

Overview

Wafra Joint Operations (JO) in Kuwait has been an operating oil field for almost 90 years. For more than 70 years, produced water was placed into solar evaporation ponds, growing to approximately 6 km² in area. Beginning in the early-2000s, JO began remediation of the solar ponds, consolidating waste sludge and stockpiling contaminated soils. One of the final phases of this remediation program is the mitigation of more than 300,000 m³ of consolidated sludge – a highly weathered heavy crude oil with high solids content.



IMAGE 1: STARx Hottpad system under construction

In late 2017, JO selected STARx Hottpad™ as the preferred treatment method for sludge disposal based on a detailed assessment of potential alternatives. Factors that led to the selection of STARx included technology effectiveness, cost-effectiveness, the elimination of potential future liabilities, and the ability to co-treat oil-impacted soils.



IMAGE 2: Excavation and consolidation of crude oil sludge

Conclusions

A full-scale STARx Hottpad™ plant was selected as the preferred treatment method for sludge disposal at the JO Site. The plant will:

- Treats a very high concentration blend of oily sludge and oil-impacted site soil (>15% TPH).
- Destroys heavy crude oil wastes that are otherwise untreatable (other than via incineration which has a much larger carbon footprint).
- Generates treated site soils suitable for on-site reuse.

Project Timeline

Design – 2018-2019

Working closely with the client, Savron designed for a four Base System STARx Hottpad™ plant to treat 300,000 m³ of sludge over 5-8 years. The design was developed to support JO's intent to issue a Design, Build, Operate (DBO) contract for the sludge remediation project. The Request For Quotation (RFQ) for the remediation project was issued in Q3 2019 and the contractor was selected Q4 2019.

Procurement – 2020

The prime remediation contractor for the site contracted Savron for the lease of the STARx Hottpad™ Plant for 3 years of operation (with an option to purchase the Plant or extend the lease following the contracted operational period). Savron then contracted a local (Kuwaiti) company to fabricate the Base Systems and procure ancillary equipment for the plant.

Construction and Operation – 2021 to Present

Construction of the plant began in 2021 with operations beginning in 2022. Savron oversaw plant assembly and commissioning, demonstrated plant operation, and trained local operators (the prime remediation contractor for the site) for long-term operations. The Plant treats approximately 1,000 m³ of blended material (sludge and oil-impacted site soils) per week.



IMAGE 3: Oily sludge designated for treatment via STARx Hottpad™