

# AngloGold Ashanti Increases Mine Dewatering Performance While Cutting Costs and Energy Consumption

Grid-powered Sensia variable frequency drive and encased REDA pump improve efficiency vs. diesel-driven, vacuum-primed heavy-duty mine dewatering pumps

**To improve mine dewatering performance and sustain operations, a gold-mining company augmented diesel-powered pumps with a robust, encased electrical submersible pump system running continuously on sustainable grid power.**

## Sustain access to low-lying areas of a gold mine

AngloGold Ashanti (Iduapriem) Limited (AAIL) operate the Iduapriem Mine in the western region of Ghana, about 17 km southwest of Tarkwa. Low-lying sections of the mine's pits accumulate water, especially during the rainy seasons, preventing access to resource-bearing areas. To sustain mining operations, AAIL must lift the water out of the flooded pits at a high flow rate.

## Eliminate downtime from diesel-powered mine dewatering pumps

AAIL initially installed two heavy-duty diesel-powered mine dewatering pumps near the pits in a staged pumping arrangement. To avoid damaging the pumps during drill-and-blast operations about 30 days a year, mobile cranes were brought in to move the pumps. Additional shutdowns for routine maintenance (156 hours per year) and periodic human interventions limited the availability of the pumps, reducing their dewatering efficiency and hindering mine's productivity. On average, including downtime for moving and maintenance activities, the pumps removed up to 4,500 m<sup>3</sup>/d [28,000 bbl/d] of water.

## Deploy a robust, encased electrical submersible pump (ESP) system

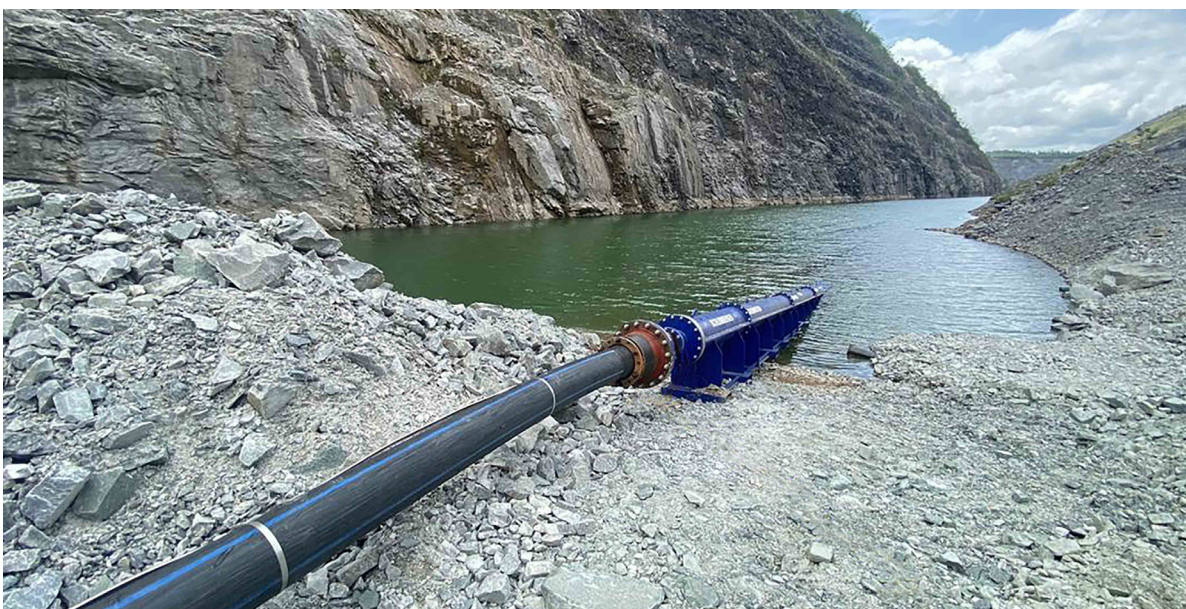
Schlumberger developed a protective skid for a Sensia variable frequency drive and a second skid for an encased REDA ESP\* pump with high-flow-rate N-series and P-series ESP pumps and a reliable ESP motor.

## Remove more water, at lower cost and power consumption

AAIL has used the robust ESP solution for 2 years. The dual-skid system has eliminated mining interruptions for pump maintenance and movement, enabling continuous pumping operations and improving system availability by 10%.

The ESP solution removes up to 6,800 m<sup>3</sup>/d [43,000 bbl/d] of water, 51% more than the diesel pumps. AAIL has also cut its maintenance costs by 71% while eliminating maintenance downtime, cut operating costs per volume of water by 77%, and cut power consumption per volume of water by 59%.

Also, by powering the pumps with electric grid power—approximately 41% hydroelectric and 59% thermal in Ghana†—AAIL has reduced the carbon intensity of operations.



*AngloGold Ashanti (Iduapriem) Limited cut operating costs, maintenance costs, mine downtime, and power consumption by augmenting conventional diesel-driven dewatering pumps with an encased REDA ESP pump solution.*

†Source: 2020 Electricity Supply Plan for the Ghana Power System.

\*Mark of Schlumberger

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