Risk Profiling of Rail Operations Based Wastewater Assets

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Canadian Pacific is developing and implementing a risk-based asset management strategy to optimize its wastewater infrastructure assets in order to reduce overall capital and O&M costs, to ensure appropriate wastewater treatment level of service, and to achieve optimal safety and environmental performance objectives. To implement such a strategy, the inherent risk profile of its wastewater assets across North America needed to be better understood.

Using standard risk processes, tools and data analytic techniques, Dillon Consulting Limited identified and evaluated seven "risk drivers" - 1) scale and scope of rail operations that affect the generation and characteristics of wastewater; 2) type of wastewater assets; 3) operation and maintenance practices of the wastewater assets; 4) age of the wastewater assets; 5) operator training; 6) local and regional regulatory constraints for effluent quality; and 7) wastewater effluent performance.

Various heat maps were generated to graphically illustrate the risk profile of each rail yard which will allow Canadian Pacific to monitor, to measure and to trace risk reduction trends based on specific capital and O&M investment, and operator training strategies. In addition, it will become a valuable tool to communicate plain-language concepts within the organization and to other stakeholders.