

Hiltner 2.4m Telescope Primary Mirror Mercury Band Handling Procedures

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Last updated, 03/07/2017

The 2.4m primary mirror is surrounded by a band containing 3 liters of mercury (Hg). It is imperative that this band be treated carefully, gently, and with respect. The intent of this document is to detail procedures necessary when handling the Hg band, and in the unlikely event of Hg spillage, what to do. All staff are to be familiar with the procedures outlined here, as well as in the *Spill Mitigation Procedures* below, prior to handling the Hg band.

The only time that the Hg-band is accessed and manipulated should be when the primary (M1) mirror is removed and installed in relation to aluminization. Specifically, the band is only handled during a small subset of steps in the greater procedure of mirror removal/installation. During these steps, gloves must be worn by all staff associated with M1 removal procedures.

When the Hg-band is removed from the mirror cell, a containment vessel will be placed underneath the M1 cell. The Hg-band will be immediately moved from the dome to the 2.4m shop area along with the containment vessel. Once the band and containment vessel are safely within the 2.4m shop, the Hg-band will be carefully stowed in the containment vessel until it is time to replace it in the M1 cell. Band preparation (treating with a light layer of talc for rubber preservation) is to take place in the containment vessel. At any point during removal and/or transport, in the unlikely event of a Hg leak, the band will be immediately placed into the vessel to contain any Hg that spills out. If any Hg spills onto the floors, or any other MDM facility surfaces, the affected area(s) is(are) to be immediately cordoned off and additional spill mitigation steps will be taken immediately, as described in the *Spill Mitigation* form, below.

Mercury Spill Mitigation Procedures

The 2.4m primary mirror utilizes a mercury band in fitment and mirror alignment. In the unlikely event of a breach of the band, it is imperative that proper steps are followed immediately to minimize impact of a mercury spill in the Observatory. Below you will find the procedures necessary to employ a timely response to a serious environmental and health concern.

- Isolate the spill. Restrict foot traffic in the area.
- Contact Eric Galayda (MDM Site Manager) immediately, either via email (egalayda@umich.edu) or via phone (number listed on white board in control room).

A mercury cleanup kit and respirator can be found in the linen closet near the entry to the 2.4m dorm hallway. See the following page for instructions on use of the equipment found within the kit.

Useful contact information for companies equipped and licensed to deal with mercury cleanup and removal:

- Southwest Hazard Control, Inc.
<http://swhaz.com/services/hazardous-materials-management/>
520-622-3607 (normal business hours)
800-279-5266 (off-hours/night)
- Clean Harbors Environmental Services
Bill Dingee, 480-261-0158

NOAO/KPNO Safety Officer
Tammie Lavoie, 520-318-8211 (tlavoie@noao.edu)

Mercury Eater

Safety Spill Kit™

READ AND FOLLOW ALL INSTRUCTIONS
AND WARNINGS ON THE PRODUCTS!

**AVOID ALL CONTACT WITH MERCURY EXCEPT
AS DIRECTED ON THE MERCURY EATER™ PRODUCTS.**

Assessment

Identify the material spilled: Assess the toxicity, flammability, or other hazardous properties of the material, size, type, amount and location of the spill.

Preparation

Identify and obtain your personal protective equipment. Wear and use all protective equipment contained in kit at all times before, during and after spill clean-up.



Spill Clean-Up

1. Remove all jewelry, including eyeglasses, prior to putting on Personal Protection Equipment ("PPE") and entering spill area. Also, be sure all exposed metal such as pens, pagers and cellular phones are removed or covered by PPE prior to entering spill area.
2. Block off spill area to avoid traffic and dispersal of mercury.
3. Wear and use all PPE before, during and after spill clean-up.
4. Sprinkle Mercury Eater™ in a circle around the spill to prevent the mercury from spreading. Continue to sprinkle the material until it covers the entire spill area. It will encapsulate the mercury in 2-3 minutes, making it solid and eliminating the vapors.
5. Remove by sweeping the material into the disposal bag provided.
6. Use the Final Wipes to clean any remaining debris from the surface.
7. Discard debris in accordance with local Regulations.