Name: Marcus Bolden

Group: The Clairmont Crew

User Scenario: Methane/Propane Gas Detection for HVAC Maintenance Worker

Jim is an HVAC maintenance worker who has just received a maintenance request for the Bunger-Henry building. Apparently, there is an issue with the exhaust fan system. He works out a couple scenarios in his head, and by arrival, has a list of three subsystems that he can check. The first two subsystems are above the basement. Everything looks good. So, the issue is likely in the basement.

The issue is that the fan won’t turn on and there could be a short somewhere along the power line. Jim determines that this is the most likely cause to the problem, and has already checked the upstairs power. He makes his way down to the basement. Jim knows it could be dangerous because there is fracking research occurring in the Bunger-Henry building. Fracking uses methane gas, which is heavier than air, so it would sink to the basement. Jim has his equipment, so he starts to suit up as a precaution. His gear includes sensors that can sense the gas location, type of gas, and danger level. This information is sonified. In Jim’s training for the equipment, he had to learn about which sounds sonify which gas, and what the changes over time to the sound mean. Methane uses a sound with a distinct timbre, and the danger level of it determines the bpm of the sound (the sound is played in a loop). Also, the more dangerous the gas, the lower frequency the sound (alert) is.

Jim determines the problem, and needs help replacing the wire. His equipment tells him the type of gas and danger level, so he knows to warn his coworkers to wear their equipment/protection as well. It’s important that the workers can finish the job quickly, because the exhaust fan system is limiting the researcher’s progress. They had to stop their research due to the methane build up. With Jim’s equipment, he was able to warn the others, and start work immediately, because he knew the gas and danger level. Luckily, the methane amount not massive enough to where he could not complete his work quickly and efficiently. Jim and his team were able to finish the work during the day, so researchers could continue working, thanks to this system.