OIL SLUDGE TREATMENT
CLEANING OF SOIL
AND GROUNDWATER
FORCE GROUP offers solutions to problems of the recycling and disposal of oily waste, elimination of heavy contamination with oil products and other toxic substances, and cleanup of soil, groundwater, and water bodies on the basis of unique technologies.

FORCE GROUP’s participation in United Nations activities.

In 2017 at the United Nations Headquarters the 55th session of the Commission for Social Development was held (55th SESSION OF THE COMMISSION FOR SOCIAL DEVELOPMENT (CSocD55)).

Following the discussion of problematic issues "Russian solutions for the World: technologies, methods and ways of sustainable development management. Theory and Practice".

The following resolution was adopted regarding to the activities of FORCE GROUP.

Excerpt:
In order to create favorable conditions for the expansion of the role and place of reserves in the technology, methods and means of management of sustainable development in modern conditions the participants of the Side Event consider necessary:

1. To agree and support: environmental program "Green Force", directed the elimination of heavy pollution with petroleum products and other toxic substances, recycling, and disposal of oily waste, cleanup of soil, groundwater, and water bodies on the basis of unique technologies.

2. To encourage the relevant organizations and individuals to cooperate fully in the implementation of the program of International group of companies "FORCE GROUP", which would make a significant contribution to ensuring ecological safety of human life on the planet, realizing the need for ecologically pure soil, air, water, food.
**FORCE GROUP** implements:

- Oil spill treatment
- Oil-contaminated waste re-treatment and recovery
- Cleaning of soil heavily contaminated with oil and other toxic substances
- Cleaning of groundwater and water surface
- Crude tank cleaning

**FORCE GROUP** technology ensures the maximum degree of cleaning without damaging the environment to maintain the balance of natural ecological system.

The technology provides the best result for our customers all over the world regardless of weather conditions and complicated location.

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**Our work has the following results:**

- Stop of hydrocarbons penetration into the natural (artificial) water bodies
- Complete cleaning of the contaminated soil
- Cleanup of hydrocarbons at the groundwater level.

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**THE ENVIRONMENTAL PROBLEMS THAT WE SOLVE**

BEFORE CLEANING

AFTER
CLEANING OF SOIL AND GROUNDWATER
You can solve the following tasks using our exclusive technologies:

- Hydrocarbons stop penetrating into the natural (artificial) water bodies
- Territory is cleaned up to all depth of contamination
- Soil is cleaned and groundwater is treated

KUWAIT OIL COMPANY APPROVAL
FORCE GROUP is approved by Kuwait Oil Company prequalification 58 category for Sluge Treatment & Soil Cleaning.

In May 2016 the samples of oil sludge waste were received from Kuwait Oil Company sites.
FORCE GROUP specialists conducted a range of laboratory tests and experiments with them. Some of those laboratory tests and experiments were conducted using original biological preparation - oil destructor, in order to identify the most appropriate neutralization technology.

According to the obtained results, the most efficient method of neutralization appeared to be the technology of energy-intensive method of washing of oilcontaminated soils using a mobile unit as well as the possibility to apply the method of microbiological treatment of these contaminations was confirmed.

One of the stages – using a slope bucket for homogenization with crude oil in portable homogenizer. In the result: Recovered product and solids.

Recovered product crude oil (without solids)

Solid (HC contents less than 10)
After process in portable unit for washing oil-contaminated soils (sandy soils, sandy loams, loams). One of the stages of processing is a biological preparation saturation.

**Bacteria-saturated clay with residual hydrocarbon contamination**

**Sand (content of residual hydrocarbon contamination less than 1%)**

**Residual hydrocarbons removal with application of phytoremediation.**

**Soil and groundwater washing method** can be applied in case when the depth of contamination exceeds the soil level by 0.5 meters.

Our is experienced and fully equipped to perform the whole process of soil remediation from the research to the oil spill response stage. In order to stop the extension of contamination, technology includes creation a filtration-proof wall using well points and a special solution.

The contaminated area is divided into separate plots. After that, several wells are drilled so that the speed of soil and groundwater cleaning accelerates.
Oil contaminated waste re:treatment and recovery

Production operations in various industries often affect the environment, health of people and economy.

FORCE GROUP technology treats and recovers the oil sludge directly in the place of its location: at the oil refineries, crude tanks, landfills, at the place of oil and oil products spills.

Technological and manufacturing capabilities of the Company enable it to process and neutralize newly generated as well as earlier accumulated oilcontaminated waste in sludge pits within the territories of oil and other enterprises using various methods.

FORCE GROUP system, duly balanced by our engineers and customized, enables clients to solve the problems with the complete liquidation of oily waste within the territory of the enterprise without resort to disposal services.

According to sludge volume, its physical and chemical composition as well as specific requirements, waste can be treated using microbiological method or the Technology of closed-cycle treatment of sludge with oil recovery and return to the technological process, with further microbiological neutralization of cake.

We need to mention that the economic effect constitutes another important aspect of our work: if quantity of hydrocarbons in oil-contaminated wastes exceeds 25%, we return the hydrocarbon part to production.
Treatment and Neutralization of Oil-Containing Waste

In order to determine the physical and chemical composition as well as the water cut level, the laboratory analysis of oil sludge, taken from different points of a sludge pit, is performed. Depending on the results, one of the ways of sludge preparation for treatment is used: via hydraulic underwashing inside the pit or via hydraulic washing in a specially designed transportable homogenizer.

Furtherly, after being treated at original centrifuges, the liquidized oil sludge is separated into centrate and cake, which can be treated using the self-developed biological preparation - oil destructor. As a result of the centrate settling, the recovered hydrocarbons are submitted to the client and the water can be recycled.

Main advantages of the technology:

- complete disposal of oil waste which means a permanent solution of oil waste problem
- hydrocarbons recovery and return to the production process
- high speed and quality level of the works performed
- application of the highest environmental standards
- adaptability of the technologies to different types of soil
- mobility of the technology
- no weather or seasonal restrictions
- elimination of the source and consequences of the negative impact to the environment
- relatively low flow of water due to its recycling
PEOPLE, ENVIRONMENT, PUBLIC AUTHORITIES, AND INSTITUTIONS BENEFIT IMMENSELY FROM OUR WORK.

Our technology has a number of undeniable advantages in comparison to other companies trying to work in ecological sphere:

- Verified environmental safety
- Absence of any hazardous side effects
- Recovery of hydrocarbons and their return to production cycle
- Prevention of groundwater contamination with hydrocarbons
- Micro-biological treatment of oil sludge or sediments at the specially equipped areas or their delivery to specialized landfills at request of the customers
- Treatment of contaminated soil and groundwater without damaging them
- Complete cleaning of the territory up to all depth of contamination at a depth of 70 meters
- Contaminated soil and groundwater treatment without excavation, i.e. without damaging the soil, extension of terms and growth of work costs
- Containment of contamination, impossibility of its spread beyond the working site
- Absence of chemicals application at production of works
- Dilatation of water inside each plot for soil and groundwater cleaning
- Absence of thermal treatment of soil
- Absence of radioactive components application
- Prevention of hazard of the used materials and chemicals penetration beyond the contaminated area at production of works
- Environmental friendliness of works, certification of all materials and availability of permits for the materials application
FORCE GROUP is an independent international association of companies. We focus on activities that can be assigned to key branches of the world economy.

Using unique technologies, significant experience and high-capacity resources including administrative leverage and stable relations all over the world, we offer to our partners vast opportunities and viable solutions.

United Nation Links:

https://sustainabledevelopment.un.org/partnership/?p=14858