



Empowering Sustainability

Drone Services

Drone Services

Drones have revolutionized environmental monitoring and conservation efforts, offering a range of applications that enhance our understanding and protection of the environment.

At Estedama, we leverage drones' multiple capabilities to provide a unique vantage point, allowing us to survey large areas quickly and efficiently.

 **Pollution Detection and Spill Inspection**

 **Wildlife Monitoring and Conservation**

 **Landfill Surveys**

 **Environmental Mapping and Planning**

 **Wetland and Coastal Monitoring**

 **Ecological Restoration**



Pollution Detection and Spill Inspection

Drones equipped with specialized sensors can detect and monitor various types of pollution, such as air pollution, water pollution, or soil contamination. They can collect data on pollutant levels, identify sources, and track the spread of contaminants over time. This information enables environmental agencies to take targeted measures to mitigate pollution and protect ecosystems and human health.

Wildlife Monitoring and Conservation

Drones can be used to monitor wildlife populations, track animal behavior, and aid in conservation efforts. Equipped with cameras and sensors, drones can gather data on animal habitats, migration patterns, and the impact of human activities on wildlife. This information helps researchers and conservationists make informed decisions for protecting and managing biodiversity.

Landfill Surveys

Able to conduct comprehensive surveys of landfills, drones can provide valuable information for waste management and environmental monitoring. They can capture aerial imagery and construct accurate 3D models of the landfill sites, allowing for volumetric calculations, estimating remaining capacity, and planning waste disposal strategies. Drones can also monitor landfill stability and identify areas prone to erosion or leakage, helping to prevent environmental hazards.

Environmental Mapping and Planning

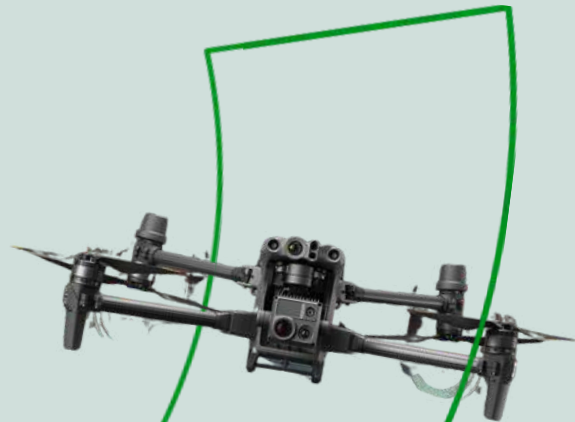
Drones can create detailed maps and models of environmental areas, providing valuable information for planning and conservation purposes. By capturing high-resolution aerial imagery and employing advanced mapping techniques, drones can assist in land-use planning, coastal zone management, or the identification of protected areas. These maps facilitate informed decision-making and sustainable environmental management.

Ecological Restoration

Drones are employed in ecological restoration projects to assess degraded ecosystems, monitor habitat recovery, and aid in reforestation efforts. They can capture high-resolution imagery, create 3D models, and help identify suitable areas for tree replanting or habitat restoration activities, facilitating effective and strategic environmental conservation initiatives.

Wetland and Coastal Monitoring

Another common use of drones is in the monitoring of wetlands, coastal areas, and marine ecosystems. They can capture aerial imagery, assess erosion patterns, monitor water quality, detect invasive species, and contribute to coastal zone management, marine conservation, and restoration efforts.



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Empowering Sustainability

Industrial Wastewater

Industrial Wastewater

Industrial Wastewater Recycling

Wastewater is generated from a range of industries and activities, including oil and gas operations, mining, manufacturing, and more. At our wastewater treatment facility, we have the expertise and technology to treat wastewater coming from various sources, including oil and gas production plants, gas and oil separation plants (GOSP), drilling sites, well construction and completion activities, manufacturing activities, and other industrial processes.

The wastewater can contain a range of pollutants, such as hydrocarbons, heavy metals, and organic compounds, that pose environmental and health risks. Our wastewater treatment services use advanced technologies and processes to effectively remove pollutants from wastewater and ensure that it meets regulatory requirements for discharge or reuse.

We offer customized treatment solutions based on the specific type and composition of the wastewater, which may include physical separation, ultra-filtration, chemical treatment, and advanced oxidation.

Our experienced team of engineers uses industry-leading equipment and smart tools to monitor the treatment process and ensure that the wastewater is treated safely and efficiently. We further design, build, and operate wastewater treatment processes that can be constructed at your location and offer mobile wastewater treatment packages to treat water at the source, as well.

