



UNIVERSITY OF CALIFORNIA OBSERVATORIES/LICK OBSERVATORY MT HAMILTON, CALIFORNIA 95140

15 February 2022

Dear Mr Sexauer,

Pacheco Reservoir Expansion Project (PREP) Draft EIR/EIS Comments

For almost 140 years, the people of the Valley of the Heart's Delight and the University of California's Lick Observatory have enjoyed a fruitful relationship. This has enabled the observatory to stay at the forefront of astronomy and technological innovation. Strategically located atop Mount Hamilton since the 1880s, the world's first high altitude astronomical observatory has clear lines-of-sight in excess of 120 miles to all points north, south, east and west. Lick Observatory hosts 10 telescopes, plus multiple cutting-edge research instruments. The Observatory serves hundreds of faculty (including Nobel laureates) and students throughout the University of California system, in addition to upwards of 35,000 visitors annually. Many thousands more enjoy its scenic approaches and hinterlands. Named in both classic literature and during the Apollo 11 Moon landing, Lick Observatory leads the world in establishing techniques and setting standards on both astronomical matters and responsible lighting. New vistas on the universe and new worlds are routinely discovered from within sight of Pacheco reservoir. For decades, the observatory has advised on lighting policies, including the deployment of sodium lighting, upgrades to light emitting diode (LED) technologies and digital billboards.

Naturally, observatories are extremely sensitive to addition of lighting installations in its vicinity and the concomitant light scattered by aerosol particles in the atmosphere. Thus, the recognition of the possible additional contribution to light pollution by the Pacheco Reservoir Expansion Project (PAMM AES-1 Project Lighting) - and the desire to mitigate it - is to be applauded. Perhaps less intuitively, the precision optical surfaces (telescope mirrors, etc.) typically deployed by observatories are extremely susceptible to increased concentrations of particulate matter in the atmosphere. Thus, Lick Observatory may be vulnerable to the activities associated with the Pacheco Reservoir expansion. Despite the laudable efforts to anticipate negative impacts upon stationary receptors such as Lick Observatory, unforeseen events are sure to emerge during the project. It is requested that the final EIS/EIR includes consideration of the impacts specifically upon Lick Observatory, prior to commencement of the project, during the multi-year construction phase and for subsequent operation of the expanded facility - particularly with regard to the installation of permanent lighting fixtures. We respectfully request on-going consultation and dialogue throughout the project in order that the Valley Water Authority can achieve every success in the Pacheco Reservoir Expansion endeavor. It is to be hoped that we shall be able to assist each other in advising, monitoring (and, if necessary, remedying) the impacts of the project, to the satisfaction of all.

The University of California's Lick Observatory remains available to consult on these matters, while continuing to foster the fruitful relationship that has endured for well over a century.

Yours sincerely,

Dr Paul D. Lynam FRAS
Astronomer
University of California Observatories/Lick Observatory