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**Trenchless
Technology Case
Studies**

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**THE USE OF NEW CONDITION ASSESSMENT TECHNOLOGIES FOR SELECTING
TRENCHLESS REHABILITATION OF WASTEWATER NETWORKS IN RAS AL KHAIMAH, UAE**

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ABSTRACT: The Ras Al Khaimah Wastewater Authority (RAKWA) manages wastewater collection and treatment of sewerage in the emirate of Ras Al Khaimah (RAK) – the fourth largest of seven emirates of the United Arab Emirates (UAE). Having the most fertile soil in the country, due to a larger share of rainfall and underground water streams from the Hajar mountains, combined with a growing number of resorts taking advantage of Gulf beaches, RAKWA is undertaking a series of major wastewater rehabilitation and expansion projects supporting a population of nearly 400,000 people.

Representing over 15km of recently installed fiberglass reinforced pipe, RAKWA targeted its City West Trunk Main, Mairid Network – Area 1 Project, a currently 'inactive' network, for addition to the city's growing underground wastewater network, requiring innovative condition assessment, prior to its addition to its collection system.

RAKWA engineers had noticed numerous sections of the 'new' network were experiencing high levels of infiltration, initially approved by high resolution CCTV cameras. Located in close proximity to the Arabian Sea, tidal infiltration was a constant threat for infiltration and exfiltration.

As a result, prior to connecting lateral services to the network, RAKWA decided to incorporate Focused Electrode Leak Location (FELL) to identify and quantify specific leak locations for Fiberglass UV-Cured Trenchless Rehabilitation.

FELL had been recommended in a recent Masterclass by UK-based WRc and was supported by ASTM F2550, leading to RAKWA's decision to use both IBAK Panorama CCTV and FELL technologies. While Gulf authorities have commonly relied on CCTV of its pipes, defects at joints and manhole connections many times have gone unnoticed, adversely affecting network performance.

This paper will share results from the first major benchmark of CCTV & FELL technologies in the Gulf and discuss selection parameters to conduct 3.5km of UV-cured CIPP and 310 patches or sectional liners.