

2014 Northern Regional Mine Rescue Contest

JUDGES' PACKET Field Competition



**June 18, 2014
Findley Lake, New York**

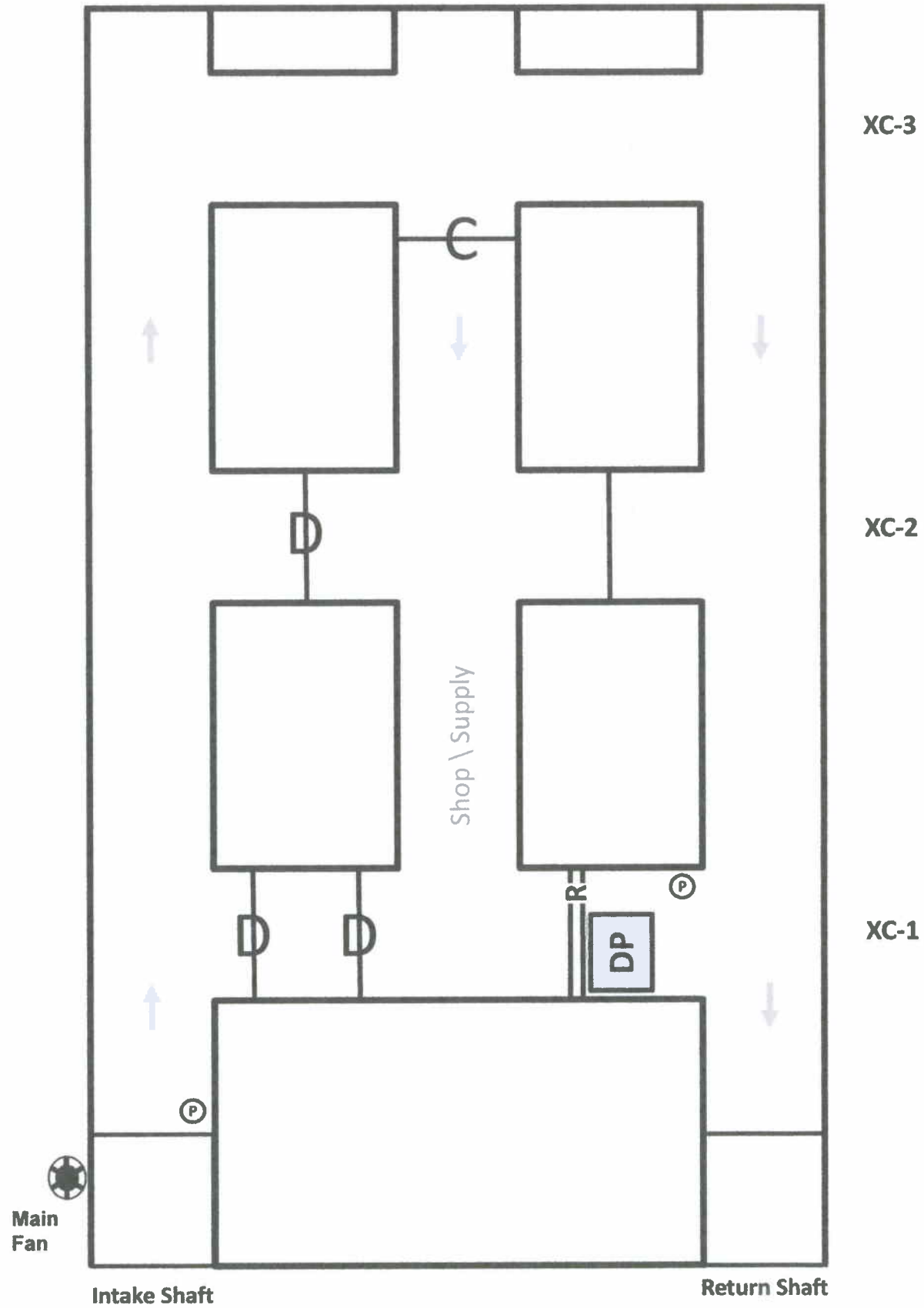
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Entry 1

