Sealite®

CASE STUDY

SL-C510 Marine Lantern Improves Safety of Navigation, Reduces Risk to Personnel and the Environment

Colombia, South America

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We believe technology improves navigation™

Project Overview

Application
Marking Navigation Hazard

Product
SL-C510, 5-9NM Solar LED Marine Lantern with Integrated AIS Type 1 and Type 3

Location
Colombia, South America

Date
2019

"The options for AIS before Sealite's SL-C510 were bulky, difficult to install and expensive. My customers will never go back to stand-alone AIS with this new solution..."

– Ing. JAIRO ARTETA GOENAGA
Gerente General
Ingeniería Naval & Señalización Marítima S.A.S. - INSM S.A.S

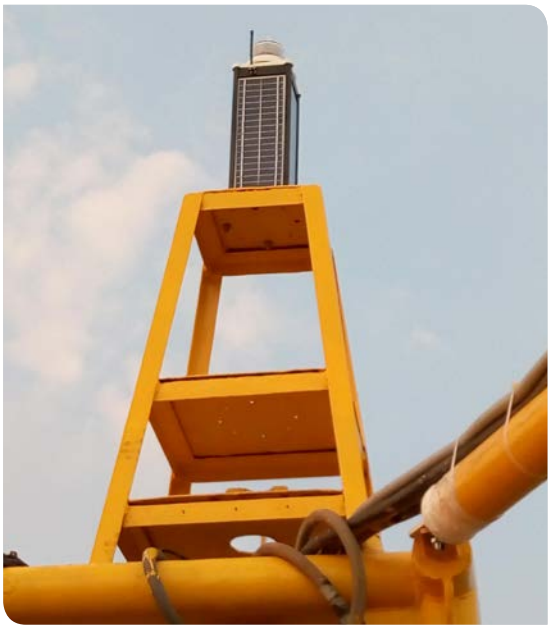
Background

Ecopetrol SA is a Colombian national corporation focused on the development, exploration and transportation of hydrocarbon gas liquids (HGL), its derivatives and related products.

From onshore ground facilities, the company transports hydrocarbons such as crude oil via subsea hoses to Catenary Anchor Leg Mooring (CALM) buoys.

Large oil tankers moor to the CALM buoys where floating rubber hoses transfer the HGL to the tanker, providing a safer, more reliable way to transport and load HGLs.

The tankers that transport HGL are extremely large and have extensive tanks. At 145 tons displacement, with drafts of 17+ meters (55+ feet) and typical lengths of 300 meters (900+ feet), approximately 40K barrels per hour (BPH) are transported to the tankers for transport around the world.



With a range of 5-9NM, Sealite's SL-C510 is Bluetooth® programmable, incorporates GPS synchronization and features integrated AIS (optional) types 1 and 3 in a compact yet durable aluminum chassis.

Challenge

A CALM buoy is typically moored approximately 3-5NM offshore, and is fitted with marine lanterns to increase their visibility and decrease the risk of collision from passing vessels.

CALM buoys are traditionally fitted with radar beacons (RACONs). RACONs transmit a unique radio signal that is displayed on a ship's radar screen, giving a ship's crew a second, non-visual point of reference to use while navigating in the vicinity of a CALM buoy.

Despite their necessity for safe navigation, RACONs have several negative characteristics. They are very expensive (approx. $35K USD), and require a large solar power supply to operate on a CALM buoy, due to their immense power consumption. Additionally, having a RACON as well as a marine lantern on the buoy leads to complications in mounting and wiring the equipment.

The disadvantages of traditional RACONs led Ecopetrol to try to find a better solution that provided mariners with the same level of situational awareness at a lower cost and simpler installation.

Solution

In collaboration with Sealite distributor **Ingeniería Naval & Señalización Marítima S.A.S. in Colombia**, Ecopetrol installed an SL-C510 5-9NM Solar Marine Lantern with integrated Type 3 AIS on a CALM buoy. The self-contained lantern transmits position data via AIS, so that mariners within VHF range of the location can see the exact position of the buoy.

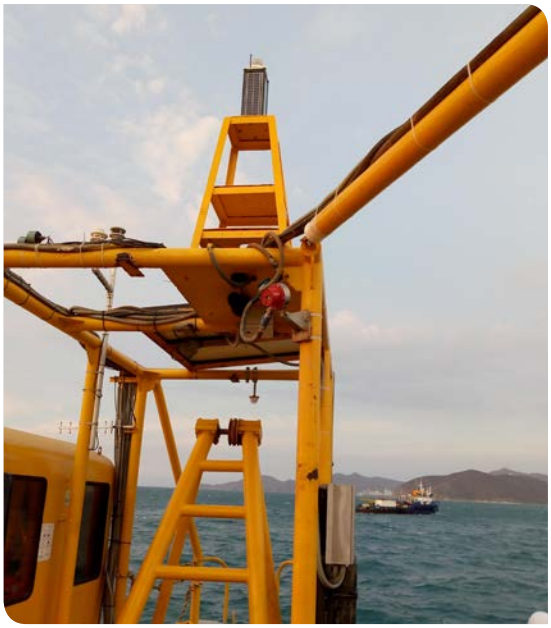
This solution provides the same level of situational awareness as a traditional RACON, at a fraction of the cost. Additionally, because the AIS transponder is fully integrated into the SL-C510, the entire system is quickly and easily installed and serviced.

With a maximum intensity of over 1,100 candelas, the SL-C510 marine lantern has a range of 5-9NM, and is fitted with GPS synchronization technology. Bluetooth® connectivity allows maintenance technicians to program the lantern and perform periodic maintenance checks on the light from up to 50m away, removing the need for technicians to climb the structure on top of the moving buoy to perform the same tasks.

Outcome

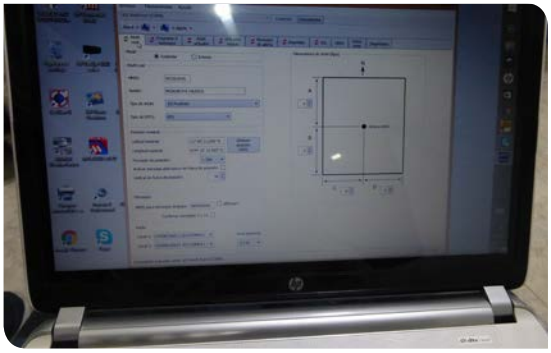
There were many benefits for Ecopetrol by adding the Sealite's SL-C510 Marine Lantern with integrated AIS.

Ecopetrol reduced their expenditures to mark the CALM buoy as a hazard to marine navigation and improved safety for passing vessels. Integrated AIS in the SL-C510 reduced both the installation time and required labor. Bluetooth® connectivity allowed the lantern to be programmed from a nearby vessel rather than onboard the moving buoy, increasing safety for installation and maintenance personnel.



Bluetooth® technology allows remote programming of the lights' operation and functions, increasing safety for maintenance staff.

An Ecopetrol employee fits the SL-C510 Marine Lantern with integrated AIS to the top of the CALM buoy.



Remote monitoring provides an optimal way to check the status of the SL-C510 Lantern.

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