

ADDITIONAL REINFORCEMENT WITH COMPOSITE MATERIALS TO INCREASE THE SAFETY CLASS

An operator of a high pressure crude oil pipeline in Eastern Europe was looking for a solution to further strengthen the pipeline with composite materials to increase the safety class. The pipeline is over 20 years old and recently the construction of a new motorway started above it. Due to the additional loads and vibrations that could arise in connection with road traffic, the pipeline required additional protection. Usually composite materials are used to repair damaged or deformed transmission pipelines, so this was an unusual inquiry. CTE BV engineers made the calculation package and offered a practical, long-lasting and durable reinforcing solution.

CHALLENGE

Normally, a renovation is done by constructing an outer casing pipe or the installation of costly concrete structures between the pipeline and the ground surface. Both of these solutions are expensive and it would take weeks to install them. The operator was looking for a faster, cheaper solution.

The pipeline operator maintenance team discussed the possible solutions with the CTE BV specialists. The technical dialog lasted over a month and the engineering calculations package was changed several times due to the unusual and rather specific situation.

REASONS TO CHOOSE CTE BV:

- Extensive experience
- Valued relationship
- Fast calculations
- Suitable solution

SOLUTIONS USED

- RevoWrap110
Composite system

REPAIR

After connecting with the CTE BV engineers, everything was put to work to get the reinforcement done within the shortest amount of time possible. The carbon steel pipeline transporting crude oil has a diameter of 530 mm and is located 2 meters underground. The first step was checking for any damage, but no issues were identified on the pipeline. Then the reinforcement process could start, which began with the preparation of the surface by sandblasting the pipeline. The reinforcement itself consisted of four layers of the carbon fiber epoxy based composite material. This is a repair solution 100 percent compliant with the international technical standard **ISO 24817**. The layers were wound and wrapped over a length of more than 40 meters. The local company put together a group of 12 trained technicians who worked on saturating the material and applying the material to the pipeline.

Including the time necessary to prepare the surface, the reinforcement was completed within four working days. After the composite repair materials were installed a set of quality control documents was filled in and signed by both parties: contractor and pipeline operator.

Thanks to all of this, the solution resulted in a lasting repair and a high return on investment.

WANT TO KNOW MORE ABOUT OUR SOLUTIONS? PLEASE FEEL FREE TO CONTACT US.

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