Entry 2

Entry 3



Team Map

Mine Information Sheet

Peak Mining Co. – Mountain Run Mine

Mining & Equipment:

The single-level mine uses a conventional room and pillar method to extract ore. The broken ore is loaded using load-haul-dumps (LHDs) and then transported to the shaft dump pocket located in Entry 3. The ore is then hoisted to the surface via production skips in the Return Shaft. The entries are initially driven 8 feet high and 10 feet wide. Typical pillar dimensions are 15 feet by 20 feet (W x L). All underground mobile equipment (including the LHDs, face drills, roof bolting machines, and transport jeeps) is diesel-powered.

Mine Classification:

In accordance with Title 30 CFR § 57.22003, the mine was classified as a Category IV mine, that is, any methane concentrations liberated are not explosive and are not capable of forming explosive mixtures with air, based on the geological area in which the mine is located. Historical hygiene data from the mine, both MSHA and Company's samples, have indicated the presence of methane in trace amounts.

Mine Openings:

The mine is opened by two 18-foot diameter shafts approximately 1,750 feet deep. The Intake Shaft is equipped with a service hoist used to transport people and to convey supplies. The shaft also serves as the primary escapeway from the mine. The Return Shaft which is equipped with production skips, as well as an escape compartment which can be used to hoist a maximum of eight persons to the surface.

Ventilation:

The 6-ft. diameter blowing Main Fan is located on the surface at the Intake Shaft. The fan is not reversible. The fan produces approximately 100,000 cfm and operates in the stable portion of its performance curve. The electrical power to the fan is on and the fan is operating. The air enters the mine through the Intake Shaft and exhausts from of the Return Shaft. Air is directed to the faces using permanent (concrete block) and temporary (brattice cloth) ventilation controls. The typical airflow direction is marked on the Team and Fresh Air Base Maps.

Water:

The mine has no history of water problems in the active workings.

Pumps:

Each shaft is equipped with a ten-foot deep sump. The main water pumps, located on the surface, can easily handle the volume of water produced in the shafts. The main water pumps have been activated along with the power to the shafts.

