

Kuwait Environmental Remediation Program: Waste Management Data Analytics for Planning and Optimization of Waste Collection

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Abstract : The United Nations Compensation Commission (UNCC), Kuwait National Focal Point (KNFP) and Kuwait Oil Company (KOC) cooperated in a joint project to undertake comprehensive and collaborative efforts to remediate 26 million m³ of crude oil contaminated soil that had resulted from the Gulf War in 1990/1991. These efforts are referred to as the Kuwait Environmental Remediation Program (KERP). KOC has developed a Total Remediation Solution (TRS) for KERP, which will guide the Remediation projects, comprises of alternative remedial solutions with treatment techniques inclusive of limited landfills for non-treatable soil materials disposal, and relies on treating certain ranges of Total Petroleum Hydrocarbon (TPH) contamination with the most appropriate remediation techniques. The KERP Remediation projects will be implemented within the KOC's oilfields in North and South East Kuwait. The objectives of this remediation project is to clear land for field development and treat all the oil contaminated features (dry oil lakes, wet oil lakes, and oil contaminated piles) through TRS plan to optimize the treatment processes and minimize the volume of contaminated materials to be placed into landfills. The treatment strategy will comprise of Excavation and Transportation (E&T) of oil contaminated soils from contaminated land to remote treatment areas and to use appropriate remediation technologies or a combination of treatment technologies to achieve remediation target criteria (RTC). KOC has awarded five mega projects to achieve the same and is currently in the execution phase. As a part of the company's commitment to environment and for the fulfillment of the mandatory HSSEMS procedures, all the Remediation contractors needs to report waste generation data from the various project activities on a monthly basis. Data on waste generation is collected in order to implement cost-efficient and sustainable waste management operations. Data analytics approaches can be built on the top of the data to produce more detailed, and in-time waste generation information for the basis of waste management and collection. The results obtained highlight the potential of advanced data analytic approaches in producing more detailed waste generation information for planning and optimization of waste collection and recycling.

Keywords : waste, technologies, KERP, data, soil

Conference Title : ICEPSWM 2023 : International Conference on Environmental Pollution and Solid Waste Management

Conference Location : Cairo, Egypt

Conference Dates : December 18-19, 2023