

ENGINEERED SOLUTIONS

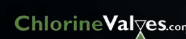
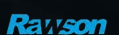
CASE STUDY

Navigating the Arctic:

Relevant Industrial's Custom Skids for A World Leader
in the Design and Manufacture of Air-Separation Plants



FAMILY OF COMPANIES



BACKGROUND & CHALLENGES

BACKGROUND

The severe climatic conditions in Alaska necessitate specialized solutions to ensure the LNG plants' equipment performance and longevity.

CHALLENGES

1

Extreme Weather Conditions

2

Logistical Constraints

When a world leader in the design and manufacture of air-separation plants sought a partner to build and deliver fabricated custom skids for their LNG plants near the Arctic Circle, they faced a unique set of challenges. The logistics of transporting heavy rotating equipment across ice highways, combined with the need to maintain specific temperature conditions during transit, required innovative solutions. Relevant Industrial stepped up, leveraging their expertise in engineering and logistics to execute this complex project successfully.

PROJECT BACKGROUND

The client's LNG plants, situated a couple of hundred miles north of the Arctic Circle near Deadhorse, Alaska, demand robust and reliable rotating equipment. The severe climatic conditions in this region necessitate specialized solutions to ensure equipment performance and longevity. The primary objective was to fabricate and deliver custom skids equipped with compressors and other rotating equipment, all while overcoming the logistical hurdles of Arctic transportation.

THE CHALLENGE

01 EXTREME WEATHER CONDITIONS

Transporting equipment to such a remote and harsh environment posed significant challenges. The closest village, Deadhorse, experiences winter temperatures plummeting to -40°F. These conditions not only affect the equipment but also complicate logistics. Moreover, the equipment's seals surpass their warranty at temperatures below -10°F, requiring careful temperature management during transit.

02 LOGISTICAL CONSTRAINTS

The only viable route to transport heavy equipment to Deadhorse is via ice highways. These highways, formed over frozen tundra, are only accessible during specific winter months and must be certified for heavy loads. The journey from Fairbanks, where the equipment would be staged, to Deadhorse involves navigating these treacherous routes, demanding meticulous planning and execution.



SOLUTIONS & EXECUTION

INNOVATIVE SOLUTIONS

1

Custom
Fabrication

2

Temperature
Control During
Transit

3

Logistics
Planning

EXECUTION & DELIVERY

1

Staging in
Fairbanks

2

Transport via
Ice Highways

INNOVATIVE SOLUTIONS

Relevant Industrial devised a comprehensive strategy to address both the engineering and logistical challenges of this project.

01 CUSTOM FABRICATION

The custom skids were designed to accommodate the unique requirements of the LNG plants. Each skid incorporated advanced rotating equipment, meticulously fabricated to ensure durability and efficiency in extreme conditions. The engineering team focused on optimizing the performance and reliability of the equipment, considering the harsh operating environment of the Arctic.

02 TEMPERATURE CONTROL DURING TRANSIT

To maintain the required temperature of the equipment during transit, Relevant Industrial implemented heat trace technology. Each compressor skid was equipped with a sophisticated heat tracing system, powered by an auxiliary generator and fueled by a substantial diesel tank. This system ensured that the equipment remained at or above 0°F, protecting it from the harsh Arctic temperatures and preserving its warranty.

03 LOGISTICS PLANNING

The logistics team at Relevant Industrial faced the daunting task of transporting the equipment across ice highways. The equipment had to be staged in Fairbanks by the end of August 2024, ready for transit once the ice highways were certified for 100,000-pound loads. The team planned for continuous transit, minimizing stops to maintain the temperature and ensure timely delivery. Each truck was outfitted with sufficient fuel to make the 15-hour journey without interruption.

EXECUTION & DELIVERY

01 STAGING IN FAIRBANKS

The equipment was shipped from Houston to Fairbanks, ensuring it arrived before the end of August. Once in Fairbanks, the equipment was stored in a temperature-controlled environment, maintained at a minimum of 20°F, to safeguard it against the outside ambient temperatures until transit commenced.

02 TRANSPORT VIA ICE HIGHWAYS

As the ice highways opened in late October, the logistics team coordinated the transit of the equipment. The trucks, equipped with heat tracing systems and auxiliary generators, embarked on the journey to Deadhorse. The continuous transit plan ensured that the equipment remained within the required temperature range, preventing any warranty issues.



OUTCOME & TAKEAWAYS

OUTCOME

Relevant Industrial provided a turnkey solution that met the stringent requirements of operating in the Arctic.

KEY TAKEAWAYS

1

Integrated
Solutions

2

Engineering
Excellence

3

Logistical
Innovation

OUTCOME

The successful delivery of the custom skids to the client's LNG plants near Deadhorse marked a significant achievement for Relevant Industrial. The project demonstrated the company's ability to innovate and execute complex engineering and logistical solutions. By managing every aspect of the project—from fabrication to transportation—Relevant Industrial provided a turnkey solution that met the stringent requirements of operating in the Arctic.

KEY TAKEAWAYS

01 INTEGRATED SOLUTIONS

Relevant Industrial's integrated approach, combining engineering expertise with innovative logistics solutions, was key to the project's success. By offering a comprehensive, turnkey solution, the company streamlined the process and delivered exceptional value to our client.

02 ENGINEERING EXCELLENCE

The custom skids were designed and fabricated to withstand the harsh conditions of the Arctic, showcasing Relevant Industrial's engineering capabilities. The use of heat trace technology and robust auxiliary systems ensured the equipment's reliability and performance during transit and operation.

03 LOGISTICAL INNOVATION

Navigating the ice highways and maintaining the required temperature conditions during transit highlighted Relevant Industrial's logistical expertise. The careful planning and execution of the transport strategy ensured that the equipment arrived on time and in optimal condition.

CONCLUSION

Relevant Industrial's ability to tackle the unique challenges of this project underscores their commitment to innovation and excellence. The successful delivery of custom skids to our client's LNG plants in the Arctic serves as a testament to their engineering prowess and logistical acumen. As manufacturing and industrial projects increasingly venture into extreme environments, Relevant Industrial stands ready to deliver cutting-edge solutions that meet and exceed client expectations.



relevantsolutions.com

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