Entry 1

Entry 2

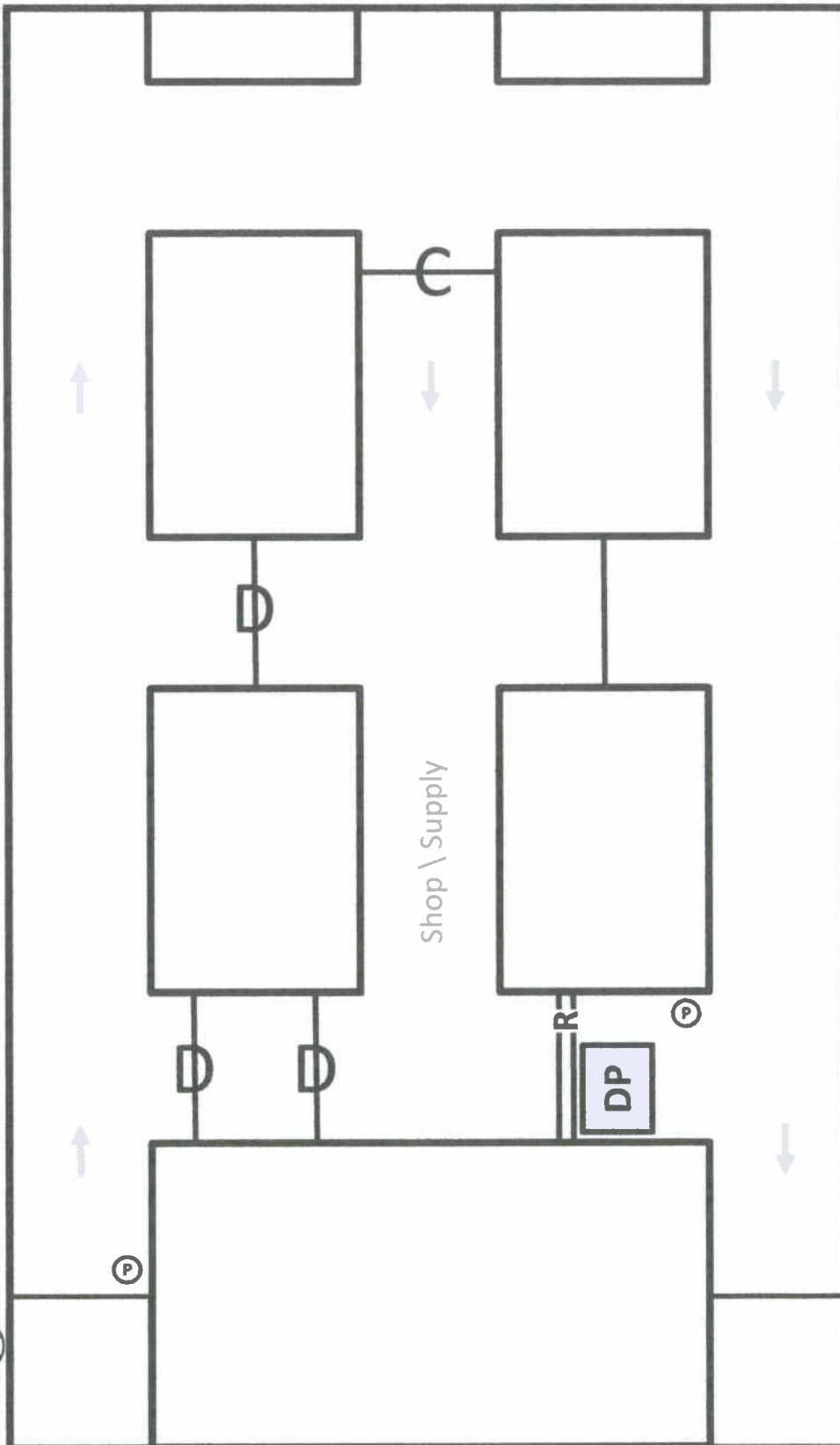
Entry 3



XC-3

XC-2

XC-1



Intake Shaft

Return Shaft

Main Fan

Team Map

Mine Information Sheet (continued)

Peak Mining Co. – Mountain Run Mine

Ground/Rib and Roof Control:

The immediate roof, or back, is supported by six-foot rock bolts. The back is fairly competent, but problem areas are supported by wooden posts or stacked crib blocks.

Explosives:

Explosives are available and stored on the surface. They are used during the mining cycle and blasting is conducted at the end of each shift while all persons are out of the mine. Only enough explosives for a day's use are stored in day boxes on the blaster's jeep.

Electric Power:

The electrical power to the shafts and the surface pumping station has been restored; however, all power to the underground has been de-energized, locked out, and guarded.

Mine Map:

The mine map was updated on June 11, 2014 by the onsite Engineering Department.

Other Mines:

There are several known mines, active and abandoned, in Findley Lake, New York. At this time, the Mountain Run Mine is not connected to any of these mines.

Materials:

Most available equipment and materials to work the problem are located in the mine and are identified with placards. The materials are stored in several areas underground and can be readily located if needed. If there is something else deemed necessary by the team, upon request, it can be delivered in a reasonable amount of time.

Note: The new brattice material available for use by the team is relatively lightweight and compact (10-foot strips of brattice cloth with a clip on each end). For the sake of realism, the team will only be allowed to carry two sets of material at any one given time.

Communications:

