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**MEMORANDUM**

DATE: March 10, 2017  
TO: LIGO Operations Management Team  
FROM: Lisa Barsotti, Brian O'Reilly, Keita Kawabe, Nicolas Leroy, for the Joint Run Planning Committee  
SUBJECT: Recommendation regarding O2 duration and close-out measurements  
Refer to: L1700023

This memo summarizes the JRPC recommendations regarding the duration of the on-going Observing Run O2 and its close-out measurements.

The proposal of the instrument team to extend O2 with respect to its nominal duration of 6 calendar months (with an original target ending date of May 31<sup>st</sup>, 2017) has been broadly discussed. An extension of 2-3 months has been considered, thus pushing the end of O2 to July 31<sup>st</sup> – August 31<sup>st</sup>.

The reasons for the proposed extension have been presented to all of the groups involved, during JRPC and DAC calls. They are: maximizing chance of detection before a long post-O2 break, taking advantage of higher duty cycle of the instruments in summer time to compensate for the low coincident time last December and January, allowing more time for the new hardware for the many post-O2 instrument improvements to be ready, increased chance for Virgo to join O2.

Inputs from the groups have been generally positive, welcoming the possibility of collecting more data than previously anticipated. No significant objections have been raised to a 2-3 months extension.

Two particular action items have been identified: the need to revise computing estimates for O2 and the need to increase the number of people involved in Data Quality shifts to sustain a longer data taking.

While all of the groups have expressed flexibility in supporting O2 operations in any of the end dates considered (from the end of July to the end of August), the observatory run and detector leaders of both sites have expressed the need to make a prompt decision on the end date, so as to better organize operations at the observatories. Clear communications with the EM partners have also been mentioned as a reason to prefer fixing a run end date soon.

We also collected input regarding the run close-out measurements.

The main requests are for:

- PEM injections: one 8 hour shift per day for a week at each site, preferably to be performed sequentially;
- Calibration: 1-2 shifts for dedicated measurements.

As opposed to what was done for O1, we agreed that close-out measurements should be performed before the end date of the run, without adding a specific close-out measurement period after the run. This will simplify communications with all of the groups involved, as close-out measurements still require a working instrument in run configuration, full coverage and follow-up analysis of the data.

Some preference for the end of August as the O2 end date has been expressed for the following reasons: a projected high duty cycle at both sites during the summer, more time for the observatory teams to get ready for in-vacuum incursions, greater chance for Virgo to join. While the OMT is in a better position than this group to establish the O2 end date, the opinions that have been expressed suggest that Monday, August 28<sup>th</sup> 2017 could be a reasonable target. This proposal assumes that close-out measurements will be completed by that date, thus starting mid-August.

To summarize:

- There is broad support for extending O2;
- Any OMT decision for a particular O2 end date in the period between end of July and end of August will be supported without major impacts;
- There is a preference for extending O2 towards the end of August;
- More than the actual date itself, it is important to promptly communicate what the date will be, so that all of the groups can be prepared to support the run until that date. This is particularly important for the groups involved in directly operating the instruments, and responding to triggers.