Best Practices: Water-Based Drilling Fluid Systems

Our 100% Organic and Biodegradable Drilling Fluid System

ReconAfrica brings the latest, most effective technologies to its projects, including an engineered organic and biodegradable water-based drilling fluid systems that minimize environmental impacts.

We have intentionally avoided less technically advanced drilling fluids systems that present environmental challenges during the reclamation phase. The water-based system we opted to use is tested, proven safe, and environmentally sound. The system is approved for use by the most stringent regulatory regimes for projects around the world, from national oil companies to private operators. It is also the most expensive system to implement.

System Design

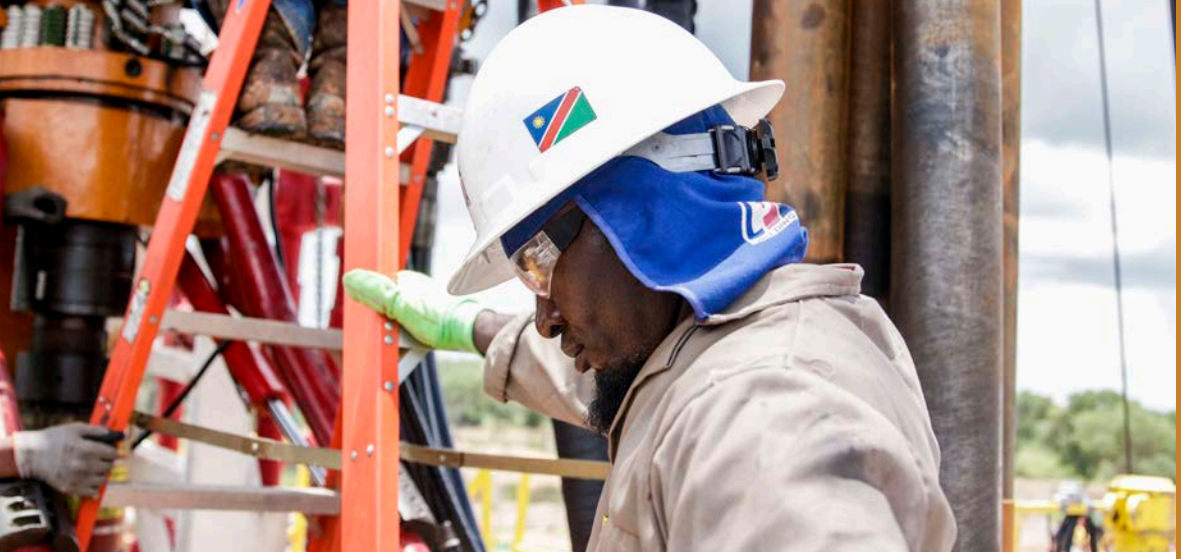
For any drilling operation, the drilling fluid system includes three main components: the drilling fluid system, the circulating/cleaning system, and the reserve pits.

Fluid system: Drilling fluid systems generally fall into two categories: oil based and water based. ReconAfrica is using the best and most expensive approach available to protect the environment – a water-based system. This Polyamine/ Polymer/PHPA system uses freshwater as the base fluid. The plant-based products added to the base fluid are created through organic processes and are biodegradable.

Circulating system: The circulating system is part of the Crown 750 conventional drilling rig that is being used by ReconAfrica in exploratory drilling operations. The system includes the drilling fluid pumps, distribution lines, separators and solids control. To further enhance safety, ReconAfrica augmented the original two mud pumps on the rig with a third, more powerful pump.

Reserve Pit: The reserve pit is adjacent to the drilling rig and, along with storage tanks, is where the excess fluids and cuttings are managed. Like most oil and gas wells, the rocks being drilled through for the three exploratory wells are environmentally benign (unlike mining operations) and any fluids encountered while drilling stay in the formation due to the equivalent circulating density of the drilling fluid system. The cuttings from the well are also being captured and bagged, with half of the cuttings set aside for the Namibian government for future study. ReconAfrica is having the cuttings analyzed by international and nationally-based environmentally focused laboratories. An organic gel/clay barrier at the pit base prevents seepage into groundwater and soils. This approach is better than polyurethane pit linings, which are easy to install but challenging to remove during reclamation, which can lead to shredding and leaks.

ReconAFRICA



Frequently Asked Questions

Why can't I see a black liner on the pond (reserve pit)?

ReconAfrica's reserve pit uses a bentonite clay/gel layer as a safer (and more expensive) alternative to polyurethane pit liners. We are using the same product used widely by farmers and others when their ponds start losing water. What makes bentonite clay/gel such an effective additive for this operation is that once the platelets become saturated with rain or sprayed on water, they swell to 10 to 13 times their dry size, find their way to any cracks or fractures in the pit/ponds, stick together and seal them off to form an impenetrable barrier.

While polyurethane pit linings are generally safe and still used in the industry, they are older technology, can rip during installation and overlaps can leak if not installed correctly.

How do you know the reserve pit system is working?

ReconAfrica always has a full-time expert on-site, testing the reserve pit fluid properties on a regular basis. There are also experienced geologists on-site examining the cuttings every 3 metres to understand the formations that are being penetrated, to measure and monitor their properties. As expected, we have not seen any flow or loss of fluid into the ground from the pit.

What will you do with the used drilling fluids once the well is complete?

ReconAfrica will recycle 100% of the drilling fluids and re-use the fluids during drilling operations for the remaining two conventional exploratory wells. Our focus is on sustainable development. ReconAfrica will adhere to the most stringent standards and practices to protect the land, the water, the wildlife and Namibia's social well-being. That's our commitment and responsibility.

Any remaining drilling fluid and cuttings will initially be used to fertilize soils around our own site with the intention of then supplying this topsoil enhancement for nearby farmers. We are currently working with local agricultural authorities to test this process. All our drilling fluid products are organic and biodegradable, promoting nitrogen levels which are an essential nutrient for plant, crop and grass growth.

About ReconAfrica

ReconAfrica is a Canadian-based oil and gas company working collaboratively with national governments to explore oil and gas potential in Northeast Namibia and Northwest Botswana – the Kavango Basin.

To date, ReconAfrica has been granted licences by Namibia and Botswana to explore and confirm the presence of their resources; we have no licence to produce oil or to engage in hydraulic fracturing ('fracing').

This project aims to prove a potential reserve that could lead to economic stimulus, funding local and regional jobs and other socio-economic benefits such as increased infrastructure, potable water access and investments in environmental and wildlife conservation.

Should oil and gas be discovered, the traditional authorities and elected governments of Namibia and Botswana will determine how they will manage those resources.

Contact Us:

For general inquiries about ReconAfrica's work in Namibia, please email: admin@reconafrica.com
For media inquiries or requests for information, please email: media@reconafrica.com

For more information visit : www.reconafrica.com