CONTI CHEMICAL CO.

ECOTOR®

KFO

INNOVATIVE WASTEWATER TREATMENT TECHNOLOGY

2020

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Wastewater cavitation & enzyme treatment technology (branded as «KFO») may be applied for

- city and village wastewater treatment plants

- livestock facilities

- industry facilities

- reclamation of existing sludge deposits

Complete (tails-free) wastewater treatment

wastewater of any contamination level

atmosphere emission: NONE

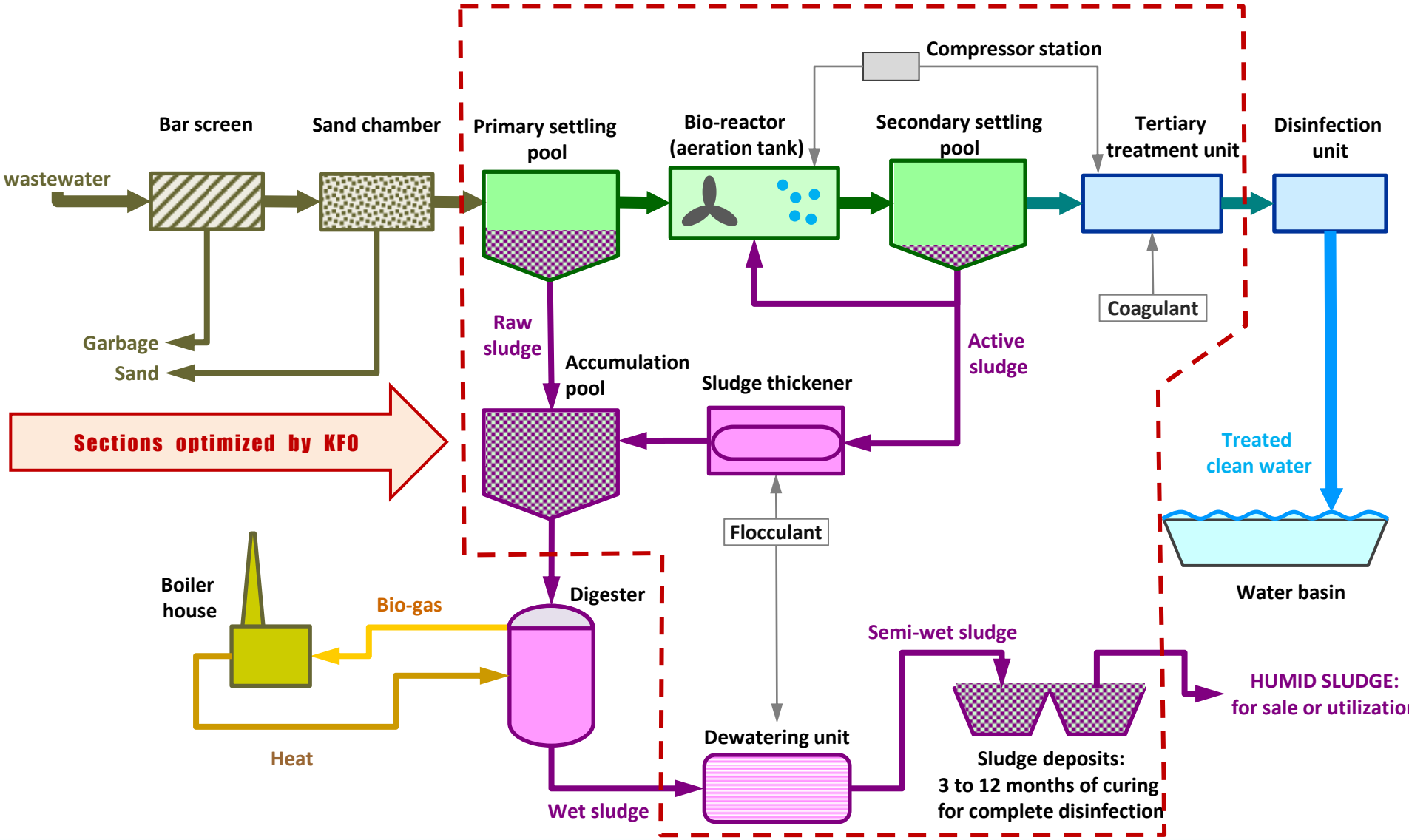
foul smell: NONE

liquid waste: NONE

water of any purification level (technical, river, fishery)

