SUCCESS CASE

REVIEW AND EVALUATION OF CODEISA'S WATER NETWORK

Ibiza, Spain

CODEISA, IN COLLABORATION WITH AQUALIA

aganova

EXECUTIVE SUMMARY

In February 2024, Aganova, in partnership with AQUALIA, carried out a comprehensive review and evaluation of approximately 18 km (11.18 miles) of pipeline for CODEISA, the entity responsible for water management on the island of Ibiza. The inspection covered two distinct sections: the first, a 9.9 km (6.15 miles) stretch between Sa Talaia and San Rafael, previously inspected by Aganova in 2021, where multiple issues had been identified; and the second, a 7.7 km (4.78 miles) segment between San Miguel and San Joan.

Both sections were successfully inspected according to the planned schedule, with navigation times of 4 hours and 27 minutes for the first segment and 3 hours and 47 minutes for the second. Data analysis conducted using the Nemo Platform confirmed the successful repair of the leaks identified in 2021 and revealed new issues of varying severity in both sections.

The project was deemed a success by all parties involved, delivering valuable data to enable better long-term planning and network management.

Client

CODEISA

Sections

Talaia - San Rafael & San Miguel - San Joan

Location

Ibiza, Spain

Date

February 8 and 9, 2024

Diameter

DN400, DN250

Material	Speed (m/s)		Pressure (bar)		Distance (m)
	Min	Max	Min	Max	
PRFV	0.37 (1.21 ft/s)	0.68 (2.23 ft/s)	0	7 (101.5 psi)	9,951 (6.15 miles)
FD	0.41 (1.35 ft/s)	0.63 (2.07 ft/s)	0	7 (101.5 psi)	7,736 (4.78 miles)

Both sections were successfully inspected according to the established plan, with navigation times of 4 hours and 27 minutes for Section 1 and 3 hours and 47 minutes for Section 2. Data analysis conducted using the Nemo Platform confirmed the successful repair of the leaks detected in 2021 and identified new leaks of varying severity in both sections.

The project was deemed a success by all parties involved, providing valuable data to facilitate more effective long-term planning and management.

INTRODUCTION

In January 2024, Aganova was awarded the contract for a project aimed at reviewing and evaluating approximately 18 km (11.18 miles) of Ibiza's water network. The island's high-pressure water system consists of four branches converging at a central node. CODEISA sought to inspect two sections located within the western and northern branches of the network.

Aerial view of the high-pressure water network in Ibiza

PROBLEM

The network to be inspected comprised two distinct sections. The first section, spanning 9.9 km (6.15 miles) from Sa Talaia to San Rafael on the western branch, had previously been inspected by Aganova in 2021, resulting in the detection of three issues subsequently repaired by CODEISA. The second section, 7.7 km (4.78 miles) long, extended from San Miguel to San Joan on the northern branch.

CODEISA aimed to verify that the previously identified issues in the western branch had been resolved and to assess the northern section for potential new problems.

SOLUTION AND IMPLEMENTATION

The inspections were completed over two days. On February 8, following the installation of insertion and extraction systems for the Nautilus sphere by Aganova's technical team, the inspection of Section 1 was completed in 4 hours and 27 minutes. The following day, the inspection of Section 2 took 3 hours and 47 minutes.

The technical characteristics of the sections inspected are as follows:

	Section 1	Section 2
Location	Sa Talaia - San Rafael	San Miguel - San Joan
Flow rate	297 m³/h (1,308.28 gpm)	120 m³/h (528.34 gpm)
Diameter	DN400 (15.75 inches)	DN250 (9.84 inches)
Water speed	0.66 m/s (2.17 ft/s)	0.68 m/s (2.23 ft/s)
Length	9.9 km (6.15 miles)	7.7 km (4.78 miles)
Insertion point	DN100 (3.94 inches) gate valve	DN100 (3.94 inches) gate valve
Extraction point	DN100 gate valve	DN100 gate valve

