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SubCom[®] Case Study: Western Potash Corporation – Milestone Phase I Project



Location: Regina, Saskatchewan

Year Completed: 2019

Deliverables: 3 burner 51 MM Btu/h heating system



Project Overview

Having started the initial planning in 2008, Western Potash Corporation began moving forward over the ensuing decade to develop its key asset - the Milestone Project – in a region just southwest of Regina, Saskatchewan.

Ambitious in scope, a novel solution mining technology which would eliminate surface salt tailings – making it the first of its kind – and to maintain a high pedigree of environmental responsibility through lower levels of water consumption and minimal surface disturbance.

In 2018, SNC-Lavalin was engaged in an engineering consulting capacity for the Milestone Phase I project. Well-versed in SubCom® and its benefits, SNC-Lavalin commissioned Inproheat Industries Ltd. to develop a SubCom® system as an integral component of the project.

The Challenge

In response to SNC-Lavalin's request, Inproheat needed to develop a SubCom system that could reach a temperature of up to 110°C in order to achieve the process objective of selectively dissolving the potash in the underground salt caverns with high energy efficiency. Heating the highly corrosive brine necessitated the need for corrosion resistant alloys. Beyond the need for efficiency, it was also mandatory for the heating system to meet the requirements of the environmental permit granted to the Milestone Phase Project.

To attain the project's critical brine heating requirements and offer an integrated package, Inproheat called upon its trusted industry partners Sigma Thermal, Tranter and KSB.

The Solution

The final deliverable to Western Potash Corporation from Inproheat arrived in the form of a three-burner SubCom® system. With gross heat input of 51 MM Btu/h, the SubCom® is able to heat the brine to 82°C with a thermal efficiency of greater than 90% (HHV basis). To raise the brine temperature to the maximum target 110°C a glycol heater supplied by Sigma Thermal heated the brine via a Tranter Inc. titanium plate and frame heat exchanger.. A pump supplied by KSB was used to move the brine from the SubCom® through the process side of the heat exchanger and into the injection pump suctions.

By combining SubCom® technology with the added contributions of our partners, Inproheat Industries Ltd. was able to deliver the necessary components to facilitate a high-impact potash mining operation that was in line with Western Potash Corporation's critical goals of maintaining high efficiency and a reduced environmental impact.

After Inproheat's heating system was delivered, horizontal solution hot mining began in the spring of 2020. Following a hold period, construction completion of other areas of the facility resumed in 2022.

REQUEST INFORMATION:

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