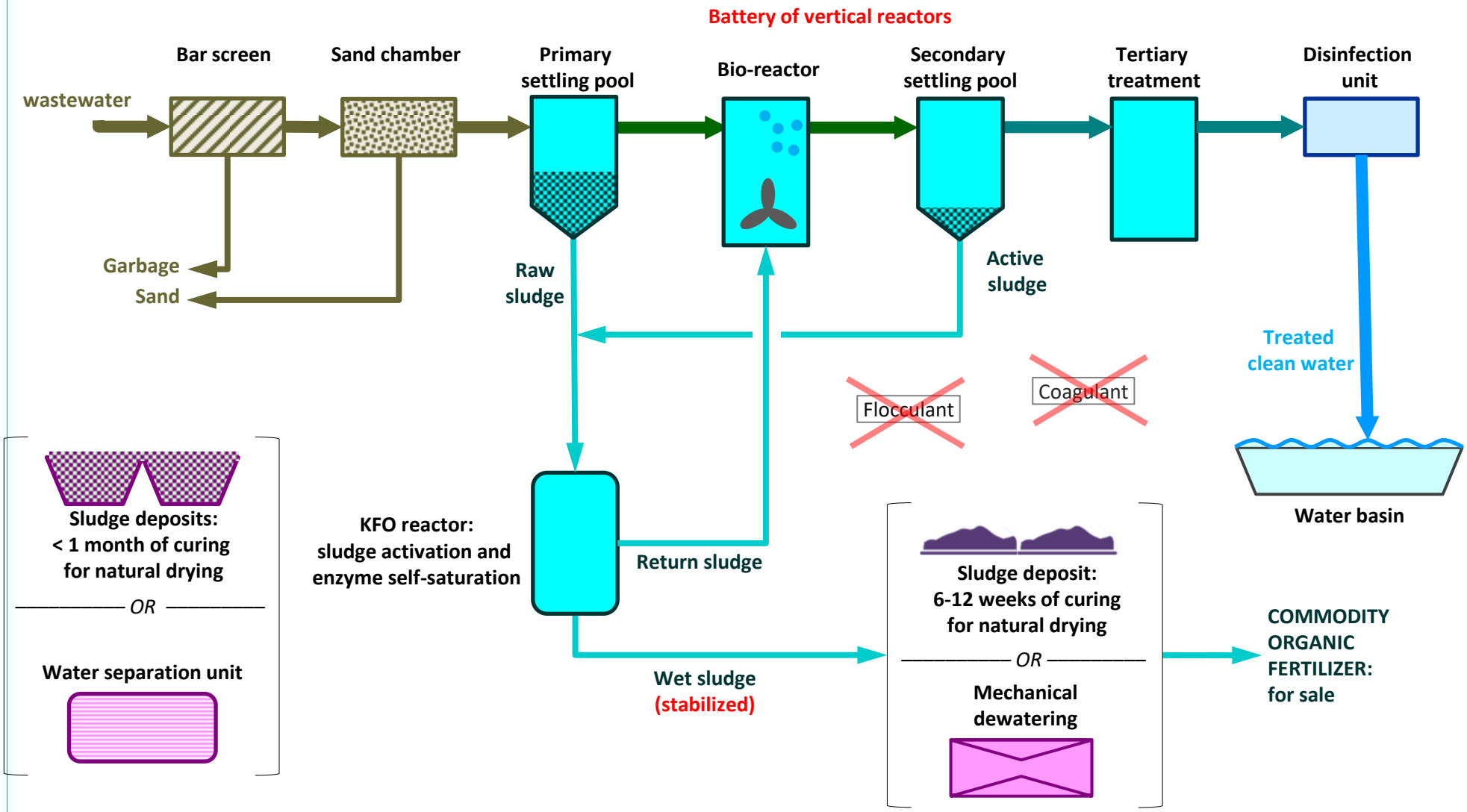
organic fertilizer (commercial product)

