

## WATER PROTECTION FROM DISCHARGES

### 2.3. Treatment of industrial and surface waste water from power companies

#### 2.3.1. Technologies of treating industrial and surface waste waters from power companies

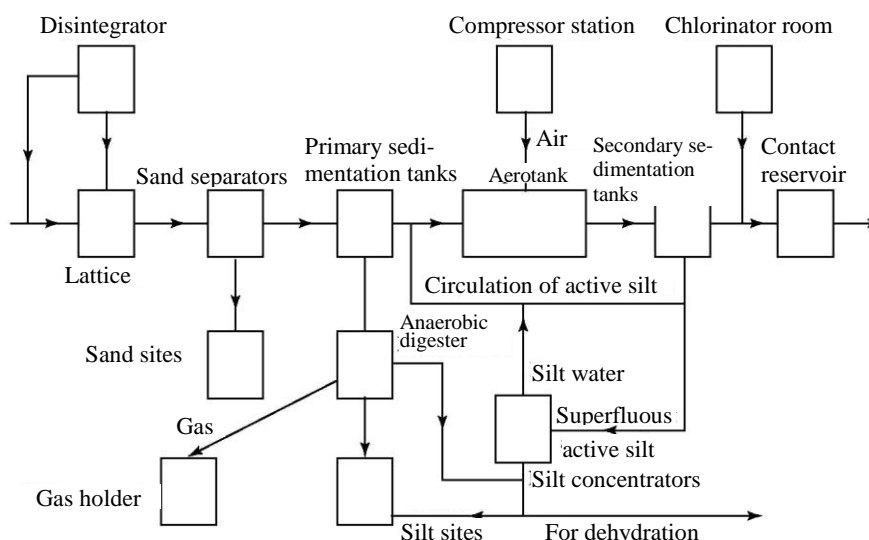
##### 2.3.1.1. General data on technologies of treating waste water from power companies

*Ksenofontov B.S., MSTU of Bauman*

A choice of the method depends on a variety of factors, in particular, requirements to the cleared waste water quality, location of the enterprise and availability of necessary power and material resources needed for waste water treatment, etc. [1—6]. The typical principal diagram of waste water treatment is presented in fig. 2.14. However, in practice the ex-

tensive variety of technological schemes and equipment for industrial and surface waste water treatment is applied [4—6].

Requirements to quality of water in water basins and water streams are presented in tab. 2.4.



**Fig. 2.14. Principal diagram of waste water treatment**

**Table 2.4. Allowed changes in water of water basins and water streams after cleared waste water discharge**

Characteristic of composition and properties of water in a water basin after waste water discharge	Requirements to water composition and properties in a water basin			
	Household and cultural-domestic category		Fishery use categories	
	I	II	I	II
Suspended substances content	Increase allowed not more that at			
	0,25 mg/l	0,75 mg/l	0,25 mg/l	0,75 mg/l
	For the reservoirs containing in low water more than 30 mg/l of natural mineral substances, the allowed increase is 5 % (discharge of the suspended substances with sedimentation speed of more than 0,4 mm/sec for flowing water reservoirs and more than 0,2 mm/sec for reservoirs are forbidden)			
Films of oil product, oil, grease and other floating impurities	Not allowed			
Smells, taste, colour	Smells and tastes of intensity no more than 2 points (initially or after water chlorination) are allowed. Coloring shouldn't be found in a column of water of 20 sm height		Foreign water smells, tastes and coloring influencing on fish meat are not allowed	
Water temperature	Increase is allowed of no more than 3 °C in relation to monthly average temperature of the most hot month		Shouldn't exceed 20 °C in summer and 5 °C in winter; in other cases — correspondently 28 and 8 °C	
Hydrogen index	Not higher than 6,5...8,5			
Mineral water content	The dry residue should be no more than 1000 mg/l (including chlorides to 300 and sulphate to 100 mg/l)		Not regulated	
Presence of diluted oxygen	Should be not less than 4 mg/l		Should be not less than 6 mg/l	In winter under ice there should be not less than 4 mg/l, in summer — not less than 6 mg/l

Biochemical oxygen consumption BOC <sub>total</sub> at the temperature of 20 °C	3 mg/l	6 mg/l	Shall not exceed 3 mg/l (if during the winter period the oxygen content in water decreases for reservoirs of I category to 6 mg/l, II category to 4 mg/l the discharge of water which is not influencing BOC is only allowed)
Disease originator	Not allowed (after disinfecting of biologically cleared water coli index shouldn't exceed 1000 under residual chlorine content of 1,5 mg/l)		—
Toxic substances	Are not allowed in concentrations, which can have direct or indirect harmful influence on live organisms		