Our state-of-the-art wastewater treatment and recycling plants are equipped to manage a wide range of wastewater types, including:

-  **Oily Wastewater**
-  **Chemical Wastewater**
-  **Acidic Wastewater**
-  **Flowback and Produced Wastewater**
-  **Spent Caustic**

Diversion Target



Technology Used

-  **IWTT™**
-  **Spentic™**

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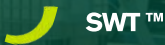
Contaminated Soil & Oily Sludge

Contaminated Soil Recycling

Contaminated soil can arise from various sources, including accidental spills, gas flaring operations, and leaks from underground or above storage tanks and pipelines. Contaminated soil can have a significant negative impact on the environment and human health if not properly managed.

Our contaminated soil recycling services use advanced technologies to effectively remove and treat contaminants from soil, through washing, physical separation, and chemical treatment processes. We follow strict international and local regulatory requirements to ensure that all contaminants are properly treated and recycled.

Technology Used



Diversion Target



2025

Oily Sludge Recycling

In the oil and gas industry, oily sludge is generated from several sources, including crude oil storage tanks, vessels, evaporation ponds, oil processing plants, and refineries. Recycling oily sludge provides several benefits, including reducing waste and minimizing the environmental impact of industrial processes, recovering valuable resources (oil, water, and clean solids), reducing the cost of waste disposal, and promoting a circular economy. We utilize a multi-stage process that includes pretreatment, chemical treatment, heating, and three-phase separation, following the latest international industry standards and best practices.

Mobile Oily Sludge Recycling

We also offer fully mobile recycling plants that can be mobilized to the client's location and recycle the oily sludge at source, eliminating transportation costs and significantly reducing the environmental impact.

Technology Used



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Empowering Sustainability

Drilling Waste

Drilling Waste

We provide effective and sustainable solutions for treating oil-based mud and drill cuttings. With our advanced technologies and expertise, we have developed innovative methods to efficiently process and mitigate the environmental impact of drilling waste.

Our capabilities include the utilization of equipment and processes to separate and recover valuable resources from the waste stream, reducing the need for disposal and promoting resource conservation. We employ a combination of physical, chemical, and biological treatment methods tailored to the specific characteristics of drilling waste while ensuring compliance with regulatory standards and minimizing environmental risks.

Drill Cuttings

We developed a patented technology for treating OBM and WBM cuttings. The Cuttings Treatment Technology (**CTT®**) is a non-thermal, mechanical technology. The CTT unit has a high treatment capacity and is introduced to the onshore market.

Skip & Ship

Our skip and ship cutting system is designed to handle large amounts of cuttings in the most efficient manner. The **ST-510** blower is a multi-purpose blower unit with gravity feed. This is a proven and versatile machine operated solely by air for transferring the drill cuttings into skips or tanks for further handling. The highly efficient unit can transfer cuttings over long distances.

Drilling Fluids

We utilize our (**STT**®) technology to treat contaminated drilling fluids. The STT is a mechanical technology that is used offshore, treating water contaminated with oil and particles. On average, 95% of the total fluid volume is treated on location at an average of 5 ppm oil in water. The treated oil and water are reused in the drilling process. The treated water may alternatively be discharged to sea or ground. The STT is also used for Brine Recovery after the displacement of reservoir drill-in fluids to reduce well cost. Other uses of the STT include Cutting Mud Weight.

Technology Used



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Empowering Sustainability

Industrial Services

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Whether it is during shutdown & turnaround or for regular facility operations and maintenance, our qualified staff is at the ready with a complete range of services.

Equipment Rental and Manpower

- **Manpower Supply**

skilled labor, including technicians, operators, engineers and consultants

- **Equipment Rental**

Vacuum Tankers, SuperSucker, Jetting Pumps, and any other supporting equipment needed

- **ISO Tank Rental and Chemicals Transfer**

Industrial Cleaning

By products and waste residue can often be problematic or risky to remove from tanks and process equipment without proper training or the right gear. Our specialized personnel are adept at carrying out complex cleaning and sanitation projects safely, quickly, and effectively during any shutdown and T&I at any oil & gas or petrochemical facility in the Kingdom.

Services include:

- **Tank Cleaning**
- **Hydro jetting**
- **Chemical Cleaning**

Industrial Repair and Maintenance

Monitoring and ensuring the efficiency and reliability of vessels, tanks, heat exchangers, and any other critical industrial equipment can get difficult. Our trained, experienced staff are a call away to assist with such routine yet convoluted tasks:

- Tank repair and painting
- Industrial mechanical maintenance
- Coating and blasting
- Catalyst handling
- Evaporation ponds maintenance
- HDPE liner installation and maintenance



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