TRADITIONAL WWTP
(wastewater treatment plant)



KFO technology

option 1 – COMPLETE WASTEWATER TREATMENT



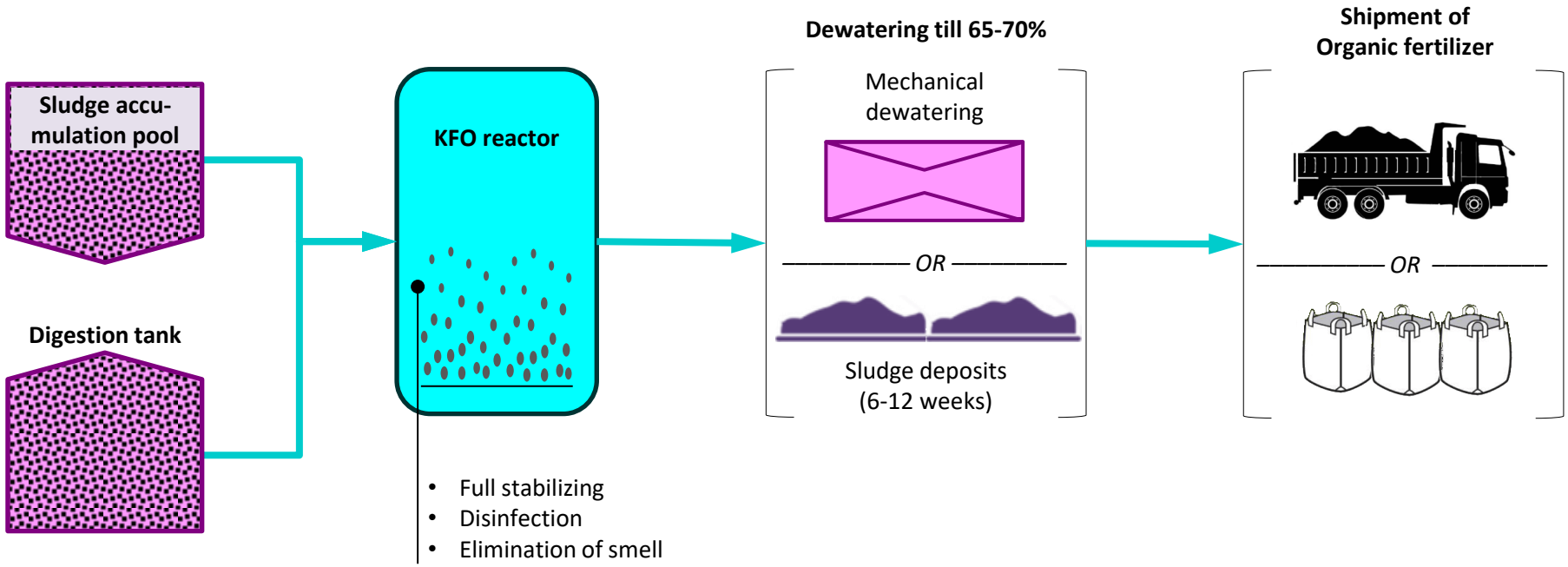
KFO technology

option 2 – SLUDGE TREATMENT at TRADITIONAL WWTP

Principle new and environment friendly technology of cavitation treatment of sludge.
KFO is the groundbracking enhancement of classic aerobic stabilization.

Advantages:

- **full sludge stabilizing in 6-12 h**
- **elimination of foul smell**
- **complete disinfection of sludge**
- **dewatered sludge is a complex organic fertilizer**



KFO technology efficiency

Comparative table of wastewater treatment requirements for discharge into fishery grade water basins

Indices	Russia	European Union	KFO
COD (Chemical Oxygen Demand) [mg/l]	max 30	40…125	**max 30**
BOD (Biochemical Oxygen Demand) [mg/l]	max 3	15…25	**max 3**
Suspended particles [mg/l]	max 3	20…40	**max 3**

KFO technology meets the most strict criteria for wastewater treatment

KFO technology key advantages

1. Plant footprint

Traditional WWTP

Wastewater treatment plant footprint
is reduced by 20 or more times!

