



This equipment package includes descriptions of the process lines, the technologies used, and the overall equipment configuration. Processing parameters and conditions are presented in summary form. A process material balance and a list of consumables for a specific process line must be developed through laboratory testing based on the information provided by the customer in the technical specification.

OIL AND SOIL TREATMENT PLANT (COMPLETE CONFIGURATION)



Mobile configuration: Each plant module may be fitted with a semitrailer of suitable load capacity for transport on public roads. The plant may also be fitted with equipment for unloading some modules from their transport vehicles during operation.

Time required to prepare the equipment for transport: 2 days.

Stationary configuration: The equipment is supplied with the utility connections needed to link the modules, taking into account possible placement constraints at an industrial site. No transport vehicles are included, but all modules remain mobile.

Time required to prepare the equipment for transport: 4 days.



The plant is designed for comprehensive treatment of waste from oil production and refining.

In addition to equipment supply, we provide:

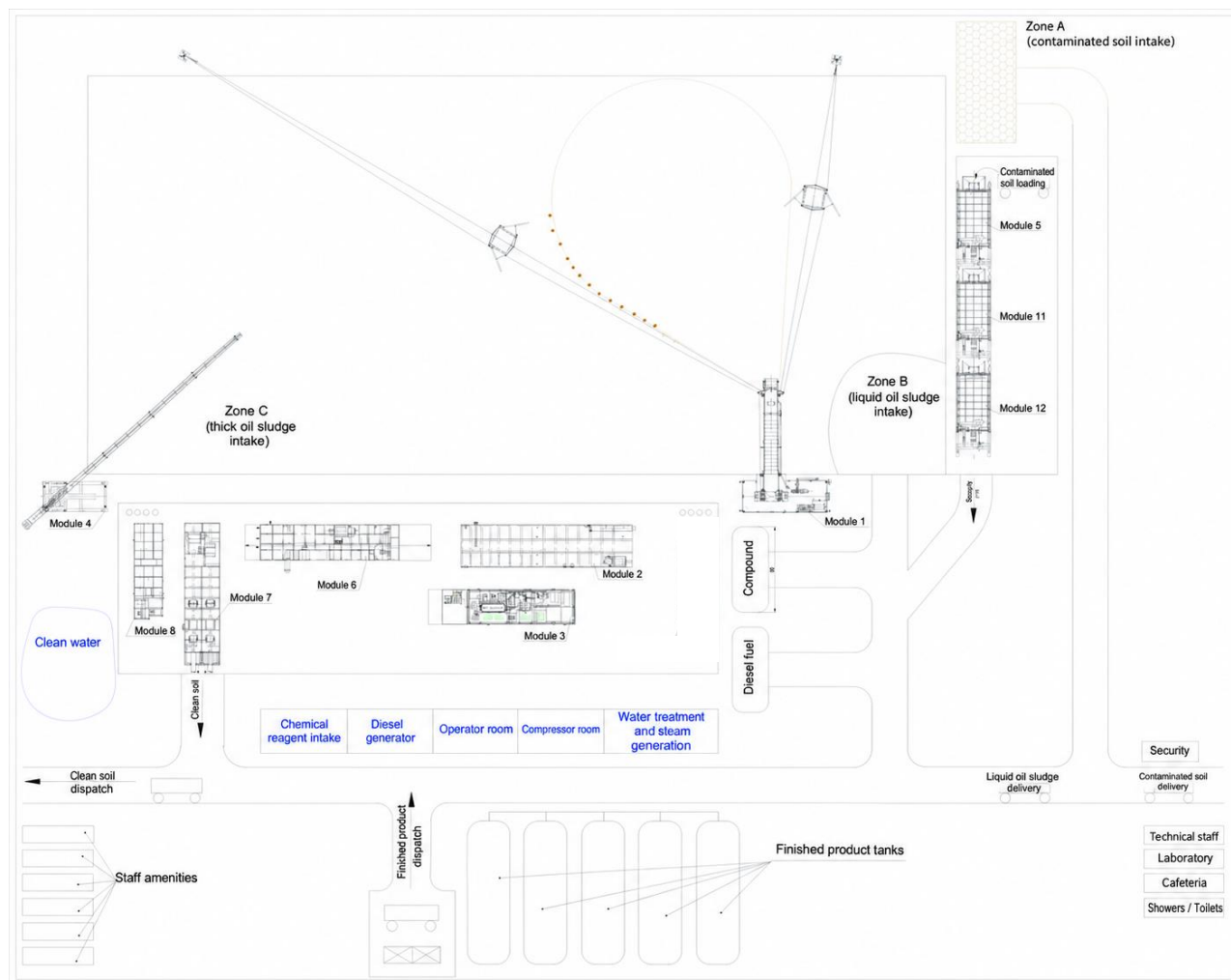
- Development of engineering diagrams;
- Design of the industrial site;
- Training of the customer's personnel to operate the facility;
- Equipment installation and commissioning;
- Assistance with the procedures required by law to accept and commission the equipment for industrial operation.

