

Job Report



Renovation of a high pressure gas pipe for GasNet

Client:

GasNet, member of Innogy

Year of Construction:

2018

Type of Construction Measure:

Rehabilitation of a DN 250 PN 25 natural gas pipeline with the Primus Line® system DN 150 PN 35

Our Services:

- Delivery of the flexible Primus Liner DN 150 for gas applications
- Delivery of 6 customized connectors DN 150
- Calibration of the renovated section using a rubber pig
- Installation of the Primus Line® system DN 150 by the Primus Line installation crew

Situation:

In 2017, GasNet in the Czech Republic started investigations on a trenchless rehabilitation technology for high-pressure natural gas pipelines. A DN 250 PN 25 steel pipe with a length of 1,581 m in Adamov near Brno in the Czech Republic is located in a forestry area with difficult access. Large parts of the pipeline were laid between a narrow forestry path and a river. Furthermore, a section of about 400 m in length was built into an inaccessible steep, wooded area. The technical department of GasNet was informed about the self-supporting Primus Line® system certified by the DVGW (German Association for Gas and Water) for the rehabilitation of high-pressure gas pipelines. Three different Primus Line® options were reviewed and GasNet decided to continue with the Primus Line® system DN 150 PN 35. At Primus Line, a qualified quotation was created based on a detailed construction schedule. In cooperation with GasNet, Primus Line instructed a local Czech construction company for camera inspection, pipe cleaning and pipeline construction. Employees of the construction company as well as from GasNet were trained and certified for the installation of the Primus Line® system at the Primus Line headquarters in Germany.



Technical Details:

Material of Host Pipe:	Carbon steel
Transported Fluid:	Natural gas
Diameter of Host Pipe:	DN 250
Operating Pressure:	25 bar; test pressure: 33 bar
Primus Line® System:	DN 150 PN 35
Total Length:	1,581 m
Number of Sections:	3 sections with 602 m, 608 m and 371 m
Installation Time:	3 weeks

Rehabilitation System:

The Primus Line® system is referenced in EN ISO 11295:2018-06 – classification and information on design and applications of plastics piping systems used for renovation and replacement. The Primus Line® system also complies with the technical standard DVGW VP 643 – flexible textile-reinforced plastic inliner for pipe-relining of gas high-pressure pipes. The system consists of a Kevlar®-reinforced liner and specifically developed end fittings. The liner accommodates the operating pressure of the pipe due to the reinforcement layer and because it does not bond to the host pipe. The liner is seamlessly manufactured at an ISO 9001 certified production plant in Germany and transported on reels to the site. Due to the flexibility of the material, the liner can traverse angles of up to 45 degrees, can be installed in lengths of more than 1,000 m in one pull, and has an installation speed of up to 600 m per hour.

Project Description:

On preparing the installation of the Primus Line® system, the Czech construction company created access points to the forest and the pipeline, laid a bypass, cleaned the pipeline and removed wrongly made welding seams protruding into the inner diameter of the host pipe by using a cutter. Before the installation, a calibration pig was pulled through the host pipe. The installation of the Primus Line® system (consisting of three sections of Primus Line® DN 150 PN 35 including six connectors Primus Line® DN 150 PN 25) was accomplished in three weeks. After the successful pressure test with 33 bar and the acceptance by the Czech Technical Inspection Authority, the renovated pipeline was handed over to GasNet and integrated into the network.