



## LIGO LABORATORY OPERATIONS MANAGEMENT TEAM

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### **MEMORANDUM**

DATE: 16 March 2020  
TO: Operations personnel and collaborators  
FROM: J. Giaime and M. Landry  
SUBJECT: COVID-19 plan for observatory sites  
Refer to: LIGO-L2000119-v3

#### **1 Motivation**

A new corona virus, COVID-19, is spreading. Worldwide, there have been over 160,000 cases and 6,000 of deaths reported as of this writing. The WHO has declared a pandemic, and it seems that regional containment efforts in the U.S. have not been successful so far. At present, transmission is thought to occur most through close contact, largely through droplets and sometimes through shared surfaces. As a goal, we can work to reduce the speed that the virus spreads, hoping to reduce death and suffering by avoiding hospital crowding, and buying time as immunity develops and vaccinations become available.

Toward this end, the LIGO observatory sites will train staff in hygiene, social distancing, and other practices that are thought to help, largely following CDC guidance. We will follow Caltech's guidance and policies that accommodate work from home, self-quarantine, and leave for other COVID-19-related reasons. We will also follow guidance from federal as well as state and local health officials in Louisiana and Washington as warranted.

As our communities react to the new COVID-19 disease spread, LIGO is acting to keep our facilities and people safe.

This document lists the distinct operational phases that are planned and can be implemented as required to best accomplish our Lab missions under these conditions. In some phases, we seek to preserve the most important mission elements together with the safety of our employees, participants, and the LIGO facilities and equipment.

#### **2 Community risk assessment and operational levels:**

Based on site management assessment of the likely EPO participant and staff safety, security and facility maintenance needs, as well as our desire to contribute to overall public health, we are defining operational levels for both kinds of observatory programs – onsite EPO programs and Detector Operations and Maintenance.

#### **3 Assignment of operational levels**

The LIGO Livingston and Hanford Observatory Heads along with the LIGO Operations Management are monitoring the evolution of the COVID-19 pandemic and relevant guidelines on a daily basis. When significant changes occur, Observatory Heads will designate any increase or decrease in the operational phases for LLO or LHO in consultation with, and oversight by, the LIGO Directorate.

#### **4 Operational levels for observatory on-site EPO programs:**

**Phase 0:** Normal Operation.

**Phase 1:** Enhanced communication, training and cleaning.

- *Communication:* We ask participant organizations about their COVID-19 plans and we send information about handwashing, requiring that sick people not come to LIGO. We may also dis-invite schools that lack plans or that are part of communities with sustained transmission.
- *Training:* Outreach staff and docents are trained in social distancing, handwashing, and risk reduction.
- *Cleaning:* We draw on facilities resources to clean surfaces.

**Phase 2:** Enhanced Social Distancing (LLO-only).

- We eliminate the control-room tours, which prevents visitors from access to the OSB, and eliminate or curtail the custom/classroom program, which distances the visitors from our staff and docents. This might reduce our daily participant capacity.

**Phase 3:** Remote programs only.

- We won't be open to EPO visitors, instead offering virtual control-room tours, online materials, etc.
- All staff-organized tours—public or private—are suspended unless explicit approval from the appropriate observatory head.
- Furthermore, EPO staff will postpone visits to the community for K-12, college and university, and public presentations until this phase completes.

#### **5 Operational levels for Detector Operation and Maintenance**

**Phase 0:** Normal Operation.

**Phase 1:** Enhanced Communication, training and cleaning, social separation. The observatories' main missions remain the same as in Phase 0. Social separation here may include temporary telecommuting by observatory staff.

**Phase 2:** Mission triage.

If the available staff/resources are insufficient to advance LIGO's work, as planned, we would move assignments and reschedule activities to focus on the most important ones, emphasizing human safety and stewardship of the detector and site. As part of Phase 2, LIGO Lab management would evaluate risks and priorities on an ongoing basis.

**Phase 3:** Essential observatory operations only to maintain the integrity of the detector and the observatory facilities. This would be implemented only if Phase 2 operation cannot continue for some reason.

The two main goals during a Phase 3 operational state are:

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- Avoid catastrophic damage to the LIGO detectors and infrastructure, preventing any consequent repair costs and delays.
- Focus activities on those that will minimize the cost and time needed to return to regular operations when the phase ends.

To support these goals, we would:

- Monitor and protect the observatory sites, and the critical systems therein, from damage and intrusion, whether the threat be environmental, human, or via electronic networking.
- Continue to operate the LIGO vacuum system for the main volumes, which cannot be put into a completely inoperative safe mode.

## 6 People at a LIGO Observatory

There are many people who work at or visit the observatory sites, including large numbers of non-LIGO-Lab employees. As we adjust operations to respond to the COVID-19 matter, the observatory heads and operations managers may need to restrict access to some people. In addition, all those onsite will need follow the hygiene and social separation guidelines, as they are implemented.

The following categories of people are regularly present at LIGO:

- a) Caltech and MIT LIGO Lab staff.
- b) LIGO Lab Postdocs.
- c) Long-term resident visitors, including non-Lab scientists, postdocs, graduate students, LSU SEC educators.
- d) LSC Fellows, other scientific short-term visits.
- e) Student interns (Caltech employed)
- f) Site-based full-time contractor staff and temps.
- g) Contractor staff working on major projects, such as A+, LExC, and BT waterproofing.
- h) Non-full-time contract labor.
- i) Service provider staff, occasional: water service, landscaping, mechanical contractors, exterminators, sewerage service, electricians, janitors, HVAC service, LN<sub>2</sub>, delivery people, etc.
- j) Participants in EPO programs, hosted meetings, public events and tours.
- k) Government inspectors, landlord rep's, regulators, tribal inspectors, or others who cannot easily be excluded.

## 7 References

- Caltech's February 2020, *COVID-19 (Coronavirus) Temporary Personnel Memorandum*. [https://hr.caltech.edu/documents/3232/Coronavirus\\_Feb2020.pdf](https://hr.caltech.edu/documents/3232/Coronavirus_Feb2020.pdf)
- *Guidelines for Temporary Telecommuting ( COVID-19)* [https://hr.caltech.edu/documents/3323/Guidelines\\_for\\_Temporary\\_Telecommuting\\_COVID-19.pdf](https://hr.caltech.edu/documents/3323/Guidelines_for_Temporary_Telecommuting_COVID-19.pdf)

## COVID-19 plan for observatory sites

- Caltech's COVID-19 response homepage and the updating set of documents therein: <https://www.caltech.edu/coronavirus> .
- MIT's COVID-19 response homepage and the updating set of documents therein: <http://web.mit.edu/covid19/>
- The U.S. CDC COVID-19 web resources, particularly the interim guidance for businesses and employers, <https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html> , and for schools, <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/guidance-for-schools.html> .
- The CDC risk assessment guidance, <https://www.cdc.gov/coronavirus/2019-ncov/php/risk-assessment.html> .
- State governmental resources.
  - Louisiana: <http://ldh.la.gov/Coronavirus>
  - Washington: <https://www.doh.wa.gov/Emergencies/Coronavirus>