RESULTS

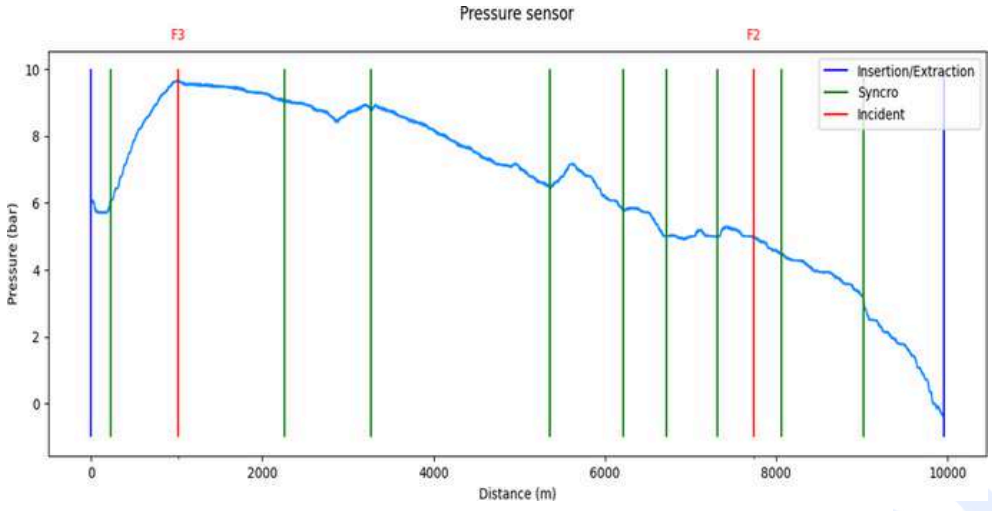
The Nemo Platform provided a detailed overview of the inspected sections, highlighting incident locations in red on the GIS maps supplied by CODEISA.

Using a pressure sensor, the Nautilus System recorded data at regular intervals during navigation. This continuous monitoring allowed for precise estimation of water loss due to leaks and provided detailed profiles of the pipeline conditions.

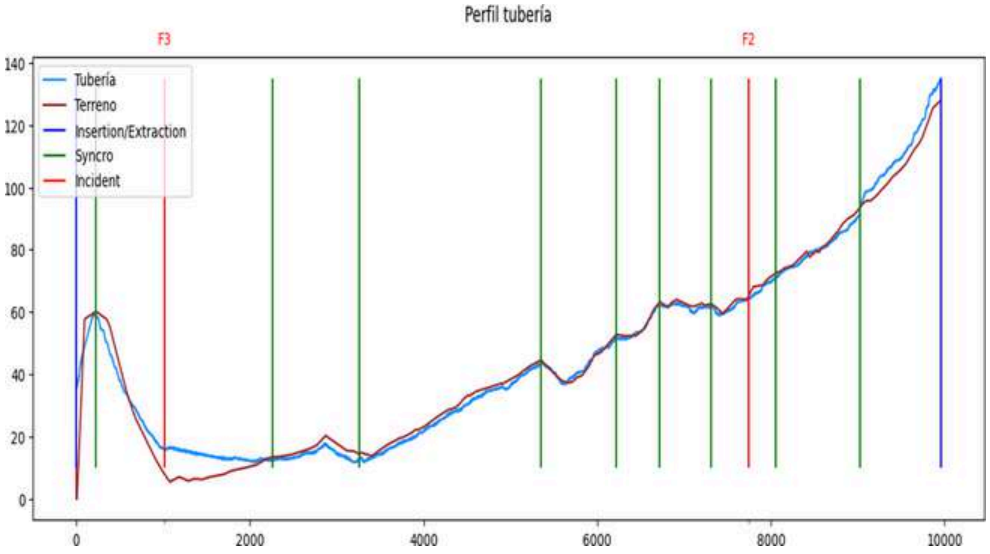
Section 1 (Sa Talaia – San Rafael)
Data analysis confirmed the resolution of previously identified issues and detected new anomalies.
Section 2 (San Miguel – San Joan)
Inspection revealed areas requiring immediate attention, with detailed profiles indicating pressure fluctuations and pipeline integrity concerns.

Section 1: Sa Talaia – San Rafael

Aerial view of Section 1 inspected with the detected incidents.

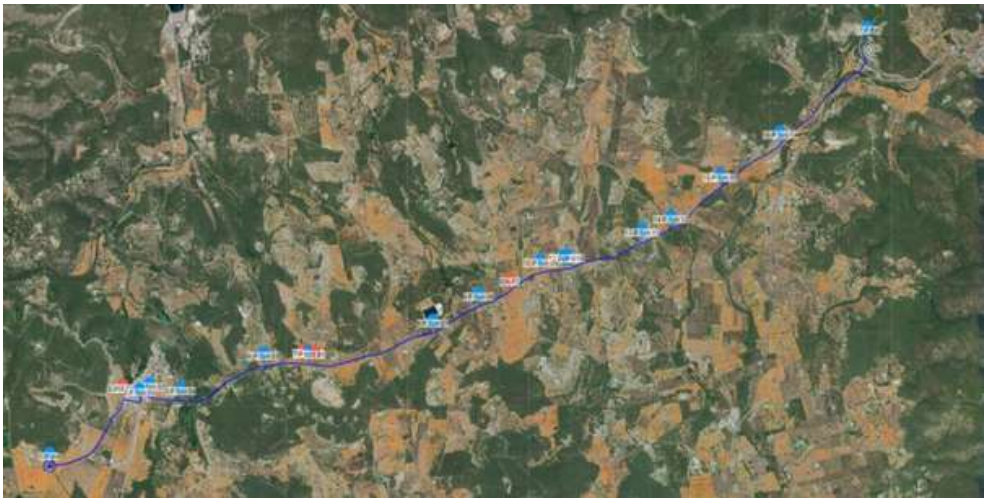


Pressure data recorded during navigation.

