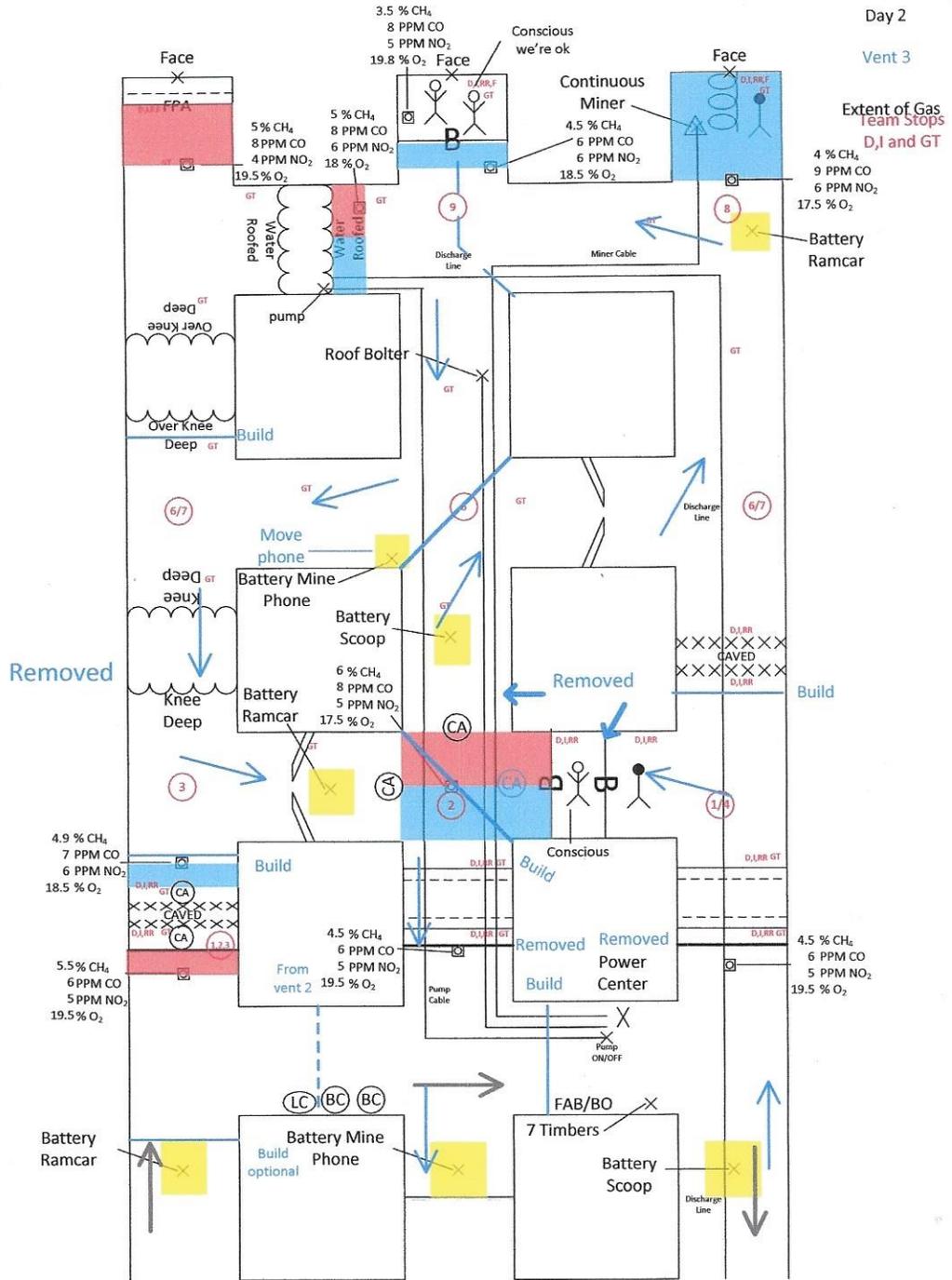
VENT 3 – REQUEST VENT CHANGE; MOVE MINE PHONE IN X-2; optional BUILD ACROSS #1 OUTBY XC-0; BUILD ACROSS #1 INBY CAVE; BUILD IN XC-0 BOTH X-CUTS; REQUEST FAN REVERSAL; BUILD DIAGONAL E 2, XC-1 AND DIAGONAL AT XC-2; REMOVE E2; REMOVE BARRICADE; BUILD E3 INBY XC-1; BUILD E1 INBY XC-2; USE LINE CURTAIN IN 2E TO VENT BARRICADE

VENT 3 ALTERNATE – MOVE MINE PHONE IN XC-2; BUILD IN XC-2, 2 TO 1 AND 2 TO 3; BUILD XC-1 AT RAMCAR AND ENSURE BARRICADE IN TACT; BUILD AT FAB AND ENSURE BRATTICE FROM VENT 2 IN TACT IN XC-0, 2 TO 1; REVERSE FAN. USE LINE CURTAIN IN 2E TO VENT BARRICADE.

