PROJECT SPOTLIGHT

AIR PRODUCTS HYDROGEN PLANT

LAFARGE
Building better cities™

HIGHLIGHTS:

LOCATION:
Fort Saskatchewan, AB

PROJECT TYPE:
Hydrogen Plant Construction

PROJECT PURPOSE:
Foundation Pour

CLIENT:
Air Products & Chemicals Ltd.

GENERAL CONTRACTOR:
Keller Foundations

ENGINEER:
Stantec

MATERIALS PROVIDED:
9,000 m^3 of Agilia®

INDUSTRY LEADER EXPANDS OPERATIONS

Air Products & Chemicals Ltd. is a worldwide manufacturer of industrial gases, performance materials and equipment. They decided to develop a world-scale hydrogen production plant to better serve the Canadian market. They chose a location in Fort Saskatchewan, Alberta adjacent to Shell Canada's Scotford facility. The Air Products plant would supply products for use in consumer, commercial and industrial applications. This includes oxygen for the steel industry, nitrogen for solar panels, and hydrogen as a clean fuel for refining. The plant would connect to Air Product's existing Heartland hydrogen pipeline system. The pipeline supplies refiners, upgraders, chemical processors and other industries in Alberta's Heartland region.

DURABLE FOUNDATION REQUIRED

The geotechnical conditions in the Heartland required a durable foundation utilizing pilings to support the plant. The project also had tight timelines which required the rapid construction of the support system. Air Products chose industry leaders to design and build the plant.

CFA PILING METHOD CHOSEN

Lafarge collaborated with Keller Foundations who used the continuous flight auger (CFA) piling technique to build the needed piles. This method was relatively new to Alberta. A specialized auger drills the pile hole and has the ability to pump concrete down the shaft. Concrete can flow freely down the auger's hollow stem. As the auger retracts from the hole, the soil is extracted while concrete fills its place. The CFA auger requires a concrete mix that is easily workable.

AGILIA MIX DEVELOPED FOR DEEP FOUNDATIONS

Lafarge developed a unique Agilia mix design that was both highly flowable and had extended workability. This allowed for a controlled, yet rapid construction of the piles. Lafarge had a quality control representative on site during the entire project to respond to any issues that might have arisen.

TIME SAVINGS OF 25% AND AT A LOWER COST

The piling project took eight weeks to complete, which was two weeks faster than using traditional piling techniques. The CFA pilings cost 30% less than a bell pile design. The use of Agilia saved Air Products time and money, while providing a foundation that will support a high performing production plant for many years to come. In collaboration, Lafarge and Keller Foundations pushed the boundaries of how foundations for large facilities are built in Alberta.

"Not a lot of companies know about CFA piling but it is catching on. This was the first time that Air Products used this method. They were very pleased with the speed of construction and cost savings. Air Products stated that the CFA pilings were a 30% cost savings over the original bell pile design."

Barry Evans
Project Manager, Keller Foundations

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