Sludge deposits are removed
or significantly reduced

KFO technology

Use case: «Bektemir» WWTP (Tashkent, Uzbekistan)

Capacity: 25'000 m^3 of wastewater per day
Footprint: 5.6 ha (area is marked with white line)

KFO technology WWTP of the same capacity: ~0.2 ha
(50x40 m, area is marked by yellow)

Footprint reduction – 28 times

KFO technology key advantages

2. Complete absence of smell and environment emission

KFO technology WWTP may be located in just near residential areas

Sanitary zone is determined by the rules of pumping stations (10 - 30 m)

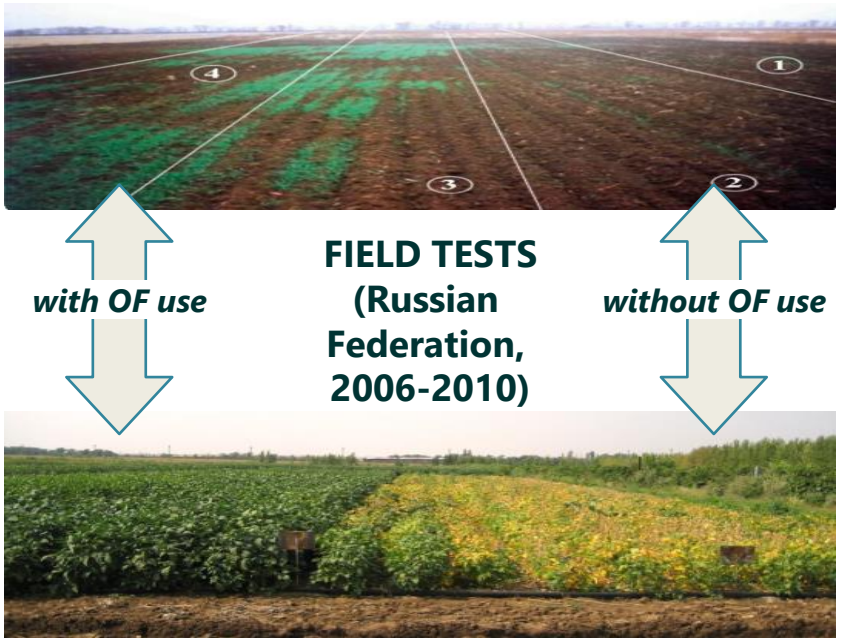
Use case:
KFO WWTP of Novorossiysk sea port (photo) is located within the city residential block