E-2 at face; Breech barricade, recover 2 live miners, walk to FAB.

All missing miners have been found. There is no safe way to vent methane out of the mine face areas without crossing unexplored caved areas or crossing spark sources.

10. End of problem.



Day 2

Vent 3

Extent of Gas Team Stops D,I and GT

4 % CH₄
9 PPM CO
6 PPM NO₂
17.5 % O₂
Battery Ramcar

3.5 % CH₄
8 PPM CO
5 PPM NO₂
19.8 % O₂
Face
Conscious we're ok

Continuous Miner
4.5 % CH₄
6 PPM CO
6 PPM NO₂
18.5 % O₂

5 % CH₄
8 PPM CO
4 PPM NO₂
19.5 % O₂

5 % CH₄
8 PPM CO
6 PPM NO₂
18 % O₂

6 % CH₄
8 PPM CO
5 PPM NO₂
17.5 % O₂
Battery Ramcar

4.9 % CH₄
7 PPM CO
6 PPM NO₂
18.5 % O₂

5.5 % CH₄
6 PPM CO
5 PPM NO₂
19.5 % O₂

4.5 % CH₄
6 PPM CO
5 PPM NO₂
19.5 % O₂

Removed

Removed

Removed
Power Center

Battery Ramcar

Battery Mine Phone

Battery Scoop

7 Timbers

FAB/BO

Battery Scoop

Discharge Line

Pump ON/OFF

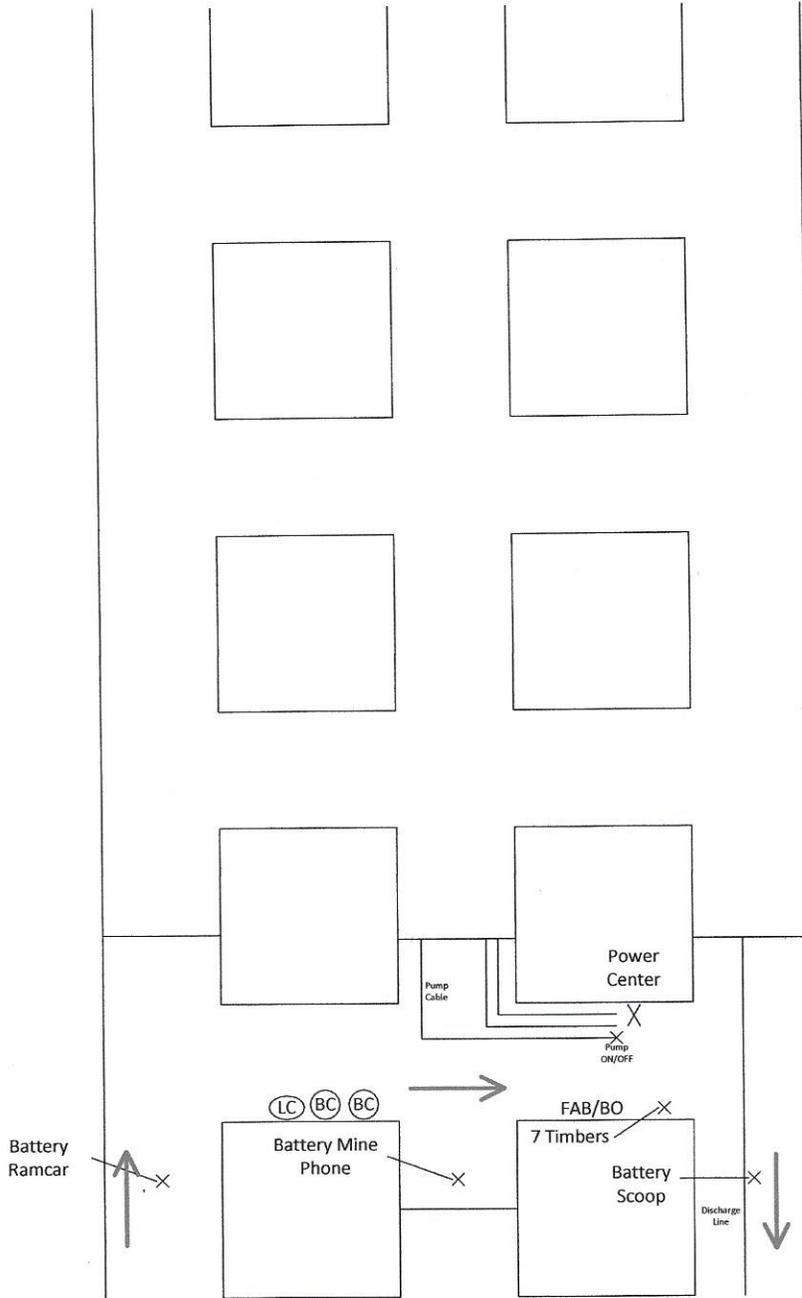
Pump Cable

Discharge Line

Rock Springs Contest 2021

Day 2

Attendant Map



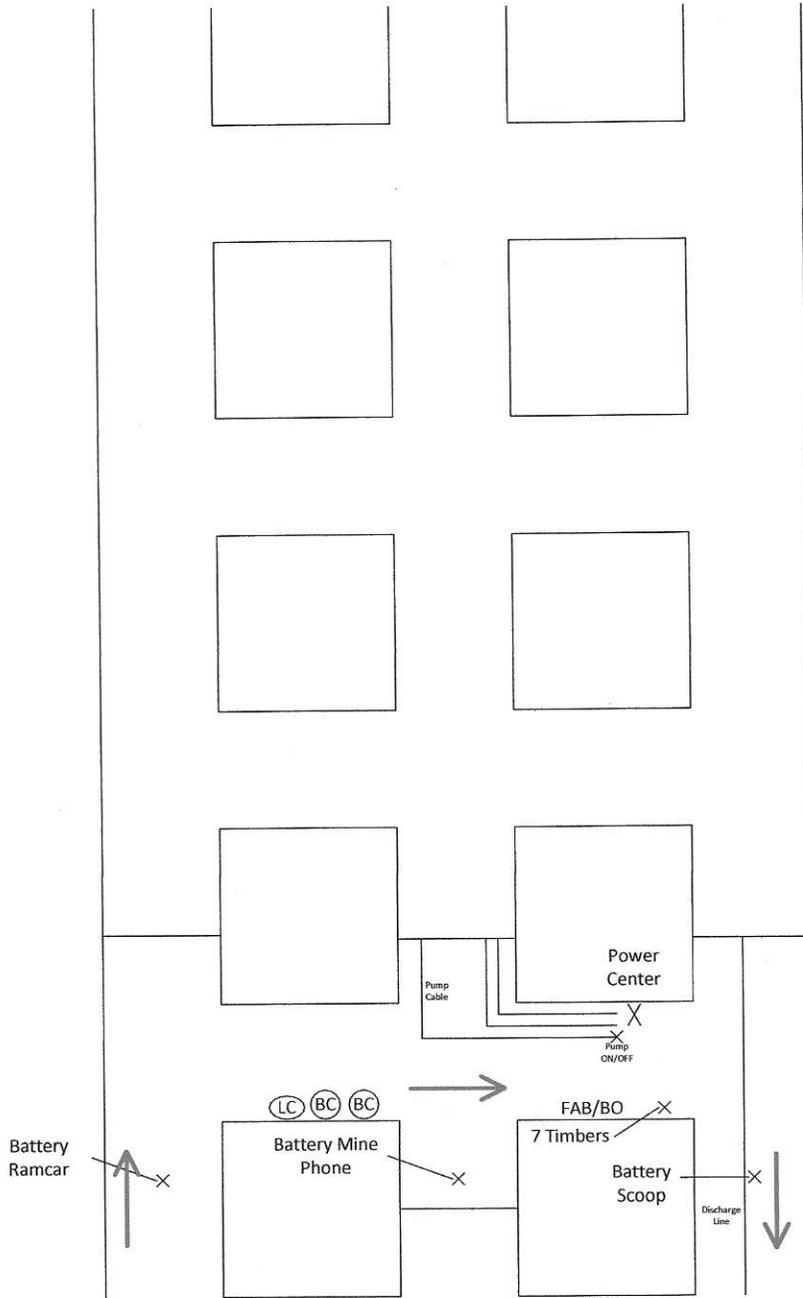
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Rock Springs Contest 2021

Day 2

Briefing Officer
Map



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Rock Springs Contest 2021

Day 2

Team Map

