

**To: SCHMRT Members and Administrators**

**From: Gerry Gray, Operations Director**

**Date: Friday, July 17, 2009**

**Subject: July 2009 SCHMRT Drill Recap**

**[Please see attached roster for membership attendance]**

On July 15, 2009, 33 members of the SCHMRT assembled at RFD Station 5 for monthly drill which started at 0900 hrs.

The first four hours of the drill involved a review of atmospheric monitors by Mr. Bob Comer of Industrial Scientific Corp (916-203-5847). Very informative session covering many details and procedures involving the use and maintenance of our atmospheric monitors. A summary of the training is included at the end of this document.

### **Team Meeting Minutes**

#### **1. Grant Updates**

I provided the team with a brief update of the current pending grants:

- a. Tehama County Homeland Security Grant (approx \$10K) – this grant will purchase the equipment necessary to upgrade the team to a Type III classification as defined in FIRESCOPE. I have been working with Lisa Frech from the Tehama County SO on this grant.
- b. Shasta County Grant Homeland Security (approx \$65K) – this grant will purchase the equipment necessary to upgrade the team to a Type II classification as defined in FIRESCOPE. I have been working with John Duffy from the Shasta County Public Health Department on this grant.
- c. LEPC/HMEP Grant – this grant will fund the planning guide for transportation emergencies. I have been in contact with Robert Olguin from CalEMA on this grant.

#### **2. Team Leaders**

I requested a refresher on who the Team Leaders for SCHMRT are. The following individuals were identified as Team Leaders:

- Andy Reiling: SCBA
- Kevin Ward: Documents and Forms
- Cyndi Freeman: Member Records
- Rod Moore: Suits and Suit Maintenance
- Ryan Nardo: Communications & Finance
- Rik Valles: Instruments, Monitors, Detectors

The Team Leaders are those individuals who continue to make things happen on this team. It is truly a thankless job, but I do want to take a moment and thank each and every one of the SCHMRT Team Leaders and encourage them to continue in their assignments.

### **3. HM 24 Update**

I advised the team that the SCFD vehicle maintenance shop had just serviced HM 24 and the vehicle is up to date on all service needs at this time.

### **4. New Member: RFD Captain Rob Pitt (Station 8)**

I advised the team that RFD Captain Rob Pitt has been appointed as the successor to the team as a result of Retired Captain Ohde's vacant spot on the team. Rob will be an instrumental member of SCHMRT since he is a Fire Captain at Station 8 (where HM 24 is parked). Rob will have to undergo some orientation training and his HM physical before he is considered an active member of the team – but we are very pleased to have him.

### **5. HM 24 Driver's Training Program**

Per direction from the SCHMRT Program Director I discussed the concept of incorporating a driver's training into our SCHMRT training program. Several members added that the program should also include a comprehensive training on all aspect of the vehicle. I will contact the BCs from our various agencies for input into this program. The intent of this is to better-ensure that any SCHMRT member who responds HM-24 to an incident is fully qualified to fully-operate the apparatus.

### **6. Suit Testing**

I advised the group that Acting Captain Rod Moore will assume the suit testing. Rod and I will meet soon to discuss the details of this project.

### **7. Next Drill**

The next SCMRT drill (August) will be held on Wednesday, August 19, 2009 at 0900 hrs at RFD Station 8 (home of HM-24).

I did advise that the team has established a new website at **[www.schmrt.org](http://www.schmrt.org)** and will have a wealth of team information, announcements, and reference materials posted soon. I also advised the team that thanks to Bill Boyes and Rik Valles all of the radiological equipment has been sent off for calibration and maintenance.

## **Atmospheric Monitor Training**

- Oxygen: measured in % by volume
- Combustible: measured in % to lower explosive limit (LEL)
- Toxics: measured in parts per million (ppm). To convert ppm to % simply multiply by 10K → so, as example: 10,000ppm = 1%
  
- The Oxygen meter alone should never be used to indicate a toxic environment.
- Grahams Law: *Graham's law states that the rate of effusion of a gas is inversely proportional to the square root of its molecular weight. Thus, if the molecular weight of one gas is four times that of another, it would diffuse through a porous plug or escape through a small pinhole in a vessel at half the rate of the other.* In simpler terms, take the oxygen sensor, for example, in air the dominant carrier gas is Nitrogen. Our monitors are calibrated for Nitrogen as the dominant carrier gas, however, if the dominant carrier gas is lighter than nitrogen (ex: hydrogen or helium) then the monitor will OVERSTATE the oxygen reading.
  
- The TMX412 detector is not accurate on oxygen readings above 30%.
  
- The combustible sensor in the detectors operates at approximately 500 degrees Celsius. Inside this sensor are two elements; one is coated with a catalyzing material (which greatly lowers the combustion temp of a compound) and the other is coated with an inert material (which increases the combustion temp of a compound). The difference between these two elements provides the reading on the monitor.
  
- The combustible sensor will not operate in ambient environments containing less than 10% oxygen.
  