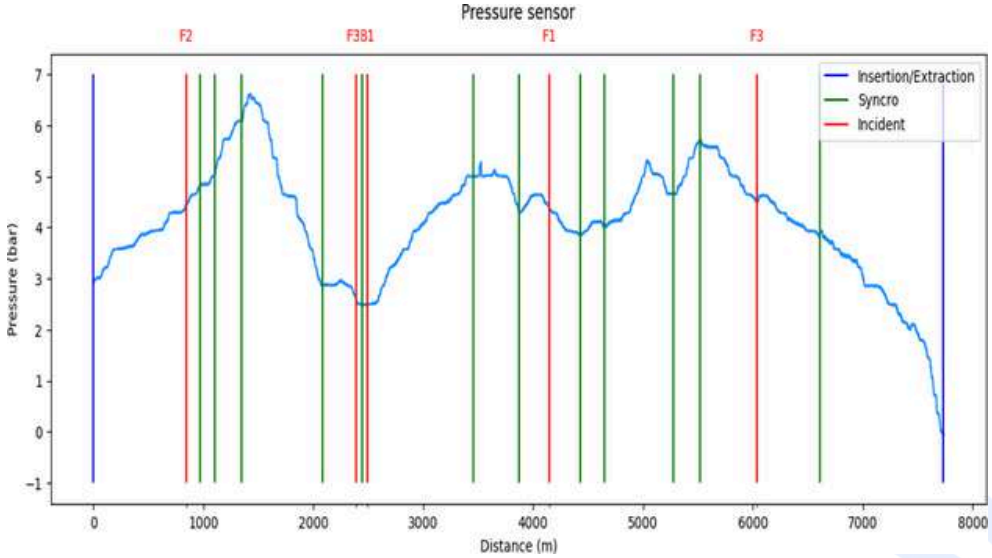


Pipeline profile based on pressure data.

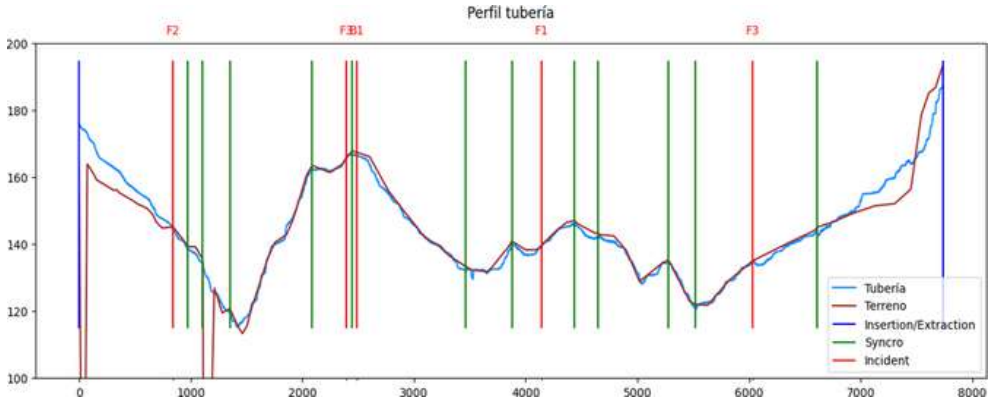
Section 2: San Miguel – San Joan



Aerial view of Section 2 inspected with the detected incidents.



Pressure data recorded during navigation.



Pipeline profile based on pressure data.

CONCLUSIONS

The inspections covered 9,956 (6.18 miles) meters of GRP pipe with a diameter of 400 mm (15.75 inches) in the first section and 7,736 meters (4.81 miles) of ductile iron pipe with a diameter of 250 mm (9.84 inches) in the second. Both operations were carried out without incidents and according to the planned schedule.

The data recorded by Nautilus identified multiple issues within the inspected pipelines. Aganova provided CODEISA with detailed recommendations for prioritized repairs and emphasized the need to assess all air valves due to incidents related to venting systems.

Aganova recommends implementing an annual systematic review of the network to monitor the evolution of pipeline issues and ensure continuous maintenance of the infrastructure.

aganova

www.aganova.com