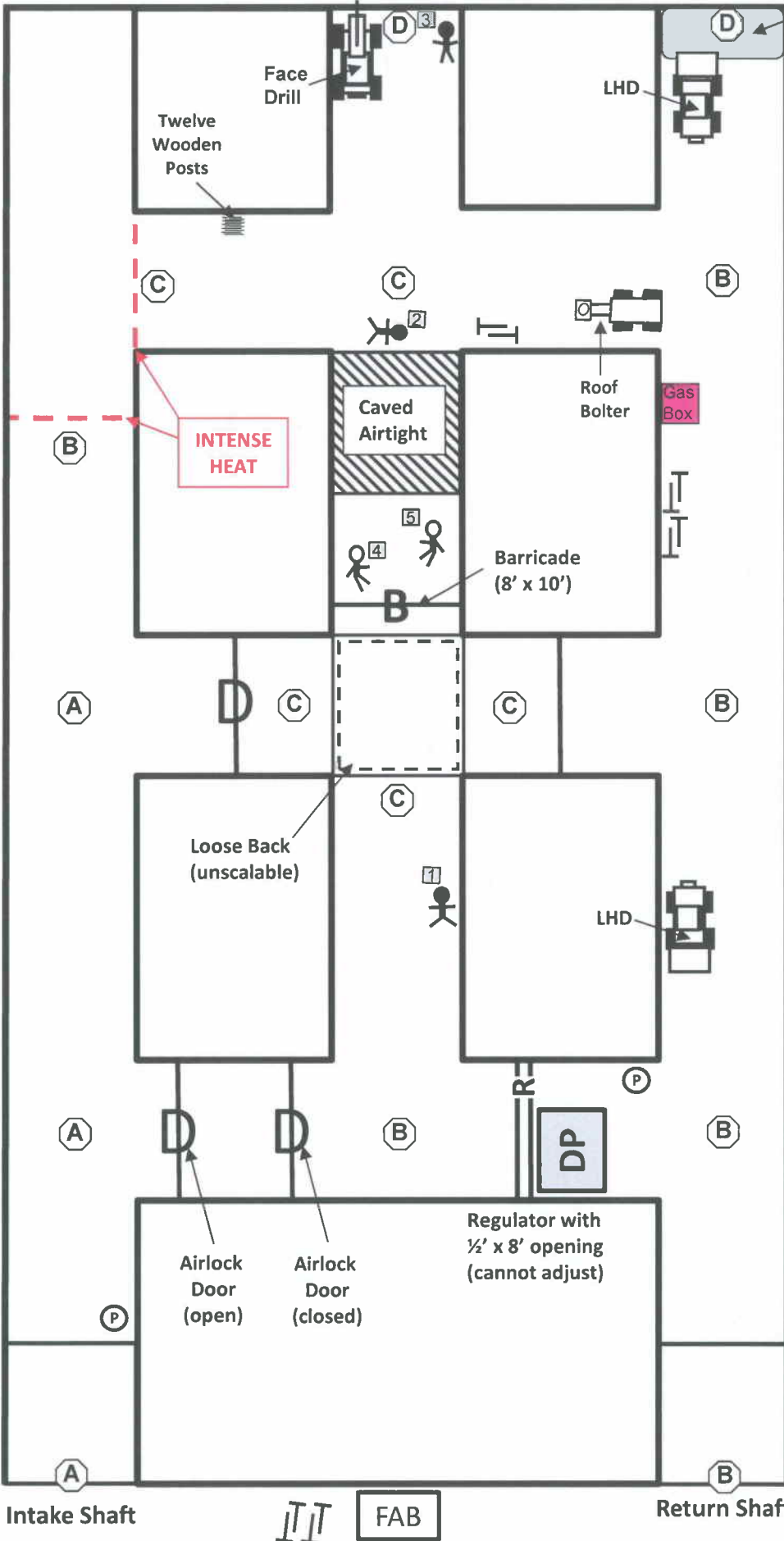
Two pager phones are available in the mine for contact with the surface. The current phone locations are marked on the mine map. At this time, we do not know the status of the communication system, because there has been no contact with the missing miners.

Face - Entry 1

Face - Entry 2

Face - Entry 3

Muckpile



XC-3

Gas Placard Key:

- (A) = Clear Air
- (B) = 17 % O₂
1,500 ppm CO
0.1 % CH₄
Light Smoke
- (C) = 15 % O₂
3,500 ppm CO
0.2 % CH₄
Heavy Smoke
- (D) = 18 % O₂
1,950 ppm CO

XC-2

XC-1

Main Fan (on)

Intake Shaft



FAB

Return Shaft

Problem Map

Team Briefing Statement

You are located at the surface of the Peak Mining Company's Mountain Run Mine. The mine started production on January 3, 2013. It is a single-level underground mine opened by two shafts approximately 1,750 feet deep. Air enters the mine through the Intake Shaft which is equipped with a service hoist used to transport people and to convey supplies. This shaft serves as the primary escapeway from the mine. Air exhausts from the Return Shaft which is equipped with production skips, as well as an escape compartment which can be used to hoist a maximum of eight persons to the surface. The mine is ventilated by the surface-mounted blowing Main Fan operating at the Intake Shaft which produces 100,000 cfm for the mine. The Main Fan cannot be reversed.

