

To:

JEN

From:

MGM

Date:

April 28, 1992

Interoffice
Communication

Subject:

O₂ Monitor Conclusions and Recommendations

VISTA

False alarms from the ambient air oxygen monitors in the inert gas generation room in P-1 has resulted in questionable safe work habits.

Recommendations

To correct the situation the following steps should be taken.

1. Schedule regular monthly recalibration of all oxygen monitors. Replace all of the cells annually. Calibration instructions are included with the attached operating procedures.
2. Retrain I&E personnel and personnel working in affected areas to safely respond to alarms as outlined in the original oxygen monitor operating procedures.
3. Maintain specific records of cell replacements. These would include the exact sensor replaced. Exact records of cell replacements will allow future analysis of the performance of cells in different areas of the plant.

Discussion

Several factors may cause false alarms including incorrect fuel cell type, ambient air contaminates, and improper maintenance.

The fuel cell now in use is a class B-3 from Teledyne Instruments. The manufacturer recommends this cell for personnel protection service due to a 13 second response time and an expected life of 12 months. Halogens, lead compounds, HCl, SO₂, SO₃, and H₂S will give false readings but are not present in significant amounts in P-1.

Work orders from the last year indicate 5 cell replacements (resulting in costs of \$793) and 3 instrument recalibrations. If these records are

complete, cell life in the 3 sensors in P-1 last an average of 7.2 months. This corresponds to an estimated life of 6 months by maintenance personnel. Work orders are generally not specific enough to tell which of the sensors failed.

The fuel cell output decreases with time eventually resulting in incorrect readings. This decreasing output might be the cause of most of the false alarms. The drift is vaguely reported to be 1% of full scale over weeks, however, the manufacturer recommends recalibration of the meters every 2 to 4 weeks. There is currently no schedule for regular recalibration.

With the data available, my conclusion is that the cells are performing at the manufacturers specifications. However, because of drift, the meters must be routinely recalibrated to adjust for the reduced cell output.

when do
we recalibrate?
when they
go off?



Michael G. McCollum
Process Engineer

cc: DAM, JBA, TRM

This is a good letter with some good recommendations and good background information. I have a few questions:

- ① How many personnel protection air monitors are there in this plant and where are they? See attached Class "A"
- ② During calibration, can the calibrator tell that the cell is almost dead and change it before it fails.
- ③ Is there a calibration procedure and a cell replacement procedure with criteria for replacement of cell.

recommended actions: Fill out a safety audit form with recommendations.
 Attach O₂ monitor location description table (less, get credit for your work)
 Attach O₂ monitor manual (calibration, cell change procedure)
~~Write note to JDO and SGT asking if they need training in proper response~~
 instead, I will ask at central safety