



CASE STUDY

Mexico's New Lighthouse Improves Navigation and Visitor Safety

Sonora, Mexico



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Project Overview



Application

Improve Navigation and Safety for New Lighthouse



Product

13-21NM LED Long Range Marine Lantern: SL-300



Location

Faro Golfo De Santa Clara (Gulf of Santa Clara), Sonora, Mexico, on the Sea of Cortés



Date

Early 2020



Background

Remains of an old lighthouse sat high atop a steep, sandy bluff known as Machorro Hill. The old lighthouse began its aid to navigation service in the 1960s. Its brilliant lamp warned fishermen and seafarers of the hazardous coastline and reefs along the Sonoran shore. Decades of exposure to the weather and decay left the building beyond repair. Even though the building could no longer be used, the lantern was still required to aid navigation.

The Dirección General de Marina Mercante of the Secretaría de Comunicaciones y Transportes installed a substitute light on a nearby communication tower. This substitute light did its job; it helped ensure safe navigation. But the tradition and allure of the old lighthouse remained strong for residents and tourists. Visitors continued to flock to the crumbling lighthouse known as Machorro Lighthouse.

The popularity of the Machorro Lighthouse was a major reason it was identified for replacement. Thousands of all-terrain, off-road vehicles and motorcycle enthusiasts rode nearby dunes. Crystal blue water and its proximity to urban areas attracted campers, recreational vehicles, and tourists. Yet its risk of falling made it a safety risk to nearby visitors.



Thousands of visitors enjoy the dunes and beaches surrounding the old Machorro Lighthouse.

Challenge

Mexico's Secretaría de Marina (SEMAR), required the crumbling, old Machorro Lighthouse be replaced by the beginning of the busy tourist season. A tight, 45-day construction deadline would help ensure the new structure was ready for the visiting public. A new light source would be an important part of the new lighthouse to return it to a properly functioning aid to navigation.

The Deputy General Directorate of Port Captaincies needed a better alternative to the light source used in the old lighthouse. The old light source used 50+ liters of fuel per night. It was dirty, labor-intensive, and expensive to maintain.

Sealite's distributor in Mexico, SUINMA, proposed the construction of a completely new lighthouse in 45 days. They also recommended a low-power, high intensity, long range LED solar lighting solution to satisfy SEMAR's light source requirement.



A temporary light source was installed off-site when the old Machorro Lighthouse was deemed a safety risk.



Solution

Suinma demolished then rebuilt the Machorro Lighthouse to meet the 45 day deadline. Sealite's SL-300 LED Long Range Marine Lantern was then installed to satisfy the 13-19NM visible range and 360° horizontal beam width required by Mexico's maritime authorities.

The SL-300 Marine Lantern delivers an intensity of up to 94,400 candelas with an average power draw of only 132W. Sealite is the only aid to navigation manufacturer able to deliver the powerful combination of high intensity and low power consumption in a marine lantern with a range of 13-19NM.

The SL-300 is an ideal lighting solution for solar installations because of its low power draw. Solar installations reduce costly utility fees and expensive installation costs. Solar installations also eliminate the requirement for fossil fuel-generated electricity.

Utilizing a solar powered lantern in the Machorro Lighthouse saved approximately \$400,000 MXN/\$15,000 USD in fuel costs. Lantern maintenance will also be greatly reduced as the LEDs used in Sealite's SL-300 have a life expectancy of 100,000 hours. All that is required for uninterrupted lantern performance service is a battery replacement every five years.

PC or IR programming is available in the SL-300 for convenient set-up, diagnostic and test functions, for the following conditions:

- Multiple intensities
- Flash characteristics
- Alarm conditions
- Adjustable lux levels for day/night
- Optional GPS synchronization

AIS Type 1 or 3 and GSM monitoring and control are available options. GSM monitoring allows users to conveniently access real-time diagnostic data and alter lantern settings via cell phone.

Sealite's SL-300 Long Range LED Marine Lantern is available in two compact models. The single tier, as used in the Machorro Lighthouse is for lantern ranges up to 19NM. The two tier model will satisfy longer range requirements of up to 21NM (188,000 cd).



The compact LED SL-300 Long Range Marine Lantern delivers the highest intensity/lowest power consumption of any lantern in the 13-19NM class.



Construction of the new Machorro Lighthouse was complete in only 45 days and included Sealite's SL-300 Solar LED Long Range Marine Lantern.

“Sealite’s SL-300 Solar Marine Lantern replaces a light that consumed 50+ liters of fuel per night. It is efficient, clean, and highly visible with little maintenance. Suinma was proud to deliver a great Sealite aid to navigation lighting solution for SEMAR, and a new landmark for the community.”

– Juan Pablo Vallina
Director General, SUINMA

Outcome

Mariners and fishermen are pleased that the Machorro Lighthouse is functioning in its original location. It is once again helping vessels safely navigate into ports and harbors along the Sonoran coast. The local community and visitors are happy the local landmark has been replaced and is safe for activities. The functioning new lighthouse is bringing new visitors to the area, stimulating economic growth, and new jobs.

The Machorro Lighthouse is one of 20,000+ maritime signals identified for replacement by SEMAR. The country's aggressive modernization plan will see all aids to navigation replaced or repaired along its vast 6,911 mile (11,122km) coastline by 2025, to keep Mexico at the forefront of the global maritime industry.



All Sealite products are manufactured to exacting standards under strict quality control procedures. Sealite's commitment to research and development, investing in modern equipment and advanced manufacturing procedures has made us an industry leader. By choosing Sealite you can rest assured you have chosen the very best.

- ✓ Experienced & Trained Personnel
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- ✓ Total Quality Management
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- ✓ Rapid Turnaround

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