Remote Sensing Tools for Environmental Monitoring and Certification of Well Sites

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The primary goal of the project is to test, validate, and develop digital tools to monitor terrestrial and wetland environments impacted by oil and gas operations. We will develop remote sensing tools using Earth Observation (EO) image data and cutting-edge machine learning (ML) and artificial intelligence (AI) technologies to process large volumes of remotely-sensed imagery quickly and efficiently. This will enable Vertex to optimize the way environmental monitoring is currently conducted through improvements provided by the use and analysis of EO imagery and related spatial data.

In contrast to conventional field-based monitoring campaigns, remote sensing analysis of EO imagery can reduce damage to crops and other vegetation because of no direct contact with the surface, and can also reduce the spread of diseases, pathogens, and weeds. The tools developed in this project will showcase the ability of EO data and remote sensing techniques to address environmental monitoring of reclamation efforts by locating abandoned or suspended padded wellsites and non-padded wellsites in the wetland areas of the Green Zone. Additionally, remote sensing tools will help determine sustainability of forests developing on reclaimed wellsites. The advantage of Vertex’s methods relies on the incorporation of the latest ML and AI technologies to process and analyse large-area coverage EO data to ultimately help in reducing wellsite liabilities and the need for field visits for characterizing wellsites and shorten reclamation certificate timelines.

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Dean is Vice President – Growth and Innovation at Vertex Resource Group Ltd. He has 22 years of land reclamation experience in consulting and research and development, working in Oil and Gas, Oil Sands Mining, in situ Oil Sands, Coal Mines, Peat Harvesting, Pipelines, Spills, and Aggregate operations. Dean has a strong interest in R&D to improve land reclamation policy and practices.