3. Commercial product

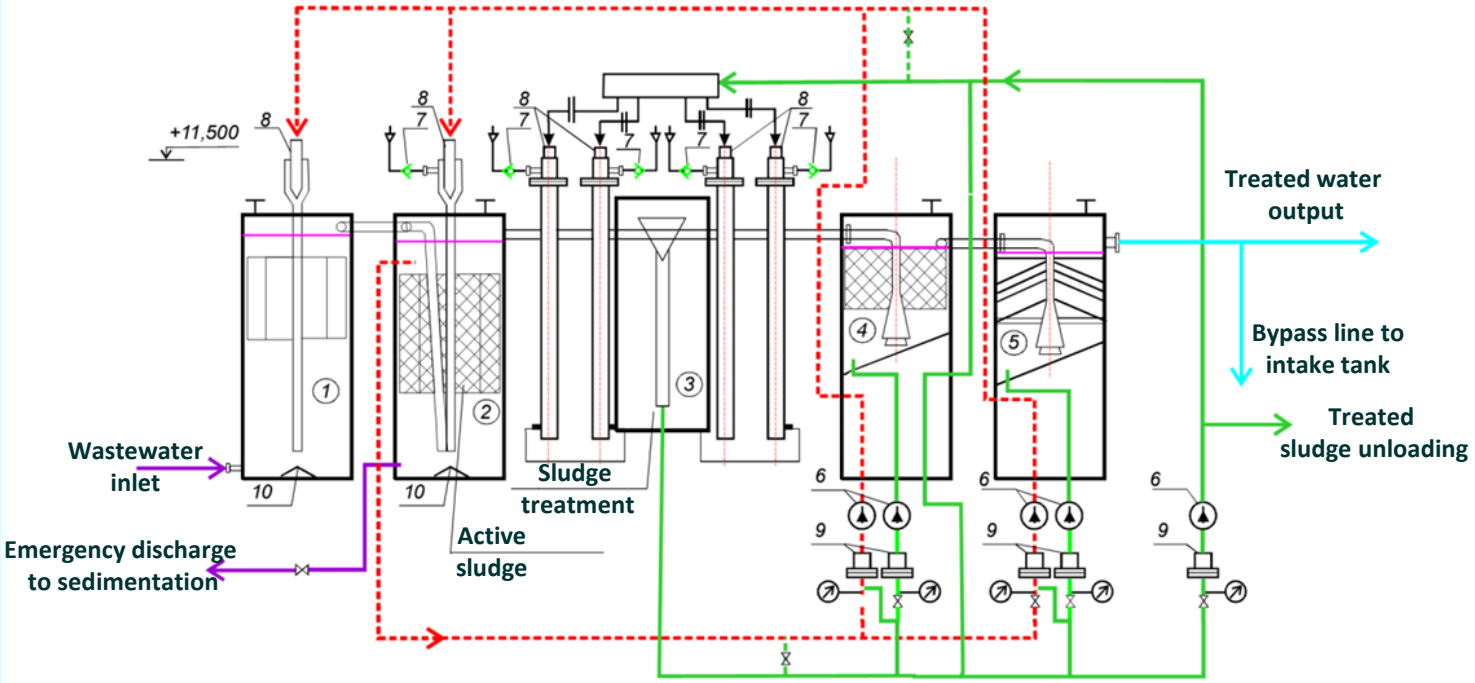
Instead of sludge produced by traditional WWTPs, KFO technology generates a commodity organic fertilizer (OF) – sterilized, dry and ready for immediate use

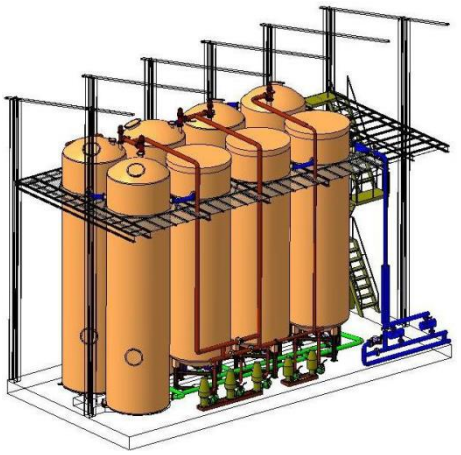
OF may be used to form a fertile layer of soil in a deserted area, for territory reclamation or to increase the fertility of poor soils.

According to the carried out tests, KFO technology produced OF increases the yields of agricultural crops for 2 or more times



KFO equipment layout (1)



