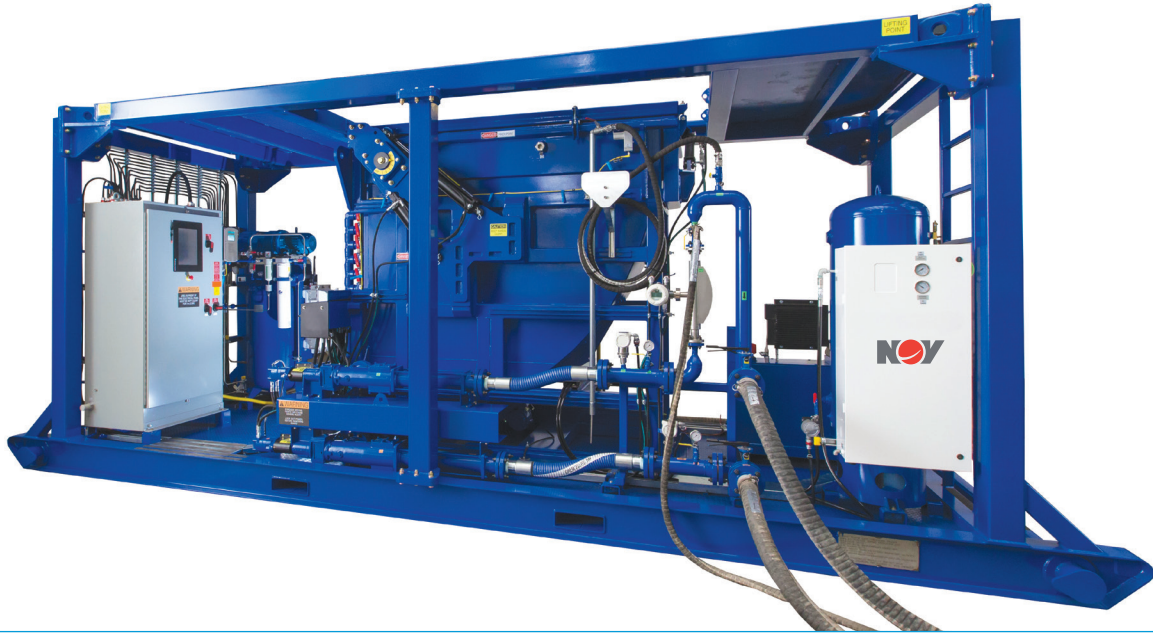


PETRO-CLAIM™ Base Oil Recovery System



EFFECTIVELY RECOVERING BASE OIL FROM SPENT OIL-BASED MUD

As oil-based muds are re-used from well to well, a buildup of Ultrafine Low Gravity Solids (LGS) occurs in drilling fluid systems. This buildup causes an increase in mud viscosity which can lead to reduced Rate of Penetration (ROP) and solids removal efficiency. In many cases, the only option is the additional cost to dilute or dispose of this spent fluid. The NOV PETRO-CLAIM base oil recovery system recovers base oil from spent oil-based mud onsite for reuse in the mud system, without the use of expensive chemicals.

This system uses electrokinetics to effectively separate the ultrafine drilled solids out of oil-based mud (OBM) and recover valuable base oil. Using proprietary coated electrodes, the unit applies a low power electrical field to the OBM, destabilizing the molecular bonds between the solids and the oil. Through the destabilization process, the solids and water settle out as a result of gravity, and the PETRO-CLAIM base oil recovery system automatically recovers the oil. The result is a clear and clean base oil – free of solids and water – resulting in significant savings in mud dilution and waste disposal costs.

The PETRO-CLAIM base oil recovery system is a proven, cost effective on-site approach to removing colloidal and ultrafine LGS of less than 6 microns (too fine for removal by traditional solids control equipment). No other treatment works as efficiently or as effectively, and unlike competitors' systems that use heat or chemical approaches, the system doesn't dilute the fluid or alter the original properties of the base oil, which means once it leaves the unit, it's ready for reuse.

