Higher volumes of heavy conventional and bitumen-based crudes from western Canada are becoming available to more refineries as production and transportation infrastructure is developed. However, western Canadian opportunity crudes include a broad range of feedstocks that exhibit fundamentally different characteristics causing a wide variety of processing challenges. Many refiners are just becoming acquainted with the impact these crudes pose in terms of desalting, corrosion, fouling, and wastewater operations.

Baker Hughes, a GE company (BHGE), has developed predictive tools and innovative specialty chemical programs to help refiners successfully process these heavy Canadian crudes to increase refinery profitability.

Desalting solutions

The BHGE Crude Oil Management™ approach consists of a suite of tools and technologies aimed at providing the best feedstock preparation and desalting performance possible to maximize refinery use and profitability. BHGE approaches desalting from a holistic viewpoint, enabling refiners to take full advantage of attractively priced opportunity crude oils. Desalting challenges such as poor desalting efficiency, uncontrollable emulsions, and high oil content in the effluent water are common when processing heavy Canadian crudes. In fact, the problems begin before processing, in the tank farm. Crude pretreatment, using specially designed products, helps break emulsions, reduce tank sludge, improve crude dewatering, and precondition solids.

Field ASIT services™ technology, XERIC™ heavy oil demulsifiers, EXCALIBUR™ contaminant removal, and JETTISON™ solids release agents (SRA) are technologies which were all designed with heavy crudes in mind to maximize the performance of desalters for salt removal, dehydration, and solids removal. The result is high quality desalted crude, oil-free effluent water, and improved downstream processing results. BHGE Crude Oil Management programs are critical first steps in inhibiting downstream corrosion, fouling, and wastewater treatment exceptions.

Applications

- Crude unit desalting, corrosion control, and fouling control programs
- Wastewater operations

Benefits

- Provide feedstock analysis for asphaltene stability of crude blends
- Resolve difficult emulsions of high solids crudes
- Increase removal of solids and metals from crude oil at the desalter
- Minimize fouling and corrosion risks
- Control fouling in preheat trains
- Provide mitigation strategies and detailed studies for heater fouling
- Protect equipment from high-temperature corrosion
- Protect overhead system equipment from corrosion
- Improve separation of solids from water
The BHGE Crude Oil Management approach is a total system stewardship program that enables refiners to take full advantage of attractively priced opportunity crude oils.

**Corrosion control**

Corrosion challenges can occur in the overhead system and in areas of high temperature. The overhead system can be prone to formation of corrosive salts and acids. **TOPGUARD™ overhead corrosion control programs**, featuring the TOPGUARD corrosion risk monitor, define the risks of salt and acid corrosion and provide both mitigation and monitoring strategies to protect vital equipment. In areas of high temperature, naphthenic acid and sulfidation corrosion are possible due to the high TAN and sulfur content of these crudes. **SMARTGUARD™ high temperature corrosion control programs** will assess the risk and prescribe a mitigation and monitoring protocol to minimize corrosion in critical high temperature zones.

**Fouling control**

Heavy Canadian crudes present unique challenges downstream of the desalter, too. Fouling that results from high solids content and destabilized asphaltenes is a common occurrence. **LIFESPAN™ heat exchanger fouling control programs** help control the fouling to minimize maintenance and energy costs while maximizing opportunity. Coking of refinery heavy oil heaters can be managed with the **MILESTONE™ heater fouling control programs**.

**Wastewater treatment**

Excellent desalting with high quality effluent brine is one of the hallmarks of the BHGE Crude Oil Management program. As a result, the downstream wastewater handling systems realize immediate benefits. BHGE also provides a comprehensive program of wastewater treatment chemicals combined with expertise and operating knowledge to maximize the management of refinery wastewater.

**Total system stewardship**

Effective, proactive monitoring and chemical mitigation treatment programs, when appropriately applied, give considerable power to increase feedstock flexibility without disrupting plant operations.

With BHGE as a partner, refiners can address these complex challenges with proven best practices, thereby improving refinery profitability, while maintaining plant integrity, reliability, and environmental compliance.

Contact your local BHGE representative to learn more about processing heavy Canadian crude oil with proven technologies and customized solutions.

bhge.com

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