CASE STUDY

FLEX JOINT ROBOTIC INSPECTION

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SONOMATIC

INTRODUCTION

Sonomatic performed a remote cleaning and 3D photogrammetry inspection of a Flex Joint elastomer surface on a client's FPSO. The objective was to obtain a complete 360-degree surface profile using robotic technologies. Conducted under challenging metocean conditions, this project marked a first in the region and demonstrated the effectiveness of robotic inspection solutions in offshore environments.

PROCESS

The inspection was carried out using Sonomatic's E-CAP multimission magnetic crawler, supported by a work class ROV. Designed for complex subsea environments, the crawler featured an articulated powertrain capable of both longitudinal and circumferential movement, enabling it to crawl 10 feet up the riser and rotate around it to access the full surface of the Flex Joint elastomer. Cleaning was performed using a combination of high-pressure water jet, caviblaster, and mechanical brushing, depending on the surface condition. Once cleaned, a high-resolution 3D surface profile was captured using the integrated Video Laser System (VLS) photogrammetry kit.

OUTCOME

The client commended the team's flexibility and noted the campaign as the first successful Flex Joint cleaning and scan in the region, marking a milestone for robotic offshore inspections.