2023

TECHNICIAN TEAM

Q & A's

Q1. Will teams be able to calibrate their detectors with a competition known gas to all be on the same playing field with the other team's detectors prior to going on the field?

A: No. The instruments should be calibrated with the gas mixture recommended by the instrument manufacturer.

Q2. Do the pre-registered technician team members have to be certified by the state of which the mine they represent is located?

A: No. There is no certification requirement for the Technician Team members.

Q3. We currently have Drager 2000 and 5000 multi gas detectors, under the new rules are we going to have to purchase the Drager 8000's or the iBrid's to compete in the competition.

A: The MX6 iBrid Multi-Gas Monitor and the Drager X-am 8000 (pending approval) are the only two instruments designated for use in the benching portion of the contest.

Q4. The new rules state that the mine rescue teams currently have 8 people on a team. We currently have only 6 people on our team complying with the 30CFR. Is the technician part of the competition mandatory or optional?

A: The Technician Team competition is not mandatory, but is required to be eligible for the Combination Award.

Q5. Is the contestant allowed to use the small digital anemometer? The reason I ask is because they were allowed in the pre-shift completion.

A: No. The Technician Team competition is designed for use of a vane anemometer.

Q6. Does the large wheeled anemometer have to be in calibration date? A lot of the contestants would use the digital one because it can't be calibrated. I know that

we would allow some of the equipment requirements to be out of date or practice/test models in past contests.

A: There isn't any requirement in the rules to check the calibration of the anemometer.

Q7. Will the bugged detector provided by the contest be the same type detector that the teams uses?

A: The Technician Team will declare the MX6 iBrid Multi-Gas Monitor or the Drager X-am 8000 (pending approval) to be used in the contest at the time of registration.

Q8. For the gases required for the detectors. The CH4 does not specify the range of that gas to have on the detector. Is it low range or high range or are both ranges required?

A: The multi-gas instruments used for the Technician Team contest must comply with 30 CFR 49.6(a)(6) and 30 CFR 49.16(a)(6), requiring methane to be measured from 0.0 percent to 100 percent of volume.

Q9. Do we have to use a regular anemometer or can we use a multi directional digital anemometer?

A: The Technician Team competition is designed for use of a vane anemometer.

Q10. Technician Team Rules, Page 8, Rule 5. The last sentence says that there are 4 gases to test for; Oxygen, Methane, Carbon Monoxide, Nitrogen Dioxide. However, the rule references 30 CFR sections 49.16(a)(6) and 49.6(a)(6) and those regulations do not include Nitrogen Dioxide. So our iBrid spotters are not set up for NO2. They meet the mine rescue regulation requirements for Methane, Oxygen and Carbon Monoxide. What should we do?

A: For contest purposes, multi-gas instruments used by the teams during the field and technician team competitions must meet the requirements of 30 CFR 49.6(a)(6) and 30 CFR 49.16(a)(6) and report all required concentrations within acceptable limits for O2, CH4, CO and NO2.

Q11. For the smoke tube times, do we give the card with the time immediately once smoke is sent or after the contestant counts to the time listed on the card?

A: The contest judge will provide the information to the contestant after the allotted time.

Q12. What sensors are going to be required to be installed in the detectors for team tech and mine rescue?

A: For contest purposes, multi-gas instruments used by the teams during the field and technician team competitions must meet the requirements of 30 CFR 49.6(a)(6) and 30 CFR 49.16(a)(6) and report all required concentrations within acceptable limits for O2, CH4, CO and NO2.

Q13. Does the multi gas detector that the team brings, need to be an iBrid MX6 or can it be a different detector?

A: For contest purposes, multi-gas instruments used by the teams during the field and technician team competitions must meet the requirements of 30 CFR 49.6(a)(6) and 30 CFR 49.16(a)(6) and report all required concentrations within acceptable limits for O2, CH4, CO and NO2.

Q14. What is the range of gases that is needed for the team's multi gas detector?

A: For contest purposes, multi-gas instruments used by the teams during the field and technician team competitions must meet the requirements of 30 CFR 49.6(a)(6) and 30 CFR 49.16(a)(6) and report all required concentrations within acceptable limits for O2, CH4, CO and NO2.

Q15. The equipment needed for the air reading with an anemometer included a "simple" calculator, but page 16 reads that air readings be calculated with a pencil or pen. Can the air reading with an anemometer be calculated with a calculator?

A: A "simple" calculator may be used to calculate air measurements.

Q16. Are the worksheets for the air readings going to be provided or should the team bring their own?

A: The Air Calculation Worksheet will be provided to the contestant.

Q17. Will a 1-inch magnehelic work for all team tech measurements?

A: The magnehelic gauge scale is not specified in the Technician Team rules.

Q18. Does the registering team technician designate a preference as to what model and manufacturer test instrument will be benched?

A: The Technician Team will declare the MX6 iBrid Multi-Gas Monitor or the Drager X-am 8000 (pending approval) to be used in the contest at the time of registration.

