Waste Treatment and Disposal

Challenge
Fluid consumption and environmental regulations continue to drive increased cost structures for modern wells. Maintaining fluid consistency for optimum drilling performance often requires continuous treatment with fluid additives to combat dilution. This can increase overall waste volumes that must be treated and transported to final landfill destinations. Zero discharge, limited discharge, and environmentally-sensitive geographies or remote locations with limited waste management infrastructure bring additional complications. Minimizing waste disposal volumes requires multiple innovative solutions that recover fluids and waste water for re-use, or treat cuttings and waste water for onsite disposal.

Overview
Reducing overall waste volumes can help minimize or eliminate waste transportation costs and liability, while also reducing reliance on landfill options for final waste disposal. At Halliburton Baroid, we follow industry-leading processes to address safety, environmental, and economic impacts to design and deploy the best waste treatment and disposal solution for every well. Our goals are to consistently maximize fluid recovery and minimize environmental impact. Our waste treatment and disposal portfolio incorporates the latest technologies to help you meet or exceed environmental regulations, reduce, re-use, and recycle fluids, and reduce overall operating costs.

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**Cuttings Dryers**

Cuttings dryers play an important role in waste treatment and disposal. We have established three vertical cuttings dryer (VCD) designs to help reclaim valuable base fluids and reduce retained oil-on-cuttings (ROC) levels to below 6.9%. This helps reduce dilution rates and additive use for improved fluid consistency, and the lower ROC allows overboard discharge in approved areas. Our VCD lineup can help you reduce or eliminate cuttings treatment volumes while meeting environmental regulations and reducing overall project costs.

- **BaraG-Force™ V71 Cuttings Dryer** – for small footprint installations and low power consumption with 25-45 tons/hr processing capacity
- **BaraG-Force™ V133 Cuttings Dryer** – for high capacity, high-ROP operations with 40-60 tons/hr processing capacity
- **BaraG-Force™ Mobile VCD** – Fully mobilized for remote locations and multi-rig projects with 25-45 tons/hr processing capacity

**Thermal Processing Systems**

Thermal treatment is one of the most effective ways to minimize ROC levels in environmentally-sensitive geographies. Our lineup of thermal processing systems can help reduce oil-on-cuttings to below 1% for reduced waste transportation liability and potential discharge, while also recovering up to 99% of base fluid to further balance well economics. We focus on providing a range of solutions tailored for each project, with mobile Thermal Desorption Units (TDU) for land-based applications, or cutting-edge Thermomechanical Cuttings Cleaners (TCC) suitable for installation on land or offshore rigs. Our advanced BaraPhase™ solutions can help maximize base oil recovery, minimize waste volumes, and lower the cost of operations.

- **BaraPhase™ TDU** – Fixed or mobile indirect rotary kiln units for high efficiency base-oil recovery and re-use with 5 metric tons per hour processing capacity and multi-rig support
- **BaraPhase™ TCC** – Fixed installation (land) or small footprint and modular (offshore) friction-based TCC for high-efficiency base-oil recovery and re-use with 3-6 metric tons per hour processing capacity

**Cuttings Reinjection**

Zero discharge locations bring unique waste management challenges that require innovative and integrated solutions. Our BaraCRI™ Cuttings Reinjection (CRI) service combines two stage hammermill processing with advanced slurry rheology design for safe and efficient cuttings disposal in annular injection or disposal wells. We can design and execute the proper cuttings reinjection systems, unique to every well, to help you eliminate waste transportation liability, reduce non-productive time (NPT) with real-time processing of cuttings, and meet zero discharge requirements in both land and offshore projects.

- **BaraCRI™ Service** – for feasibility analysis, planning, execution, monitoring, and verification of cuttings reinjection projects to reduce or eliminate waste treatment and transportation in environmentally-sensitive or zero discharge land and offshore projects

**Waste Water Treatment**

Water usage is an increasingly important metric in today’s drilling projects. Our BaraH₂O line of water treatment units utilize a unique combination of modular solutions to reduce waste water, with a dissolved air flotation (DAF) process to reduce offshore slop volumes sent to shore by as much as 95%, and coagulation and flocculation methods to recover up to 90% of waste water in land operations. With a focus on sustainability, we can deploy water treatment solutions to help you reduce waste transportation liability, lower waste treatment costs, reduce water usage, and increase environmental and financial benefits.

- **BaraH₂O Offshore Slop Unit** – 10 or 20ft modular DAF and chemical flocculation slop units for offshore slop treatment and potential discharge with 8-12m³ per hour processing capacity
- **BaraH₂O Dewatering Unit** – Mobile coagulation and flocculation dewatering units for land-based water recovery and re-use in water-based mud applications with 250 gal/min processing capacity

**Benefits**

Baroid has developed a full line of waste treatment and disposal options targeted at delivering best-in-class results. We work directly with you to identify the right mix of services and technologies for your project. Our unique solutions can help you maximize fluid recovery, lower operating cost, limit waste transportation liability, and extend your environmental leadership position.