



Eng. Aisha Saleh Al-Barood

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Speaker Biography:

Senior Environmentalist has eighteen years of experience in the environmental field section, and started working in Kuwait Oil Company with Soil Remediation Group in 2012. Ms. Al-Barood earned BSc in Chemical Engineering and a Master's degree in Chemical Engineering- Environment Field (Kuwait University). Moreover, Ms. Aisha earned the Honorary Doctorate (Ph.D. Honoris Causa) in Environmental Engineering, awarded by the International Agency for Standards and Ratings. Additionally, Ms. Al-Barood was certified in NEBOSH (National Examination Board in Occupational safety and Health) – Environmental Management.

Presentation Title:

Kuwait Environmental Remediation Program (KERP): Fresh Groundwater Risk Assessment from Tarcrete Material Across the Raudhatain and Sabriyah Oil Fields, North Kuwait.

Abstract:

Kuwait Oil Company (KOC) under the supervision of Kuwait National Focal Point (KNFP) is planning to remediate 26 million (M) m³ of oil-contaminated soil in oil fields of Kuwait as a direct and indirect fallout of the Gulf War during 1990-1991. This project is funded by the United Nations Compensation Commission (UNCC) under the Kuwait Environmental Remediation Program (KERP). Oil-contamination of the soil occurred due to the destruction of the oil wells and spilled crude oil across the land surface and created 'oil lakes' in low lying land. Aerial fall-out from oil spray and combustion products from oil fires combined with the sand and gravel on the ground surface to form a layer of hardened 'Tarcrete'. The unique fresh groundwater lenses present in the Raudhatain and Sabriya subsurface areas had been impacted by the discharge and/or spills of dissolved petroleum constituents. These fresh groundwater aquifers were used for drinking water purposes until 1990, prior to invasion.

This has significantly damages altered the landscape, ecology and habitat of the flora and fauna and in Kuwait Desert. Under KERP, KOC is fully responsible for the planning and execution of the remediation and restoration projects in KOC oil fields. The Total Remediation Strategy (TRS) comprises of elements such as Risk Based Approach (RBA), Bioremediation of low Contaminated Soil levels, Remediation Treatment Technologies, Sludge Disposal via Beneficial Recycling or Re-use and Engineered landfills for Containment of untreatable materials.

As part of this assessment, conceptual site model (CSM) and complete risk-based and fate and transport modelling was carried out which includes derivation of site-specific assessment criteria (SSAC) and quantification of risk to identified waters resource receptors posed by tarcrete impacted areas. The outcome of this assessment was determined that the residual tarcrete deposits across the site area shall not create risks to fresh groundwater resources and the remedial action to remove and remediate the surficial tarcrete deposits is not warranted.