

R6.3m project almost complete

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South Africa-based pipeline solutions provider Rare is working on a R6.3-million infrastructure contract for steel piping, which conveys abrasive and corrosive mining slurry from the plant to the tailings dam, for Zambian copper mine Kansanshi.

Through the company's subsidiary, Rare Construction Zambia, it was awarded a contract to refurbish 10.2 km of high-density polyethylene- (HDPE-) lined steel pipe in 12 m spool sections that comprise four different pipelines on site.

The contract involves stripping the steel pipe off the existing lines, transporting the pipe to the refurbishment yard and stripping out the old worn-out HDPE liner. "Inspecting the spool for damage and repair, if needed, lining the old pipe with a new liner and installing concrete plinths and the refurbished spool back into the line are included in the contract," says Rare South Africa pipeline services manager Carl Von Graszouw.

Rare began the construction of the pipeline in February and completed three lines on site, all of which have been commissioned successfully, without any delays. The project is 90% complete.

Further, the company employs 24 local Zambian workers on site for this project and four South African expats to ensure that the project is completed in the expected timeframe.

Meanwhile, Rare points out that there are other similar pipeline infrastructure projects that also need refurbishment and the company believes that it is ideally suited to deliver this service.

Von Graszouw points out that Rare has the proven ability to mobilise and complete projects on time. The company also has a locally registered business in Zambia, providing it with key personnel and giving the company a larger footprint in the country.

One of the most successful projects carried out by Rare was the supply of a complete fluid conveyance solution to the Chambishi copper solvent extraction plant (CuSEP) project at Chambishi Metals' copper mine, in Zambia, in 2012. The project took 105 days to complete.

Von Graszouw mentions that the nature of this project required precise planning for equipment, materials and personnel. Rare had to ensure that the required materials were checked at source before deliveries could take place and it had to coordinate the shipping of materials to ensure efficient use of space.

Chambishi Project

Chambishi Metals produces cobalt and copper and operates a mineral processing facility for the production and smelting of cobalt and cathode copper near Kitwe, in Zambia.

The Chambishi CuSEP project involved upgrading the plant to produce 50 000 t/y of London Metal Exchange grade-A copper by installing copper solvent extraction circuits to treat the solution arising from various sources within the complex.

“The existing copper electro-winning circuit was modified to accommodate the solvent extraction strip-circuit solution. A solvent-extraction step was installed to remove as much copper as possible from the solution that is fed to the cobalt refining plant,” says Von Graszouw.

The new facilities in operation are a combination of brownfield installation integrated into the existing facilities and greenfield project adjacent to the roast/leach circuit. Rare’s scope of work – which had a value of R16.5-million – entailed the supply, fabrication and erection of HDPE piping, including steel supports. Although no new technology was used for the project, fabrication of the HDPE piping was done using heated tool butt fusion and socket fusion.

While polyethylene pipe has a firm footing in the water, oil and gas industries worldwide, its use in the mining industry is fast gaining ground, as it is often the best choice when conveying minerals and waste.

“The abrasion-resistant, smooth inner surface exhibits a strong resistance to most chemicals and the ever-present threat of corrosion, while demonstrating high-impact strength. “It also costs less comparatively and is more easily installed – as exhibited by Rare in this installation. The company’s suppliers for this project included pipe manufacturer Marley Pipe Systems, polyvinyl chloride pipes and HDPE pipe manufacturer Flotek, flange manufacturer SPF Trading and Ebenheiser,” he concludes.