

Response to ODH Alarms in the 2.5-meter Telescope Enclosure at APO

Objectives

To define the actions to be taken should one of the Oxygen Deficiency Hazard (ODH) alarms sound in the SDSS 2.5-meter telescope enclosure.

To define a maintenance program designed to ensure the readiness of the ODH alarm system.

Response to an ODH Alarm

Personnel working at APO will be informed of the potential ODH hazard, and appropriate response to an ODH alarm, as part of the Site Safety Orientation Training provided under the direction of the APO Site Safety Officer.

- If you are working inside the enclosure and an ODH alarm sounds, immediately exit the enclosure. If you know or suspect that someone else was working in the enclosure and did not exit, contact the Sunspot Fire Department immediately. Do not attempt to find or rescue the individual yourself.
- If you are outside of the enclosure when an alarm sounds, do not enter the enclosure unless you are executing the following inspection procedure.

Alarm Inspection Procedure

1. This procedure may only be executed by trained and qualified individuals. The APO Site Safety Officer is responsible for training individuals in this procedure and for maintaining a list of trained and qualified people.
2. Two people must be involved when executing this procedure. If a second person is not available, immediately contact the Sunspot Fire Department for help. Do not enter the enclosure alone.
3. One person must remain outside of the enclosure and will be referred to as the “monitor.” The second person, the “inspector”, may enter the enclosure provided he/she is carrying two (2) handheld oxygen monitors. The handheld monitors will kept in a “ready” state in the SDSS Support Building.
4. The “monitor” shall not enter the enclosure, but shall be positioned near an open door and shall remain in voice contact with the “inspector” throughout the inspection process.
5. Prior to entering the enclosure, the “inspector” shall verify the operation and calibration of the hand-held oxygen monitors.
6. The inspector will enter the enclosure slowly with the two hand-held oxygen monitors and will inspect the area around the sounding alarm(s).
7. If one or both of the hand-held monitors alarms, the inspector shall:
 - a. exit the enclosure immediately;
 - b. contact the Sunspot Fire Department and request an inspection of the enclosure;

- c. force ventilation of the enclosure. If weather permits, open the large overhead door on the east side. If the weather is marginal, prop open the service doors on the upper and lower levels.
8. If neither hand-held monitor alarms during the walk-through inspection, the fixed ODH alarm(s) should be reset and all cryogen sources in the enclosure inspected to verify integrity.
9. The “inspector” is responsible for notifying the Site Safety Officer that an ODH alarm occurred and describing the follow-up action that was taken.
10. The Site Safety Officer will maintain a record of all alarm incidents in the APO ODH Alarm Log.

ODH Alarm Maintenance Program

The SDSS Telescope Engineer is responsible for implementing the following ODH Alarm Maintenance Program.

- Each fixed ODH alarm shall be inspected daily by a member of the SDSS engineering staff at APO. The displayed reading on each alarm will be recorded on the daily inspection log. Normal readings must be > 19.5%. If a reading is below 19.5%, the unit must be recalibrated.
- Each fixed ODH alarm shall be recalibrated monthly. The SDSS Telescope Engineer is responsible for establishing the calibration procedure and maintaining a written record of recalibrations.
- Each handheld ODH monitor shall be inspected daily by a member of the SDSS engineering staff at APO to ensure they are functioning properly. The SDSS Telescope Engineer is responsible for establishing the daily inspection criteria. Malfunctioning units shall be removed from service and repaired or recalibrated as necessary.
- Each handheld ODH monitor shall be recalibrated monthly. The SDSS Telescope Engineer is responsible for establishing the calibration procedure and maintaining a written record of recalibrations.