TYPES OF WASTE TREATED

Oil-contaminated water; liquid oil sludge with water–oil emulsions of any concentration, whether hydrophobic or hydrophilic; oil sludge rich in sulfur, chlorine, nitrogen, heavy metals or rare elements; asphaltene-resin-paraffin deposits (ARPD); thick or solid oil sludge stored for up to 60 years; oil-contaminated soil; drilling fluids and drilling sludge; fresh, unoxidized drill cuttings.

COMPLETE CONFIGURATION OIL AND SOIL TREATMENT PLANT		
Module		
Module 1	8.0 t — Collection and pumping of floating oil products (intake unit)	
Module 2	18.0 t — Hydrocavitation and acoustic treatment (integrated feedstock preparation)	
Module 3	14.0 t — Separation of purified oil product from the emulsion (centrifuge, separator)	
Module 4	5.5 t — Collection and pumping of sediment (intake unit)	
Module 5 (2 units)	6.5 t each — Preparation of soil for treatment (heating and blending of oil-contaminated soil)	
Module 6	12.0 t — Removal of oil products from sediment and soil (integrated sediment treatment)	
Module 7	10.5 t — Sediment settling and dewatering (water treatment and final sediment treatment)	
Module 8	6.0 t — Process water treatment (final water treatment)	
Module 9	5.5 t — Operator room	
Module 11 (2 units)	6.2 t each — First-stage soil treatment (solvent washing)	
Module 12 (2 units)	6.0 t each — Second-stage soil treatment (acoustic degradation of hydrocarbons)	
Processing capacity by feed type: <i>Design capacity</i>	<i>Liquid sludge</i>	15 t/h
	<i>Thick sludge</i>	5 t/h
	<i>Soil and drill cuttings</i>	10 t/h
Utility requirements at maximum processing load: <i>Electric power and steam</i>	<i>Electric power</i>	210 kW
	<i>Steam</i>	1,800 kg/h
Consumables (indicative values, subject to confirmation):	<i>Demulsifiers</i>	500 g/t
	<i>Flocculants</i>	1,000 g/t
	<i>Blending agents</i>	10 kg/t
	<i>Solvents</i>	10 kg/t
Achievable parameters for treated hydrocarbon concentrate:	<i>Water</i>	0.5–1%
	<i>Mechanical impurities</i>	0.05–0.1%
Achievable parameters for treated soil:	<i>Hydrocarbons</i>	0.05–0.1%
Achievable parameters for treated water:	<i>Hydrocarbons</i>	0.000005%
		0.05 mg/L

Typical equipment layout in stationary configuration



Zone A receives contaminated soil; Zone B receives liquid oil sludge; Zone C receives thick oil sludge. Numbered modules correspond to the table above; the layout shows one representative unit for each of Modules 5, 11 and 12.

Feed capacity of the dry oil-contaminated soil treatment line (Modules 5, 11 and 12): minimum 3 m³/h; rated 5 m³/h.

Feed capacity of the liquid oil sludge treatment line (Modules 2 and 3): minimum 10 m³/h; rated 15 m³/h.

Feed capacity of the thick oil sludge treatment line for sludge with a high ARPD content (Modules 6 and 7): minimum 5 m³/h; rated 10 m³/h.

Module 8 is required only when water must be treated before discharge onto land or into a natural water body.

Module 9 is shown as an operator room in the service area and is therefore not separately numbered in the layout.

Modules 1 and 4 are intake units. Module 1 uses floats and containment booms to collect floating oil products. Module 4 collects slurry and is equipped with a mast and a pneumatic piston pump.

The total estimated capacity for treatment of oil-contaminated soil and liquid and thick oil sludge in this configuration is at least 200,000 m³/year. This configuration includes two units each of Modules 5, 11 and 12.