Q19. Page 6 No. 2 of the Written Exam Portion mentions "questions may also be taken from the checking and testing procedures for the Drager X-am 8000 & MX6 iBrid." Could this be specified as to where the questions can be taken from as the manual for the iBrid MX6 does not specify "Checking or Testing Procedures." In their manual.

A: The questions for the Technician Team Written Examination regarding the "checking and testing procedures" for the multi-gas detectors will be taken from the procedures outlined on Page 10 (MX6 iBrid) and Page 11 (Dräger X-am 8000* pending MSHA approval) of the 2021 Technician Team Rules. The team members will only be tested on the procedures for the specific multi-gas detector declared by the team at registration.

Q20. The Gas detection instrument that will have to be benched and will possible have defects, will that only be a Drager X or an iBrid? Or will they take one like we use (which is an Altair 5X) and put defects in it? Just curious if we have to study and get one of the other spotters, which we do not use, to work with to be able to be familiar with to be able to compete.

A: The MX6 iBrid Multi-Gas Monitor and the Drager X-am 8000 (pending approval) are the only two instruments designated for use in the benching portion of the contest. The contestants will declare the unit to be used at time of registration.

Q21. On the magnehelic gauge, does it matter the readings on the one the team has since it will only be used to simulate readings? We have several with different gauges to read different levels of pressure readings. Also does the gauge have to be able to read negative pressure that we use to simulate with?

A: The magnehelic gauge scale is not specified in the Technician Team rules. The contestant will state the correct reading of the magnehelic to the judge and will include positive or negative pressure in the explanation.

Q22. On the air readings, does it matter if the team has a high or low speed anemometer? Does the inspection date on the one the team uses for the contest matter?

A: The Technician Team competition is designed for use of a vane anemometer, as illustrated in the Rules. There isn't any requirement in the rules to check the calibration of the anemometer.

Q23. Can a digital anemometer be used?

A: The Technician Team competition is designed for use of a vane anemometer.

Q24. Rule 7 page 9 states "Twenty (20) discount points per alarm point will be assessed for any incorrectly set alarms." What are the correct "set alarms" or where can they be found?

A:

Alarm	Gas	O2		CH4		CO		NO2	
Points	Low	19.5	%	1	%	50	ppm	3	ppm
Req'd	High	23.5	%	1.5	%	100	ppm	5	ppm

Q25. Rule 8 page 9 states "Twenty (20) discount points will be assessed for each instance of incorrect procedure or equipment use during calibration." Are the correct procedures in writing somewhere and if so can we include them somehow?

A: The procedures and equipment are in writing in the manuals for the Gas Detectors. The Manuals for the Gas Detectors cannot be placed on MSHA's website because they are copyrighted and also they are NOT 508 (c) Complaint. Anything placed on a Government Website must be 508 (c) Compliant. The manuals are available on each gas detector are available on their website or from their representatives.

Q26. Why included the Draeger X-am 8000 in the rules for 2021 when the product is not yet approved? A non-approved multi-gas detector is not likely to be a product owned by any mine rescue team or their company. To use it would require any team to go out and buy those detectors. Without approval, it wouldn't make any sense to purchase it. It would make more sense to include the 5000 version or something else that already is approved and in circulation. The end result will likely be all teams just using the MX6.

A: The MX6 iBrid Multi-Gas Monitor and the Drager X-am 8000 (pending approval) are the only two instruments designated for use in the benching portion of the contest. The contestants will declare the unit to be used at time of registration.

Q27. Which magnehelic gauge will be required for that portion of the competition? Specifically, what pressure range will be needed or will it even be considered as part of the equipment or competition since the readings will be simulated?

A: The magnehelic gauge scale is not specified in the Technician Team rules.

Q28. For the written test, can the specific documents for available gas detectors be made available with the rules and training information found on the msha.gov website? That way no team ends up with an older or newer version of the manuals provided with the Draeger or Industrial Scientific gas detectors?

A: The questions for the Technician Team Written Examination regarding the "checking and testing procedures" for the multi-gas detectors will be taken from the procedures outlined on Page 10 (MX6 iBrid) and Page 11 (Dräger X-am 8000* pending MSHA approval) of the 2021 Technician Team Rules. The team members will only be tested on the procedures for the specific multi-gas detector declared by the team at registration.

The link for the Multi-gas detector manuals will be located on Holmes Mine Rescue Association's website https://www.holmessafety.org/holmes-mine-rescue-association-rules-and-contest-resources/

Q29. In the paragraph labeled **Example:** on page 13 where does the example stop and the description of the competition start? If a contestant was to memorize the paragraph listed, where does he stop his description of the anemometer?

A: The contestant is required to give a brief description of how an anemometer functions. Memorization of the rules is not a requirement.