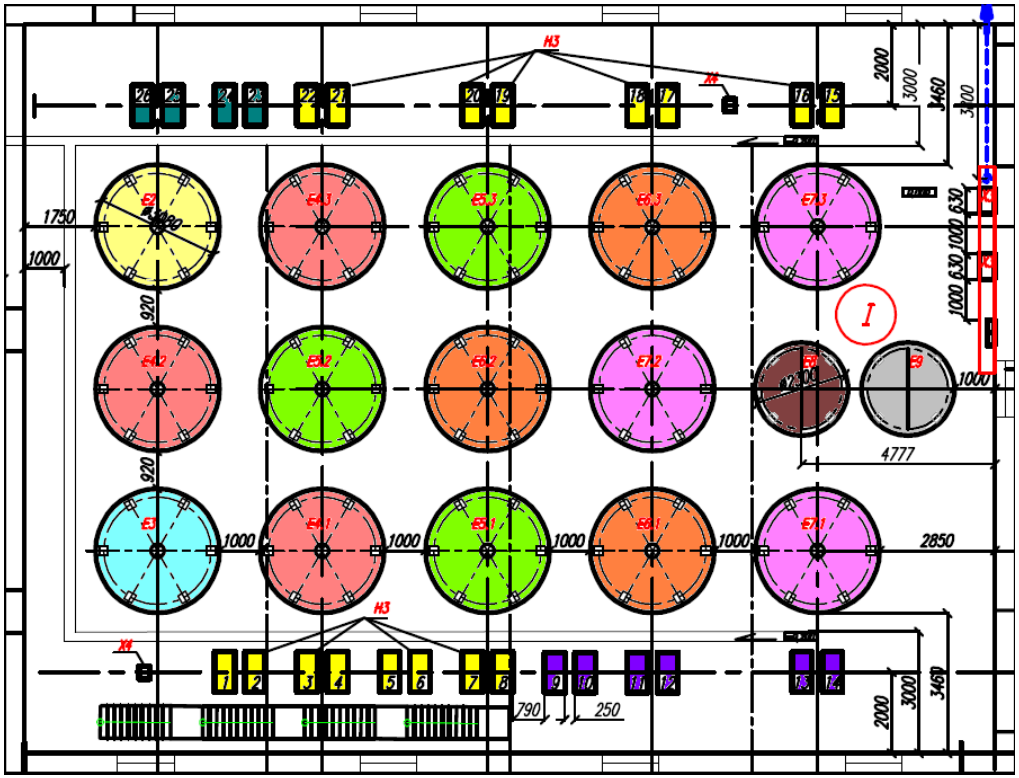


KFO equipment is composed of a set of vertical vessels installed together on a common foundation

KFO equipment layout (2)

KFO WWTP of small capacity (up to 300 m³/day) are supplied as a complete factory-made modules

KFO equipment layout (3)



Engineering large capacity WWTP, KFO equipment is modular assembled of standard units (vessels)

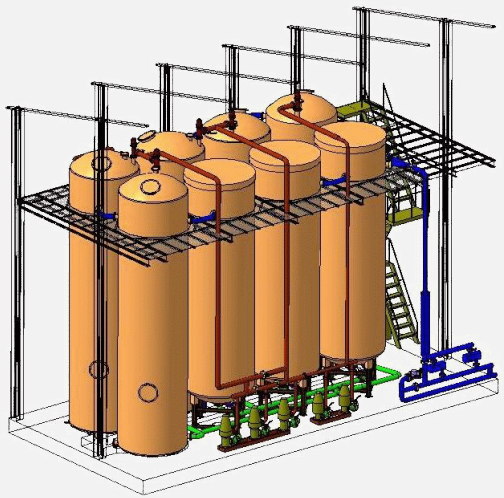
Using such layout, all of the KFO equipment can be placed within single lightweight building

Wastewater treatment of industrial facilities

Specialized wastewater treatment for the following industries:

- Transport and machinery
- Textile
- Chemical and biochemical plants
- Metallurgical
- Oil and gas refineries

