



## COOKE OPTIMIZATION PIPELINE PROJECT

The scope of work for this project was :-

9km 400NB Steel HDPE lined Tailings supply pipeline;  
9km 450NB Steel HDPE lined Tailing discharge pipeline;  
9km 400NB Steel Victaulic coupling Water tailings return pipeline;  
8km 400NB HDPE Water/Slurry Supply pipeline

The pipeline stretches from Cooke Process Plant to the Booster pump station at the R28 Highway. The pipeline crosses 3 national roads, 3 railway lines and passes thru 3 wetland areas. The pipeline was designed by Paterson & Cooke and the civil engineering for the anchor blocks, expansion loops, and all cross overs was designed by Sentinel WS.

Mocke Construction was appointed as EPCM and handled all supply, install and commissioning. This included all engineering fundamentals of earthworks, civils, mechanical, instrumentation and environmental rehabilitation.

The project was designed to reclaim dumps along the pipeline route and to transfer tailing return water to the process plant.

The technology used to line the steel pipeline in sections of 500mtrs with a 12-14mm HDPE liner was SURELINE.

This technology cold folds HDPE PE 100 material into a C shape and then when pulled through the steel pipe expands the HDPE back to its original diameter size with normal air.

Mocke Construction used high interfacial pressure butt fusion welding for the HDPE pipe joining allowing Mocke to weld twice as fast as conventional welding, reducing the project time significantly. Mocke also used a new steel welding technique combined with Ultrasonic TOFD testing to complete 40 welds per day.

Project was completed ahead of time and start-up commissioning was done without complications.

### Facts & Statistics

Client: Gold One  
Area: Randfontein  
Country: South Africa  
Application: 19km Slurry  
Tailings Pipeline & 9km Water  
pipeline  
Medium: Gold Tailings & Water  
Tails Return  
Length: 27 km  
Size: 400 & 450DN  
Steel Welding: Innershield  
FCAW  
Plastic Welding: High Interfacial  
Fusion Welding  
Steel Matl: SABS 719 ERW  
Plastic Matl: HDPE PE100, 12  
& 14mm wall  
Fittings: Rubber lined fittings  
Pressure Rating: 16 – 40 Bar  
Flange Drilling: SABS  
1123:1600 - 4000/3  
Flange Connections: Machined  
Stub flange assembly  
Design: 500mtr continuous lined  
sections flanged both ends  
Duration: 10 months  
Commencement: 15/01/2013  
Completion: 30/10/2013