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Annotation. This article provides normative calculations of water consumption and water supply for slate production, water consumption for technical processes and for household and drinking needs. As well as, wasted water analysis, monitoring and efficiency of the treatment plant.

Keywords: water consumption, calculation, chemical composition, waste water, treatment, analysis, slate.

1. Introduction

Providing water to industrial enterprises is one of the most important national economic tasks. In the vast majority of industries, water is used in production processes. Requirements for the quantity and quality of water supplied are determined by the nature of the technological process. Compliance with these requirements by the water supply system ensures the normal operation of the enterprise and the proper quality of the intake products.

In addition to water for technological needs, each enterprise requires water for the household and drinking needs of workers and employees, as well as for fire fighting purposes. Rapid scientific and technological progress, rapid growth of industry, energy, auto transport affect the environment and, in particular, the state of the air and water basin. Among the natural resources used in production, water occupies a special place.

Sources of household and drinking water supply at the company "URGUT TEXTLE SHIFER" is water from an artesian well located on a designated territory. Calculation of water consumption and sanitation standards for household drinking and fire-fighting needs was made in accordance with CMC 2.04.03-97 and CMC 2.04.01-98.

2. Methodology

The following methods are used to determine the composition and amount of pollutants in the exhaust gas streams:

- theoretical (balance);
- calculation and analytical (experimental);
- reporting-static.

The theoretical method allows to establish the composition and quantity of pollutants on the basis of drawing up thermal and material balances of technological processes taking into account the chemical composition and properties of raw materials, fuel, materials, structural and geometric features of units, technological parameters, processes that ensure maximum performance of units and data on specific emissions of pollutants of the operated equipment.

3. Analysis

The well is 130 m deep and is equipped with an ECV pump-8-25-150 with a capacity of 25. 0m³/hour. For production purposes, a receiving tank with a capacity of 10m³ is installed on the territory of the preparatory and molding Department, from which local water supply networks for industrial and fire-fighting water supply are built. Water consumption for household and drinking needs of the company's personnel is calculated using the formula:

r-number of employees, r=66 employees, 14 employees of ITR, MOS and AUP.

T - the planned number of working days, T=260 days.

Calculation of water consumption for workers.

$$25 \cdot 66 \cdot 260 / 1000 = 429 \text{ m}^3 / \text{year.}$$

Calculation of water consumption for ITR.

$$12 \cdot 14 \cdot 260 / 1000 = 43.68 \text{ m}^3 / \text{year}$$

Calculation of shower water consumption is made using the formula:

$$W_x = k \cdot N \cdot r \cdot T \cdot t / 1000$$

N-hour consumption for one shower grid, N=125HP Volvo Penta inboard engine

r-the number of shower screens, r=1 piece.

k-the number of shifts, k=1

T - the planned number of working days, T=260.

t-working time per shift, t=1 hour.

$$W_x = 125 \cdot 1 \cdot 1 \cdot 260 / 1000 = 32.5 \text{ M}^3 / \text{year or } 0.125 \text{ m}^3 / \text{day}$$

The rate of water disposal is equal to the rate of water consumption.

Floor cleaning of premises. Calculation of water consumption for washing floors in premises is made according to the formula:

$$W = (N \cdot S \cdot k \cdot T) / 1000 \text{ m}^3 / \text{year, where}$$

N-standard for washing 1m³, N=0.5 l

S is the area of the washable surface, S =220 m²

k-planned number of days of floor cleaning per year, k =1

T - planned number of days of floor cleaning per year, T=260 days.

W= (0.5*260*1*200)/1000=26m³ / year or 0. 1m³ / day.

The rate of water disposal is equal to the rate of water consumption. Watering green spaces. Water consumption is calculated using the formula:

$W=N*S*k*T/1000$

N-standard of one watering per square meter of plantings, N=4l

S-area of green spaces, S =1225 m²

k-planned number of waterings per day, k =1

T - planned number of irrigation days, T=100 days.

W=4*1225*1*100/1000=490m³ / year or 4. 9m³ / day.

Water consumption for irrigation of green spaces refers to irretrievable losses. Irrigation of hard surfaces. Water consumption is calculated using the formula:

$W=N*S*k*T/1000$

N-standard of one watering per 1m³ of coatings, N=0.5 l

S-area of solid coatings, S =1635 m²

k-the planned quantity of waterings per day, k =1

T - planned number of irrigation days, T=100 days.

W=0.5*1635*1*100/1000=81.8m³ / year or 0,8m³/day.

Water consumption for irrigation on a hard surface refers to irretrievable losses. The total water consumption for household and drinking needs for the enterprise will be: 9. 68m³ / day or 1030. 4m³ / year. Water in production for the production of slate is used for the preparation of asbestos-cement slurry, washing cloth and mesh molding machines, to ensure the operation of vacuum pumps. The water supply system is recycled and reused. Equipped with a three-stage sequential clarification sump. No runoff is formed.

Table 1

№	NH ₃	NO ₂ mg/ dm ³	pH	CL mg/ dm ³	Alkalinity mg / EQ	Biochemical oxygen demand mg/dm ³
1	-	2,3	11,8	762,5	2,1	13,6
2	-	1,8	10,8	550,0	2,4	12,0

Analyses of wastewater from natural lighting and slate production.

The efficiency of the treatment plant is:

$W=CH-SK/CH*100=2,3-1,8/2,3*100=21,73<50\%$.

4. Conclusion

Any techno genie activity, including the construction industry, is inevitably associated with the treatment of industrial and surface wastewater. Existing construction companies are characterized by the following problems: the lack of free space for the construction of treatment facilities, the impossibility or difficulty of re-laying sewer networks, the saturation of wastewater with a large number of heterogeneous pollutants and often the inability to separate flows from different technological processes, in the presence of treatment facilities, their technological and age-related failure.

In slate production, the work of the treatment plant does not correspond to the requirements of the standard. Household waste will be sent to the cesspool. Industrial effluents are not generated.

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