KFO technology WWTP



Purified water discharge to water basins

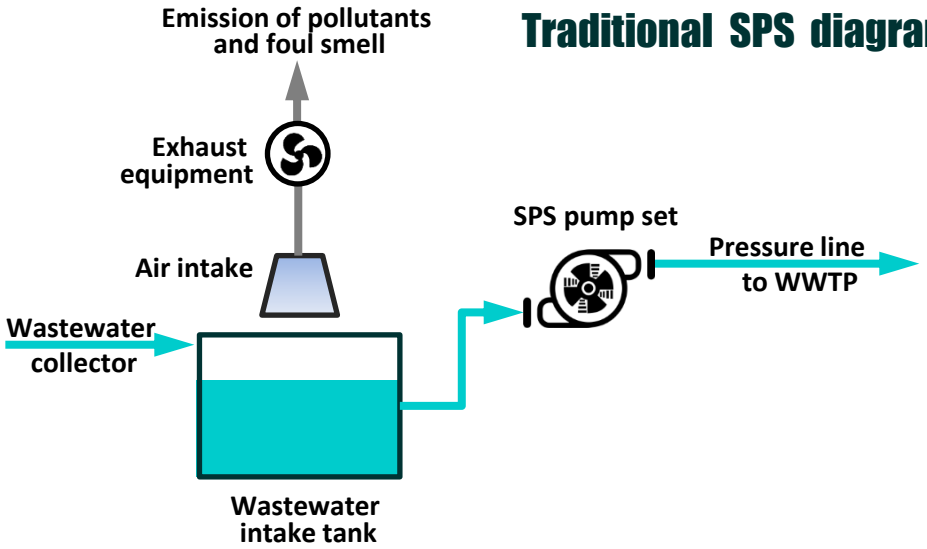
Purified water return to technological loop of the facility

For industrial facilities, specialized solutions for wastewater treatment are proposed, based on specificity of production technology and wastewater composition

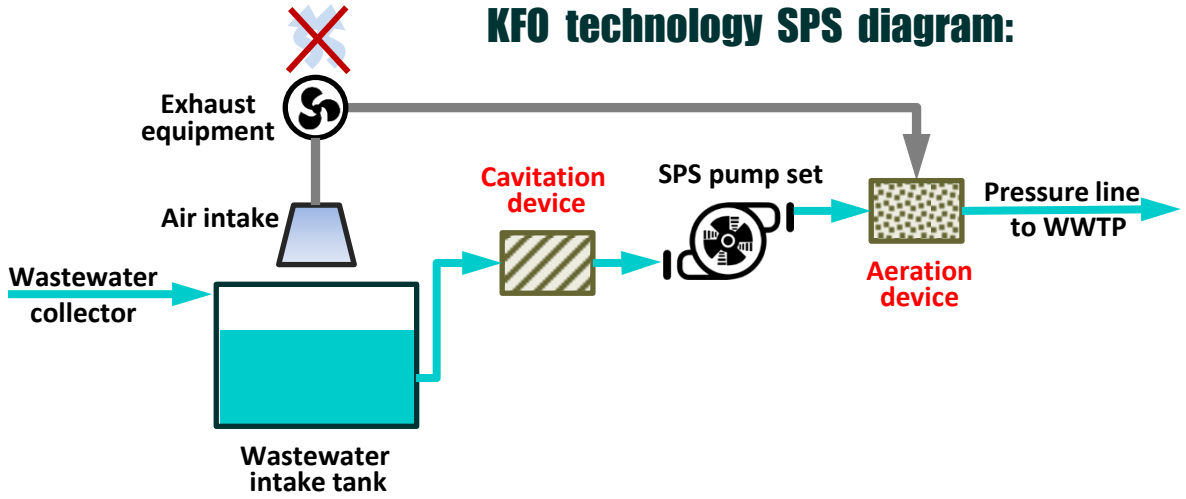
Elimination of smell and atmospheric emission at Sewage pumping stations (SPS)

- Complete elimination of foul smell
- Destruction of pathogenic organisms
- Aeration of wastewater in the pressure line to WWTP (chemical pre-treatment)

Traditional SPS diagram:



