

Exploration drilling in Otavi Mountain Land, Namibia

by **Johan Coetzee**, Managing Director at Adamas Drilling and Exploration



Diamec-262, Otavi Mountainland, Northern Namibia

Adamas Drilling and Exploration ('Adamas') started its first drilling project in 2013. At that time, the company had only one core drill rig, an Atlas Copco Diamec-262, and an old Toyota Land Cruiser pick-up, a drilling team consisting of an operator, a core writer, two assistants, and a lot of aspiration. The project was scheduled for one year and took place in Otavi Mountain Land, in Otjozondjupa region, northern Namibia.

Background

Otavi Mountain Land lies within the warm temperate or sub-tropical part of Africa. The area has a semi-arid climate with summer rainfall of about 500 mm (19.69 in) per annum, and its growing season is between three and six months per year. Otavi Mountain Land is known for its Namibian karst systems that hold great paleontological interest.

A mineral province for copper, lead, zinc and vanadium, of some 10 000 km², located at the eastern extremity of the exposed Northern Platform of the Damara Pan-African orogenic belt, Otavi Mountain Land is the most important such province on the Northern Platform. Mineral exploitation has been ongoing since the possession of the territory by the German colonial authority in 1890. Production has been mostly from four mines, which, in order of importance, are Tsumeb, Kombat, Berg Aukas, and Aboeab.

Four challenges

The exploration project was challenging. The first difficulty for the drilling team was posed by the mountains. No vehicles or truck- or track-mounted rigs could reach the sites. Access was via steep slopes of 70 – 80 degrees. The only option was to use a sling system.

The Diamec-262 rig has three separate units: power pack, rotation unit and control panel. As well as the rig there were water pumps, water and sump reservoirs, drilling fluids, more than 200 meters (656.17 ft) of drill rods with stands, and a lot of small drilling consumables and tools. All of that kit was moved hundreds of meters by hand along slopes and over ridges.

The second challenge was the weather: heavy rain and thunder storms. The third challenge was the size of the drill pads. The drill sites had limited space, as the mountains did not allow for much maneuvering. However, the Diamec-262 was the perfect rig for this exploration project due to its light weight and capability to reach the required depth using N-size bits.

The last difficulty was the karst. Every drill hole crossed a cave of one size or another that ranged from a few centimeters up to a couple of meters. But, Johan Coetzee, with his years of experience and deep knowledge, and the well-organized, hard-working team were well up to the task. The correct combination of drilling technique and use of fluids kept the deflection of the holes to an insignificant level. The core was oriented to provide comprehensive geological information. Only one cavity caused some trouble: the 9-meter cavity. After battling with this complicated geology, we had to leave a core barrel in the karst. No other downhole equipment was lost in the holes.

After Otavi


The successful performance of Adamas on the Otavi Mountain Land project gave the company the opportunity to buy a second rig. So, a bigger diamond drill rig, the CS-14, joined the team at the beginning of 2014 and Adamas commenced drilling near Brandberg Mountain. For five years the CS-14 was travelling with our drill crew across Namibia and to date it has successfully completed a number of projects. Meanwhile, the Diamec-262 continued to serve the company well in a number of logistically difficult projects, including a historic mine and up a mountain near the Orange River, which required the team to use a helicopter to transport the rig. Most recently, the Diamec-262 was taken underground at the Rosh Pinah Zinc mine where it has been supported by a second underground core-drilling rig, a Diamec Smart 4, which is the latest and most modern rig from the Diamec series, and it is fully automatic.

Adamas operates not only in exploration but also in geotechnical. For this purpose, in 2015 we obtained and modified a diamond core drill rig, the XY-2T.

Expertise, quality and standards

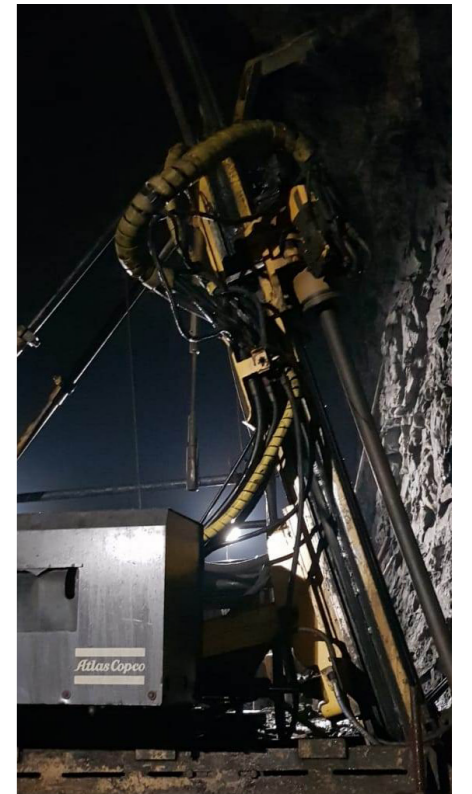
In the course of over seven years of operations, Adamas has gained substantial experience, always complying with the rigorous criteria required by our clients. The company recognizes the need and value of planning ahead. By reviewing and evaluating its clients' suggestions, reported issues, and recommendations, Adamas ensures its operations are completed to the highest standards, according to best practices for safety, quality and performance.

For more info, visit:

www.adamas-drilling.com. 

About the author

Johan Coetzee, Managing Director of Adamas Drilling and Exploration, has more than 25 years of experience in the drilling industry, not only in Namibia but also in the Republic of South Africa and Mozambique.



Diamec Smart 4, Rosh Pinah Zinc mine, Namibia



CS-14 near Swakopmund, Namibia