- All of our LEL sensors on our monitors are calibrated with pentane which provides two great advantages:
  - Responds quickly
  - Provides a "safety cushion" as it tends to overstate the reading in most environments.
  
- Three compounds can destroy the LEL sensor in our monitors and should be avoided at all costs:
  - Armorall
  - WD40
  - Silicone Caulking
  
- Carbon Monoxide (CO) and Hydrogen Sulfide (H<sub>2</sub>S) are a BAD COMBINATION for Haz Mat Teams. The CO does not allow oxygen to

bind to hemoglobin while the H<sub>2</sub>S does not allow the body to use the oxygen that is carried in the blood. Therefore, CO and H<sub>2</sub>S have a bad synergistic effect that we should always be aware of.

- On new atmospheric monitors (MX6) NEVER REMOVE THE BATTERIES WHILE THE UNIT IS ON! DAMAGE WILL OCCUR.
- Four Steps that should be taken every time a monitor is used:
  1. TURN UNIT ON
  2. ZERO OUT THE UNIT
  3. BUMP TEST THE UNIT AND ENSURE ALL ALARMS ACTIVATE
  4. CLEAR THE PEAK READINGS.
- When bump-testing a monitor, please make sure that you use the smaller methane bottle which does not have a regulator on it and NOT the larger multi-gas bottle that has a regulator. We will label the smaller bottle as "Bump Gas" and the larger bottle as "Calibration Gas" for clarification and simplification.
- Sensor Response Times. A great deal of time was spent on a discussion about sensor response times. Of all of the sensors in a multi-gas detector, the CO sensor requires the longest time for an accurate reading. The manufacturer recommends that you spend 2 seconds per foot of sampling line PLUS 2 minutes for the monitor to FULLY read the sample to a 100% value. So, if you are using a 10-ft sampling line the manufacturer would recommend that you spend 140 seconds (20 sec + 120 sec) for full sensor response. This may not be practical in emergency response, when entry teams might have numerous samples to take and are on limited air. Therefore, we will strive to achieve the T<sub>90</sub> value of the sensor readings which essentially assures us that 90% of the sensor reading is achieved. The T<sub>90</sub> value is possible because the bulk of the sensor response comes quickly. In order to achieve a T<sub>90</sub> reading the monitor must sample the desired atmosphere for **A MINIMUM OF 40 SECONDS**. **Therefore, all entry crews are advised to sample each target area for a minimum of 40 seconds in order to achieve a dependable reading.**
- When sampling the air in a confined space, OSHA requires that you sample at the top of the space, middle of the space, and bottom of the space; for larger spaces **you must sample every four (4) vertical feet**.
- SCHMRT inventory currently consists of three TMX412s and one new MX6.
- The new Industrial Scientific MX6 carries a sensor that SCHMRT has not had before: a Photoionization Detector (or PID). A PID is a sensor

which is designed to monitor certain toxics; particularly those that belong to the volatile organic compound family. The readings are displayed in 1/10ths of a ppm. This capability is ONLY available on the new MX6 monitor and not on the older TMX412s. A PID works by burning a high-intensity light (10.6eV) to strip electrons off certain volatile organic compounds. Any compound that has an ionization potential of less than 10.6eV can be detected by the MX6 PID.

- The new MX6 has a runtime of 24 hrs. DO NOT store AA batteries in the battery pack as they will be drained within a week – remove all AA batteries from battery pack if not in use.
- Industrial Scientific recommends a monthly calibration and bump test on all of our monitors before any use. Additionally, the MX6 needs much more frequent “burn times” in order to remain accurate. The team will determine an appropriate schedule and plan to ensure that our monitors are adequately maintained.
- The PID does not need an oxygen environment to operate in – it’s a lamp – it does not burn the compound.
- The MX6 maintains a data log for up to one full year of readings. The TMX 412 data log is much shorter.

-----End of Training-----

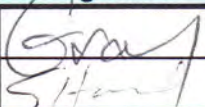
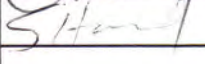
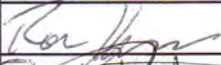
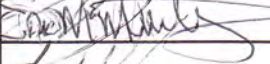
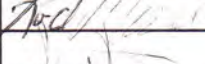

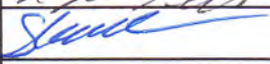


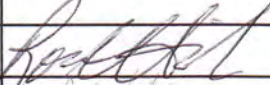
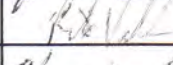
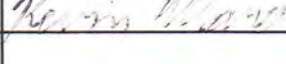
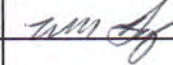

# SCHMRT Training Sign-in Sheet (07/15/2009)

Date: July 15, 2009

Location: RFD Station 5

Topic: Monitors

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Hebrard, Mike	CDF/SHU			
Johnson, Kyle	CDF/SHU	VACATION		
Lazzari, Dustin	CDF/SHU			
Mobley, Jim	CDF/SHU			
Quigley, Garrett	CDF/SHU			
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Fincher, Howard	AFD			
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Jacob Tomasic	Cal Fire			

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