Ore is mined by the traditional room and pillar method. The entries are initially driven 8-feet high and 10-feet wide. Pillars dimensions are typically 15-feet by 20-feet (W x L). The immediate roof, or back, is supported by six-foot rock bolts. The back is fairly competent, but problem areas are supported by wooden posts or stacked crib blocks. The mine has no history of water problems in the active workings.

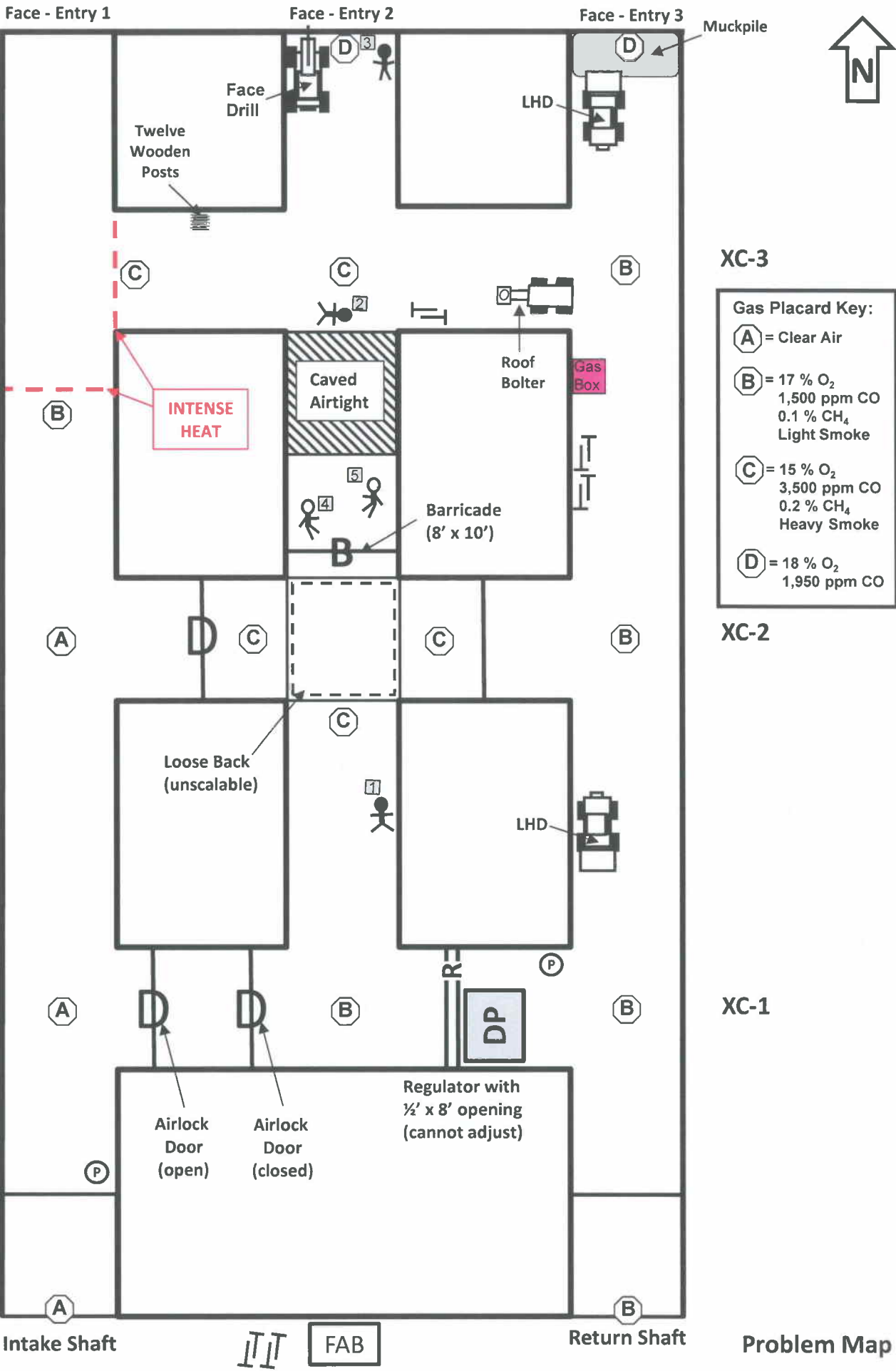
This morning at 5:00 a.m., a five-person crew went underground to start their shift. At about 6:45 a.m., one crew member called out from the shaft dump pocket and informed the hoist engineer that there was a fire burning in the face areas and dark black smoke was filling the mine. He was returning to the faces in order to help fight the fire. At that time, communication was lost. The engineer called the superintendent who immediately gave the order to activate the stench warning system to evacuate the mine. Since that time, no one has entered or exited the mine. We do not know the status of the communication system, because there has been no further contact with the missing miners.