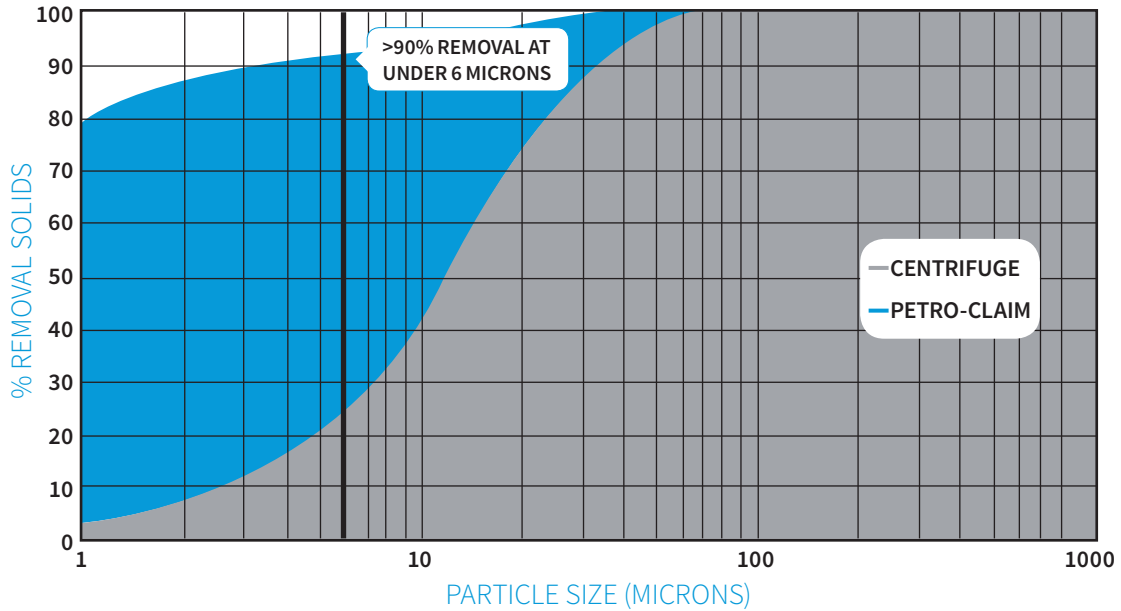
The PETRO-CLAIM base oil recovery system is installed on a compact, rugged portable DNV 2.71 designed skid for easy set up. The Class I Div 1 unit is suitable for use on land and offshore. It uses no consumables and requires less than 100 kW of electricity to operate.

Uses:

- As a piece of solids control equipment downstream of a centrifuge to further remove ultrafine low gravity solids smaller than 6 microns.
- Process solids laden cuttings dryer effluent rather than sending to a centrifuge or directly to the mud system.
- Process waste oil-based mud, recovering expensive base oil for reuse rather than disposal.
- Reduce excess fluid volume at the rig site or central mud plant.
- Inventory management and recycling at mud plant.
- Recover oil at the waste disposal facility.



PETRO-CLAIM™ Base Oil Recovery System



FEATURES	BENEFITS
Integrated pumps built into skid	Easy to use
Easy installation with winch truck, forklift or crane	Rapid mobilization and installation
Remote telemetry (optional)	Allows the unit to be operated from anywhere
High Torque Electrode Wiper Assembly	Keeps the unit clean
Low energy use (1-2 kW/m ³ of fluid processed)	Economical energy cost of operation
No consumables	No associated consumable parts costs
No chemicals required	Ensures safety and oil suitable for reuse
Multidirectional screw auger and progressive cavity pump	Non-plugging unloading
Non-sacrificial electrodes with proprietary coating	Low operating costs
Electro-separation	Removes colloids and ultrafine solids smaller than 6 microns. No chemicals required
Nitrogen Purge System	Prevents oxidation and scale formation
Low level/high temperature oil shut down switch. Low cell pressure and high pump pressure automatic shutdowns.	Ensure safety
Easy, one-man operation	No additional manpower required
Works on all oil-based mud types	Increased flexibility
Integrated spill containment	Environmental compliance
Wireless performance monitoring	Ease of monitoring

Specifications and Dimensions

MODEL	3 m ³	6 m ³	10 m ³
Dimensions (L x W x H)*	22 ft x 7.5 ft x 9.5 ft (6.7 m x 2.3 m x 2.9 m)	30 ft x 7.5 ft x 9.5 ft (9.1 m x 2.3 m x 2.9 m)	40 ft x 7.5 ft x 9.5 ft (12.2 m x 2.3 m x 2.9 m)
Weight*	25,000 lbs (11,300 kg)	45,000 lbs (20,400 kg)	60,000 lbs (27,200 kg)
Processing Capacity*	95 bbl/day (15 m ³)	190 bbl/day (30 m ³)	315 bbl/day (50 m ³)
Power Requirement	480 V, 100 A, 3 Ph	480 V, 100 A, 3 Ph	480 V, 200 A, 3 Ph

*Approximate specifications. For more information please contact your local NOV WellSite Services representative.