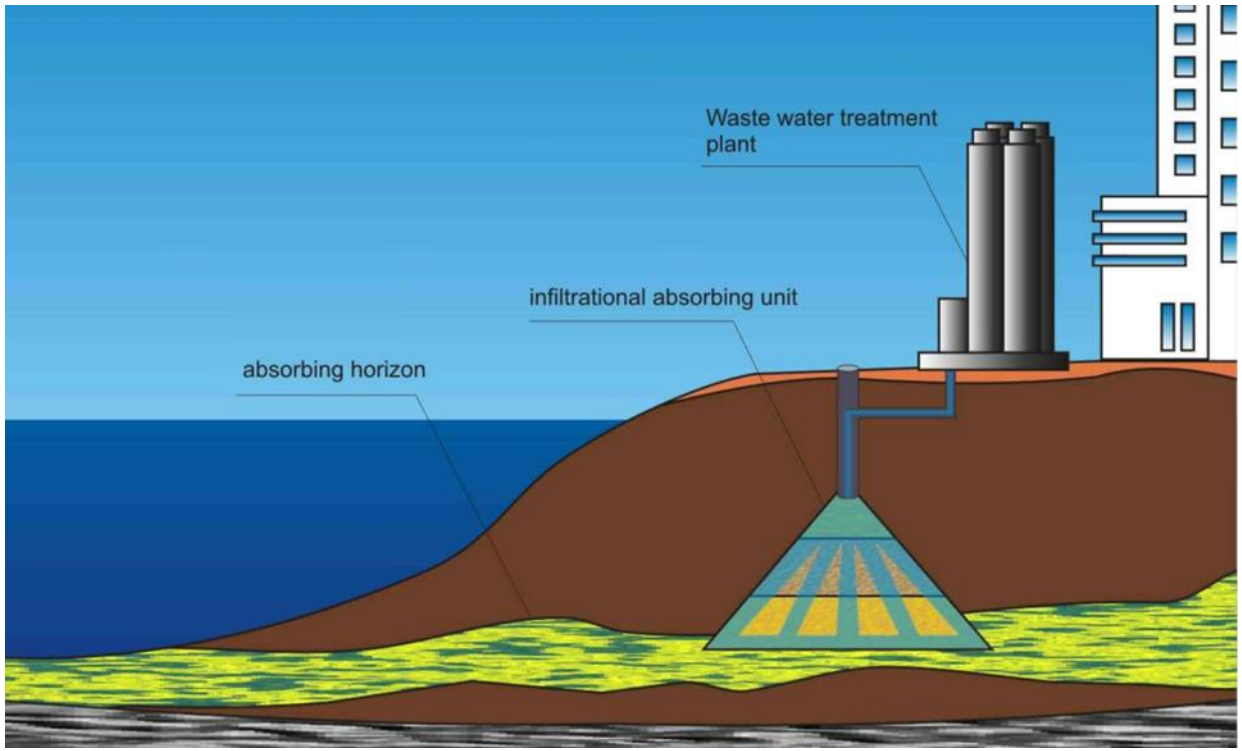
KFO technology SPS diagram:



Discharge of treated water into underground aquifers

This solution provides:

- **complete mixing of purified water with water of the basin**
- **improving the condition of the receiving basin**
- **solution of the issue with disposal of peak water volumes (e.g., storm-water sewage)**



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KFO technology is secured by Russian and international patents


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References

- operation experience since 1993
- more than 10 operating KFO WWTPs
- more than 30 engineering works
- can be designed for any capacity

Comparative table of properties of KFO and traditional WWTP

	KFO	Traditional WWTP
Wastewater treatment time	less than 12 h	10 … 20 h
Sludge stabilization time	less than 12 h fully stabilized	20 days and more partially stabilized
Sludge disinfection	complete	partial
Sludge post-processing	not required	required
Required footprint (comparative)	5 … 10 %	100 %
Sanitary gaps	20 … 50 m	150 m and more
Foul smell	none	present
Chemical reagents (coagulants, flocculants)	not required	required

KFO technology prevails traditional wastewater treatment methods by any of main parameters

Implementation of KFO technology WWTPs

KFO WWTP example in operation

Nurafshon city, Tashkent region, Uzbekistan

WWTP design parameters

KFO technology type	wastewater treatment – complete processing
Capacity	4 000 m^3/day
Purified water quality	drainage to natural pool
Sludge production (by DS)	less 10 kg per day
Sludge deposit squares	not required
WWTP layout and footprint	~50 x 30 m (0.15 ha)
Project implementation timeframe	8 months
Operation staff, per shift	1

Due to the compact layout, lack of smells and environmental emissions,
the WWTP can be located directly in the residential area, with a sanitary zone no more than 50 m.
The treated water can be applied on watering the park zone and agriculture crops in the surrounding areas

THANK YOU FOR YOUR ATTENTION

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