

# ENVIRO-FLOC® Drilling Fluid Dewatering System

## SOLIDS CONTROL EQUIPMENT AND SERVICES

### DRILLING WASTE MANAGEMENT

#### CHALLENGE

- » With growing global environmental concerns, many industries are under increasing pressure to clean up or reduce the pollutants discharged to the environment and operate in a more environmentally sound manner. Water clarification not only allows recycling, but also reduces the volume of potentially harmful waste to be disposed. Water clarification has been used to reclaim water from drilling fluids, general rig waste and other down-hole fluids.

#### BENEFITS AND FEATURES

- » Baroid's Enviro-Floc Drilling Fluid Dewatering System offers an efficient solution to customer challenges and bring added value to drilling operations:

#### BENEFITS

- » Each system can be sized to meet operational requirements and fitted onto skids or even trailers to help ensure maximum versatility and can be applied to practically all water-based drilling fluids. ENVIRO-FLOC systems allow the operator to re-use the water, often to rebuild drilling fluids, as well as significantly reduce the amount of material that eventually has to be disposed of. In Brunei, Baroid was even able to recycle the solids as landfill cap material, eliminating all costs associated with waste disposal. The process is cost-effective and provides onsite separation and water recovery

#### FEATURES

- » Coagulation and Flocculation techniques utilized to chemically remove ultra fine particles
- » Provides onsite separation and water recovery
- » Customizable for various types of working environments
- » Designed to withstand extreme weather conditions
- » Provides efficient recovery of valuable base fluids such as brines
- » Enhance solids control beyond mechanical equipment capabilities
- » Dewater waste drilling fluids
- » Produces clear water for safe reuse or discharge options
- » Reduces liquid transport requirements
- » Can handle all water-based fluid systems

#### OVERVIEW

Water clarification or dewatering is the chemical process by which water-based fluids and slurries are treated to separate water from the suspended solids.

The ENVIRO-FLOC Drilling Fluid Dewatering System uses flocculation and coagulation to remove suspended solids and fluid additives from water-based fluids, allowing the treated water to be recycled at the rig site as drill water or wash water. Recycling can reduce the volume of waste to be disposed of and helps minimize the total environmental impact of a drilling operation. Depending on local regulations and the drilling additives used, fluids treated with the ENVIRO-FLOC system may produce water that can be safely discharged to the environment.

It is important to note that the ENVIRO-FLOC system will not remove salts or other additives in solution, such as potassium chloride (KCl) or sodium chloride (NaCl). The treated water will have similar chloride concentrations as the drilling fluids being treated.

All recovered fluids are thoroughly tested both in terms of drilling fluid compatibility and environmental compliance to help ensure the integrity of newly-mixed fluids and full adherence to applicable regulations for discharge. The ENVIRO-FLOC system consists of a product mixing and dosing system, a high-speed / high-volume centrifuge, and all necessary instrumentation to monitor the dewatering operation. The first stage of the process is the destabilization of the suspension (coagulation), followed by flocculation. Both of these processes take place in the static mixer. The flocculated fluid exits the mixer in a flocculated state and enters the centrifuge where the solids are separated from the liquid portion. The liquid is then assessed according



## CONCLUSION

The ENVIRO-FLOC system has been successfully implemented in the United States, Russia, Venezuela, Bolivia, Argentina and Brunei and has established a high standard for drilling fluid and waste liquid treatment. Baroid's personnel are trained to oversee every aspect of the process including:

- » Physical and chemical stabilization of the waste material
- » Logistics
- » Testing
- » Reporting

The Baroid team tracks all regulatory developments that may impact waste treatment methods and help ensure that the equipment and instrumentation comprising the ENVIRO-FLOC system are efficient and accurately calibrated. Baroid Surface Solutions™ specialists are dedicated to the safe and cost-effective resolution of all drilling waste disposal needs.

## APPLICATIONS

Baroid's ENVIRO-FLOC system can serve the following uses:

- » Can dewater waste drilling fluids
- » Can provide efficient recovery of valuable base fluids such as brines
- » Can enhance solids control beyond mechanical equipment capabilities
- » Can produce clear water for safe reuse or discharge options
- » Can reduce liquid transport requirements
- » Can handle all water-based fluid systems



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