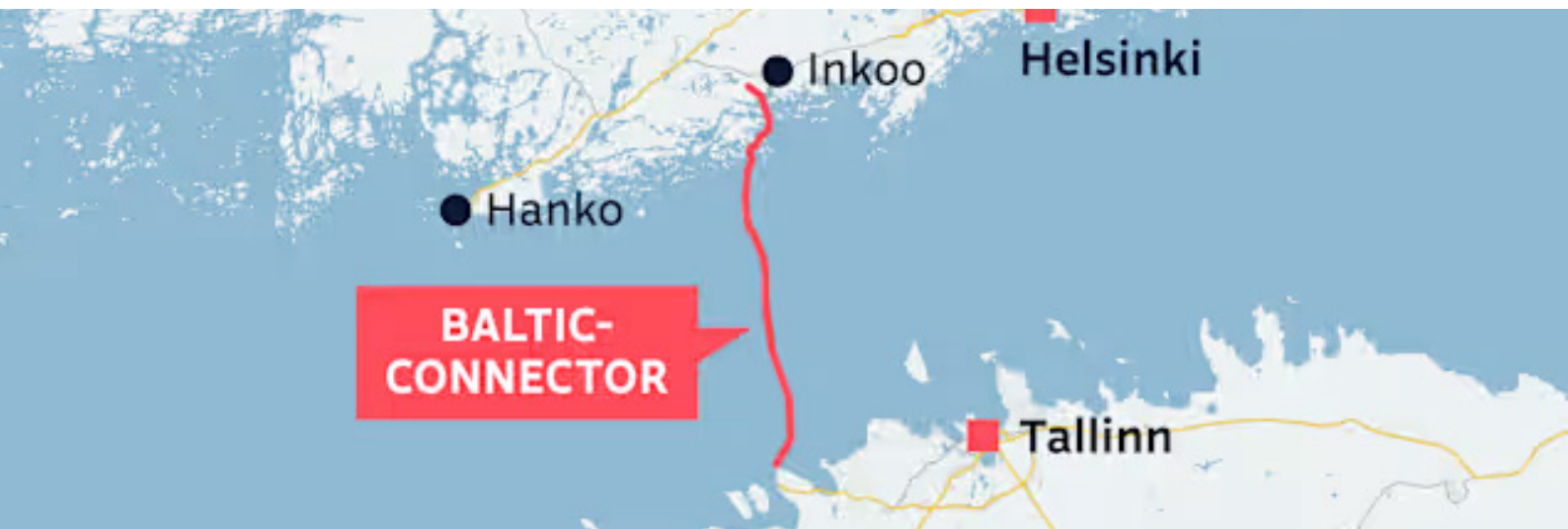




Case Study

Baltic Connector Pre-commissioning (Flooding, Cleaning, Testing, Dewatering and Drying)

Introduction

Intero Integrity was requested to perform the pre-commissioning activities for a major offshore pipelay and subsea construction company of the offshore part of the Baltic Connector pipeline. This newly constructed pipeline starts in Inkoo, Finland and ends in Paldiski, Estonia.

Pipeline Characteristics

- 20" Pipeline
- Wall thickness of 15.9 mm
- Pipeline length of 77 km

The Intero Integrity scope of work consisted of pre-commissioning activities

- Flooding, cleaning, and gauging
- Hydrostatic testing
- Dewatering and drying

For all operations, Intero Integrity proposed a complete pipeline pre-commissioning program including project management and engineering as well as all relevant project documentation, equipment, and personnel required for the job.

Flooding, Cleaning, and Gauging

For the flooding, cleaning, and gauging; Intero proposed to send four high-sealing BiDi pigs through the pipeline. The first BiDi pig was attached with magnets, the second with brushes, and the third and fourth pigs with a gauge plate to complete all activities in one run. The pig trains flowrate was 320 m³ per hour (0.5 m/s) and was completed in 43 hours.

The flooding, cleaning, and gauging activities were recorded at 15 minute intervals from both sides of the pipeline. The water was filtered through a 50µm filter and UV-treated, conforming to the required specification.

Client Project Manager

"We are very content with how this job was executed and really appreciate the relationship we have built over the past eight months."



Testing

After the FCG activities, the pipeline was pressurized to the test pressure (92.4 bar) with a hold period of 24 hours. During the 24-hour test time, pressure and temperatures were digitally logged every 15 minutes. The acceptance criteria of the tests were if the pressure variation was within +/- 0.2% of the test pressure. The pressure variation was measured at 0.18% and therefore the test was been approved.

Bolting

Outside of the pre-commissioning activities, Intero also performed the torque activities on the flanged connections of the pipeline. The 20" 600# flanges were tightened during the several phases of the project.



Dewatering

After the hydrostatic test was accepted, the pipeline was dewatered. The pig train consisting of four high sealing bi-directional pigs was sent through the pipeline using four compressors with a speed of 0.4 meters per second. Between each pig, a freshwater batch of 100 m³ was used. After the first dewatering pig train, a second pig train was sent consisting of two high sealing bi-directional pigs with a batch of 12 m³ MEG in between them.

Drying

Once the pipeline was dewatered, the next phase was drying the pipeline. This was done by sending foam pigs with dry air through the pipeline and blowing dry air. The drying setup consisted of four 30 m³ compressors and two adsorption dryers. The acceptance criteria of the drying was set at -20 °C. Intero achieved a dewpoint of -31.5 °C in 3 days. After approval from the client representative, the pre-commissioning was completed and executed two days ahead of the initial projected planning.

Advantages

- Multiple services executed.
- Project management and dedicated project team, to ensure a safe and efficient execution of the project.
- Experienced personnel with multiple qualifications to avoid additional costs.
- Flexible approach to solve any unforeseen problems.
- High quality in project procedures to ensure good communication and smooth progress of activities.