All power to the underground has been de-energized, locked out, and guarded. Both hoists are operational and the Main Vent Fan is operating. Continuous gas monitoring has been established at both shafts. The latest readings show "clear air" at the Intake Shaft and 17 % oxygen (O₂), 1,500 ppm carbon monoxide (CO), and 0.1 % methane (CH₄) with heavy smoke at the Return Shaft.

We have called all of the government agencies for help. Guards have been posted at the shafts and at the main fan. There is a fully equipped mine rescue team located on the surface and they are ready to serve as your team's backup.

If your team is willing to help, we would like you to account for all missing miners; bring any live miners to the surface; extinguish or seal any fires; and explore and map all accessible areas of the mine. **Another team will be sent into the mine to replace you after 90 minutes.**

All available equipment and materials to work the problem are located in the mine and are identified with placards. The materials are stored in several areas underground and



XC-3

Gas Placard Key:	
(A)	= Clear Air
(B)	= 17 % O ₂ 1,500 ppm CO 0.1 % CH ₄ Light Smoke
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(D)	= 18 % O ₂ 1,950 ppm CO

XC-2

XC-1

Problem Map

can be readily located if needed. If there is something else deemed necessary by the team, upon request, it can be delivered in a reasonable amount of time.

When you reach the mine rescue course, the Mine Manager will introduce you to the judges. Once the Team Captain has started the timer, the Mine Manager will provide you with any changes to the briefing information that you have received. The Mine Manager will not answer any additional questions concerning the team briefing statement. However, if you do not understand a term, it will be defined. The Manager will only respond to questions allowed by the rules while you are working the problem.

The fresh air base attendant and alternate will be assigned a location where they can study the team briefing information, mine information, and map. Only one attendant or alternate will be allowed to assist at the fresh air base. This fresh air base attendant can assist the team and communicate with them while they advance past the fresh air base using the wire communication system. He must maintain an accurate map indicating all initial information that the team relays to him. He may also assist the team by relaying information to the mine manager when required by the problem. He may also assist the team when they retreat to the fresh air base.

The fresh air base attendant and mine rescue team alternate are not allowed to speak to anyone during the working of the problem except their team members, the mine manager, and the judging officials.

GOOD LUCK!

Team Instructions

- Explore and map all accessible areas of the mine;
- Extinguish or seal any fires;
- Account for the four missing miners;
- If necessary, re-ventilate the mine; and
- Bring any live miners to the surface.

Fresh Air Base Instructions

- The fresh air base attendant and alternate will be assigned a location where they can study the team briefing information, mine information, and map.
- Only one attendant or alternate will be allowed to assist at the fresh air base. This person can assist the team and answer any questions the team may ask.
- The fresh air base attendant and mine rescue team alternate are not allowed to speak to anyone during the working of the problem except their team members, mine manager, and the judging officials.