Q30. In the explanation of how to take an anemometer reading each rule has the statement "Failure to ..... will be discounted by the applicable rule." This is immediately followed by "Contestant failing to ..... will receive one discount." Are there other applicable rules or are all of these 1 discount for failure to complete properly?

A: The applicable discounts are as stated in the Rules.

Q31. Under General Rules #11; what is meant by "complete with team number"? Is this the working order number or team member number?

A: Team member number, as specified in the 2021 Unified Mine Rescue Rules stating "Each member shall wear a different number, from one to ten, on the arm,

at or near the shoulder. Any means of affixing legible numbers on the sleeve of the uniform will be acceptable."

Q32. MSHA requires a gas sampling certification card?

A: There is no certification requirement for the Technician Team members.

Q33. For the Magnehelic gauge, what is the recommend pressure or range for these instruments? There are many different ones out there that measure different amounts. Is there a certain type or model required? Will a Fluke 922 Airflow Meter work?

A: The magnehelic gauge scale is not specified in the Technician Team rules. A schematic of the magnehelic gauge is provided in the Rules.

Q34. During the Tech team event while the team members are benching the spotter can an electric screwdriver be used?

A: The Technician Team will be provided the needed supplies and equipment to perform the benching portion of the multi-gas instrument.

Q35. What will be the conversion for air readings that are between correction factors? Example: The air reading is 1700 FPM which is right between correction factors. Would -50, -55 or -60 be the correction factor?

A: The air management exercise is designed to develop the team members' skills and proficiency of understanding the proper methods and procedures for taking air measurements. For the 2021 Technician Team contest purposes, the Problem Designers will be instructed to incorporate only the air measurement readings indicated on the anemometer that correspond to actual listed correction factors. The contestants will not be required to do any type of mathematical calculations to determine the correction factor that falls between two correction factors for a particular air reading.

However, to answer the question -- The proper correction factor would be determined by interpolation. In the example given for a reading of 1,700 fpm, (1800 fpm-1600 fpm = 200 fpm and correction (-60-(-50) = -10 correction). Interpolation requires -10 correction/200 fpm = -0.05 correction/fpm. Applying the correction, (1,700 fpm – 1,600 fpm = 100 fpm x -0.05 corr./fpm = -5 + (-50) = -55 correction.

Q36. Will the team member taking the air readings be required to take the written MX6 test?

A: Both team members will be required to take the written examination. The team members will only be tested on the procedures for the specific multi-gas detector declared by the team at registration.

Q37. Magnehelic Gauge: Can you provide an example of how to use the magnehelic with respect to a regulator or stopping. We have some experience with using a pitot tube in a scrubber duct but the tech problem incorporates something different than what some of us are experienced with. Since we don't have the option of not doing the magnehelic part of the tech team, could you provide more detailed guidance on what is expected?

A: The Magnehelic gauge readings taken at a regulator or seal are positive or negative pressure readings and should follow manufacturer recommendations:

Positive Pressure: Connect tubing from source of pressure to either of the two high pressure ports of the magnehelic. Plug the port not used. Vent one or both low pressure ports to atmosphere.

Negative Pressure: Connect tubing from source of vacuum or negative pressure to either of the two low pressure ports of the magnehelic. Plug the port not used. Vent one or both high pressure ports to atmosphere.

Q38. With the smoke tube, will the contestant be required to verbalize he/she is in the middle of each quadrant? Example, for an entry 10 feet wide and 6 feet high, will we be required to verbalize or measure 2.5 feet off the rib and 1.5 feet from the roof for the location or will non-verbal estimation be acceptable provided the smoke is simulated in the required approximate locations?

A: The Contestant should simulate the actions needed to sample each quadrant and verbalize the steps being taken during the process.

Q39. Could you further explain the differences and the options for the Appeals Process?

A: Technician Team appeals can be done by one of the following methods:

IN PERSON: The technician team will be notified by a posting outside the "designated location" for appeals at the contest site. The technician team and team trainer will have twenty (20) minutes to review the judges' scorecards, written examination scores, etc. and prepare/submit any written protests. No additional appeals will be accepted after the 20-minute time limit.

ELECTRONICALLY: The technician team will have forty five (45) minutes to review the judges' scorecards, written examination scores, etc. and return any written protests to support their appeal back to the Contest Officials via email.

- The 45-minute review clock starts when the team opens the email document which initiates the sending of the "read receipt" email back to the Contest Officials.
- The team then has 45 minutes to return any written protests to support their appeal back to the Contest Officials via email.
- The team has two hours from the time the results are ready for review and are posted outside the "designated location" for appeals at the contest site to open the email sent by the Contest Officials and complete their response.
- Forty five (45) minutes is the maximum allotted time for the electronic review.
- For example, if a team waits for one hour and 50 minutes once the results are posted at the contest site to open the email sent by the Contest Officials, they only have 10 minutes to complete their review and email any protests back to the Contest Officials.
- Electronic Reviews received by the Contest Officials after the 2-hour time limit or after the 45-minute review time limit will not be accepted.