



■ Tunnelling



Reference Details:

Owner Rock Well Petroleum Inc., Greybull, WY, USA

DSI Unit American Commercial Inc. (ACI), Bristol, VA, USA
DSI Scope Development, manufacture and supply of 46 four-piece steel ribs grade St 50 and supply of steel planking



Mining for oil

Greybull Petroleum, Greybull, WY, USA

The method of collecting oil with the help of gravity is not new. It involves driving a long sloping tunnel or "slope" into the ground on a grade of approx. 12% underneath an oil field which is relatively close to the surface. From that slope, numerous holes are drilled upward into the oil field and fitted with proper piping. Gravity then "draws" the oil through these boreholes down into the slope where it is collected and subsequently pumped to the surface.

Rock Well Petroleum, Inc. is one of the pioneers in the use of this efficient, environment-friendly and cost effective oil production method. The first oil field to be mined with this technique is an old, abandoned oil deposit near Greybull in Wyoming. Conventional oil production using pumps was discontinued years ago because it was inefficient and too expensive. Rock Well Petroleum, Inc. now expects oil production (several hundred barrels of oil per day) via the gravity method to continue for 15 years or more needing only weekly surveillance and adjustments.

In addition, the gravity method is very environmentally friendly, since production has little negative impact on the surface. When the Greybull oil field is completely worked out, the slope will have a length of approximately 1.2 km and a max. depth of about 120 m.

American Commercial Inc. (ACI) developed a solution for the portal of the oil "mine" in Greybull in compliance with Rock Well Petroleum's requirements. This solution consists of 4-piece grade 50 steel horseshoe ribs with an outside radius of about 5 m. The steel ribs were manufactured and cold-formed at ACI's Louisville, Kentucky plant. The rib design allows sufficient width for all wheeled equipment and provides ample clearance in the crown or upper section for permanent ventilation tubing. Subsequently, the steel ribs were covered with a heavy (10 ga.) steel planking attached with a simple clip connection to the flange of the rib. The planking consists of two individual side pieces and is jointed at the ribs' crown. A 20 cm wide closure band at each butt connection of the planking renders the portal water tight. Thus completed, the portal could be covered with loose uniform material salvaged from the excavation.

ACI's comprehensive technical assistance also included engineering planning services. Investigations had shown that the depth of cover over the slope entrance varies. Therefore, ACI recommended to set a total of 46 steel ribs with spacing that varies from 0.75 to 1.2 m. In addition, ACI added value to this project with innovative ideas regarding the incorporation of materials already on site. e.g. by designing the canopy of the portal itself to set on a wall beam supported by 1.5 m posts.

Rock Well Petroleum, Inc. was highly satisfied with ACI's technical assistance and dedicated customer service in relation to this project. Therefore, ACI is very confident to assist Rock Well Petroleum, Inc. in the realization of their plans to mine further onshore oil fields on US territory.